Teichert Shifler Mining and Reclamation Project

SCH# 2019089053

Draft Environmental Impact Report

Volume I of III (Chapters 1-8)

Prepared for
Yolo County

December 2020

Prepared by

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NOTICE OF AVAILABILITY AND PUBLIC MEETING for the DRAFT ENVIRONMENTAL IMPACT REPORT on the TEICHERT SHIFLER MINING AND RECLAMATION PROJECT

DATE: December 18, 2020
TO: Interested Agencies and Individuals
FROM: Yolo County Department of Community Services

The Draft Environmental Impact Report (DEIR) (SCH #2019089053) for the Teichert Shifler Mining and Reclamation Project is now available for review. Public comment on this document is invited for a 46-day period extending from Friday, December 18, 2020, to Tuesday, February 2, 2021. An online public meeting in front of the Planning Commission will be held on Thursday January 21, 2021, at 8:30 am to accept oral comments on the DEIR. More information is provided herein.

Yolo County is the Lead Agency for the preparation and review of a DEIR for the Teichert Shifler Mining and Reclamation Project. The project site consists of approximately 319.3 acres located three miles west of the City of Woodland in unincorporated Yolo County, California. The project site is bounded by Cache Creek to the north, County Road 94B to the west, County Road 22 to the south, and unpaved dirt access roads to the east. The site contains all, or portions of, the following Assessor's Parcel Numbers (APNs): 025-120-032, 025-120-033, 025-430-001, 025-430-002, 025-430-009, and 025-430-011.

Teichert Aggregates has submitted an application to the County to conduct mining and reclamation activities on 277.1 acres and undertake proposed modifications to portions of the Moore and Magnolia Canals. The proposal provides for setbacks, visual screening, noise and safety berms, aggregate conveyors, access roads, and other project-related uses on an additional 42.2 acres. The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project.

The applicant proposes mining of 41.6 million tons (35.25 million tons sold) of aggregate resources (sand and gravel) over a requested 30-year period at an annual rate not to exceed 2.6 million tons mined per year (2.2 million tons sold). Mining is proposed in two phases moving from north to south, commencing with Phase A on

the north. Reclamation is proposed in three phases, resulting ultimately in approximately 85.8 acres of agricultural land on the west, approximately 30.9 acres of agricultural land on the east, a 112.9-acre open water lake in the central portion of the proposed mining area, 23.9 acres of riparian habitat along the lake frontage, and 23.6 acres in grassy slopes and access roads.

The aggregate excavated from the subject site would be processed at the adjoining Teichert Woodland Plant, which has been operating since the 1950s. The processing plant and associated processing facilities are located on 132.2 acres comprised of three parcels (APNs 025-350-018, 025-350-037, and 025-120-039). Teichert also has a long-term lease agreement with the County for the use of a fourth parcel as a part of their plant operations. This parcel, totaling 6.65 acres, is known as the County Borrow Site (APN 025-120-041). The plant, including associated processing facilities, is considered part of the proposed project; however, no new areas of disturbance at the Woodland Plant site are proposed.

The project requires the following County approvals: General Plan Amendment (GPA) to extend the Mineral Resources Overlay (MRO) land use designation over approximately 212 acres of the 319-acre project site; rezoning to add a Sand and Gravel Overlay (SG-O) over the entire project site; approval of the proposed 30-year Off-Channel Surface Mining Permit for excavation on the Shifler site and to allow continued operation at the Woodland Plant site; approval to transfer permitted tonnage allocation from the Teichert Esparto and Teichert Schwarzgruber operations to the Teichert Shifler operation; approval of the proposed Reclamation Plan; authorization to exceed the maximum annual "base" permitted tonnage by up to 20 percent as provided in Section 10.4-405 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO); approval to mine closer than 700 feet from the channel bank pursuant to Section 10-4.429(d) of the OCSMO; and approval of a new Development Agreement between Yolo County and Teichert Aggregates.

The County and its consultant, Raney Planning and Management, have prepared a DEIR pursuant to the California Environmental Quality Act (CEQA). The DEIR identifies significant impacts in the following analysis areas: agricultural resources; air quality, greenhouse gas emissions, and energy; biological resources; cultural and tribal cultural resources; geology and soils, mineral resources, and paleontological resources; hazards and hazardous materials; hydrology and water quality; noise; transportation and circulation; and cumulative impacts (agricultural resources and transportation and circulation). A Final EIR (Response to Comments) will be prepared following public review and comment period. The County will consider this information when deliberating the project. Following certification of the Final EIR, the County may take action to adopt the proposed project.

The DEIR is now available for public review at the following website: www.yolonaturalresources.org. Printed or electronic copies (via flash drive) may be ordered at cost (including costs for delivery). An electronic copy of the document has been provided to the Woodland Public Library (250 First Street, Woodland, CA 95695) and the Esparto Regional Library (17065 Yolo Avenue, Esparto, CA 95627); however, access to these facilities may restricted or prohibited due to COVID-19 orders. Please contact Stephanie Cormier, Principal Planner (Planning Division), at (530) 666-8041 or Stephanie.Cormier@yolocounty.org for more information or to request a flash drive of the EIR.

You may submit comments on the DEIR during the 46-day public review period, which begins Friday, December 18, 2020, and ends Tuesday, February 2, 2021, at 4:00 pm. All comments on the DEIR must be received by the Yolo County Community Services Department by 4:00 pm on Tuesday, February 2, 2021, in order to be considered. Comments may be submitted by postal service, electronic mail, hand delivery, or

provided verbally at the Yolo County Planning Commission meeting on Thursday, January 21, 2021. Pursuant to Section 15088(a) of the CEQA Guidelines, late comments will be considered only at the County's discretion.

All comments must be directed to:

Stephanie Cormier, Principal Planner
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(530) 666-8041

Please note that County offices may have limited or modified hours due to COVID-19 orders. It is recommended to verify hours by visiting https://www.yolocounty.org/community-services. Additionally, the Community Services Department will be closed for the holidays from Friday, December 24, 2020, to Friday, January 1, 2021, and will reopen on Monday, January 4, 2021.

An online public meeting in front of the Planning Commission will be held on Thursday January 21, 2021, at 8:30 am to accept oral comments on the DEIR. There will be no transcription of oral comments at this meeting. Comments received will be summarized by staff for inclusion in the Final EIR. Those who wish to have their verbatim comments incorporated in the Final EIR must submit their comments in writing (via US postal service delivery or electronically to the contact information listed above).

You may watch and/or participate, in the meeting via computer by clicking on the link below and entering the Meeting ID Number: https://zoom.us/j/91217693177?pwd=bHRTaGxoSUlKOElON1E1czBjeVlEdz09, Meeting ID: 912 1769 3177. You can also listen and/or participate by phone by calling: 1-669-900-9128, Meeting ID: 912 1769 3177# Passcode: 174319

If you require special accommodations to participate in the public hearing, please contact the Yolo County Department of Community Services at (530) 666-8078. Please make your request as early as possible and at least one-full business day before the start of the meeting.

In compliance with CEQA Guidelines Section 15087(c)(6), the project site (including the plant site) is not identified as a known hazardous waste or disposal site on lists specified under Government Code Section 65962.5.5 (see page 4.7-4 of the DEIR).

Pursuant to California Government Code Section 65009(b)(2) and other provisions of law, any lawsuit challenging the approval of a project described in this notice shall be limited to only those issues raised at the public meeting or described in written correspondence delivered for consideration before the meeting is closed.

For more specific questions about the project, please contact Stephanie Cormier at the phone number or email identified above.

Teichert Shifler Mining and Reclamation Project
Draft Environmental Impact Report

SCH# 2019089053

Lead Agency

Yolo County
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TABLE OF CONTENTS

TABLE OF CONTENTS

VOLUME I

CHAPTER **PAGE**

1. Introduction 1-1

1.1 Introduction 1-1
1.2 Project Summary 1-1
1.3 Purpose of the EIR 1-3
1.4 EIR Process 1-4
1.5 Scope of the EIR 1-6
1.6 Comments Received on the NOP 1-7
1.7 Organization of the EIR 1-12

2. Executive Summary 2-1

2.1 Introduction 2-1
2.2 Summary Description of the Proposed Project 2-1
2.3 Environmental Impacts and Proposed and Recommended Mitigation 2-3
2.4 Summary of Project Alternatives 2-3
2.5 Areas of Controversy 2-4
2.6 Issues to be Resolved 2-4
2.7 Summary of Regulatory/Policy Consistency 2-4
2.8 Significant and Unavoidable Impacts 2-4

3. Project Description 3-1

3.1 Introduction 3-1
3.2 Overview and Background 3-1
3.3 Setting 3-4
3.4 Project Objectives 3-10
3.5 Project Components 3-12
3.6 Required Discretionary Approvals 3-31

4. Existing Environmental Setting, Impacts, and Mitigation

4.0 Introduction to the Analysis 4.0-1

4.0.1 Introduction to Environmental Analysis 4.0-1
4.0.2 Environmental Issues Addressed in this EIR 4.0-1
4.0.3 Project-Specific Technical Reports 4.0-1
4.0.4 Format of Issue Sections 4.0-2
4.0.5 Determination of Significance 4.0-2
4.0.6 Example Impact Statement and Discussion 4.0-3

CHAPTER **PAGE**

4.1 Aesthetics 4.1-1

4.1.1 Introduction 4.1-1
4.1.2 Existing Environmental Setting 4.1-3
4.1.3 Regulatory Context 4.1-11
4.1.4 Impacts and Mitigation Measures 4.1-14

4.2 Agricultural Resources 4.2-1

4.2.1 Introduction 4.2-1
4.2.2 Existing Environmental Setting 4.2-5
4.2.3 Regulatory Context 4.2-10
4.2.4 Impacts and Mitigation Measures 4.2-22

4.3 Air Quality, Greenhouse Gas Emissions, and Energy 4.3-1

4.3.1 Introduction 4.3-1
4.3.2 Existing Environmental Setting 4.3-3
4.3.4 Regulatory Context 4.3-23
4.3.4 Impacts and Mitigation Measures 4.3-38

4.4 Biological Resources 4.4-1

4.4.1 Introduction 4.4-1
4.4.2 Existing Environmental Setting 4.4-4
4.4.3 Regulatory Context 4.4-21
4.4.4 Impacts and Mitigation Measures 4.4-31

4.5 Cultural and Tribal Cultural Resources 4.5-1

4.5.1 Introduction 4.5-1
4.5.2 Existing Environmental Setting 4.5-2
4.5.3 Regulatory Context 4.5-9
4.5.4 Impacts and Mitigation Measures 4.5-16

4.6 Geology and Soils, Mineral Resources, and Paleontological Resources 4.6-1

4.6.1 Introduction 4.6-1
4.6.2 Existing Environmental Setting 4.6-2
4.6.3 Regulatory Context 4.6-6
4.6.4 Impacts and Mitigation Measures 4.6-13

4.7 Hazards and Hazardous Materials 4.7-1

4.7.1 Introduction 4.7-1
4.7.2 Existing Environmental Setting 4.7-2
4.7.3 Regulatory Context 4.7-5
4.7.4 Impacts and Mitigation Measures 4.7-14

CHAPTER **PAGE**

4.8 Hydrology and Water Quality 4.8-1

4.8.1 Introduction 4.8-1
4.8.2 Existing Environmental Setting 4.8-2
4.8.3 Regulatory Context 4.8-9
4.8.4 Impacts and Mitigation Measures 4.8-29

4.9 Land Use and Planning 4.9-1

4.9.1 Introduction 4.9-1
4.9.2 Existing Environmental Setting 4.9-1
4.9.3 Regulatory Context 4.9-2
4.9.4 Impacts and Mitigation Measures 4.9-13

4.10 Noise 4.10-1

4.10.1 Introduction 4.10-1
4.10.2 Existing Environmental Setting 4.10-4
4.10.3 Regulatory Context 4.10-12
4.10.4 Impacts and Mitigation Measures 4.10-16

4.11 Public Services, Utilities, and Service Systems 4.11-1

4.11.1 Introduction 4.11-1
4.11.2 Existing Environmental Setting 4.11-1
4.11.3 Regulatory Context 4.11-7
4.11.4 Impacts and Mitigation Measures 4.11-9

4.12 Transportation and Circulation 4.12-1

4.12.1 Introduction 4.12-1
4.12.2 Existing Environmental Setting 4.12-2
4.12.3 Regulatory Context 4.12-7
4.12.4 Impacts and Mitigation Measures 4.12-15

5. Cumulative Impacts and Other Required Sections 5-1

5.1 Introduction 5-1
5.2 Growth-Inducing Impacts 5-1
5.3 Required Findings 5-2
5.4 Cumulative Impacts 5-2
5.5 Significant Irreversible Environmental Changes 5-20

6. Alternatives Analysis 6-1

6.1 Introduction 6-1
6.2 CEQA Requirements for Alternatives Analysis 6-1
6.3 Selection and Analysis of Alternatives 6-3
6.4 Environmentally Superior Alternative 6-31

7. EIR Authors and Persons Consulted 7-1

8. References 8-1

VOLUME II

Appendices

Appendix A Notice of Preparation (NOP) and Initial Study
Appendix B NOP Comment Letters and Summary of Verbal Comments
Appendix C Mining and Reclamation Plan

VOLUME III

Appendices Continued (on USB Drive)

Appendix D Air Quality/Greenhouse Gas Modeling and Health Risk Assessment Modeling
Appendix E Biological Resource Assessments and Peer Review:

- E1: Biological Resources Assessment
- E2: Biological Resources Assessment Peer Review
- E3: Preconstruction Chiroptera (Bat) Survey

Appendix F Wetland Delineation Documentation

- F1: Wetland Delineation (2012)
- F2: Teichert Shifler Delineation Report (2019)
- F3: Shifler Project Site Aquatic Resources Delineation (2020)
- F4: USACE Wetland Delineation Update (2020)

Appendix G Cultural Resource Assessment
Appendix H Slope Stability Evaluation, Geology and Dewatering Memos

- H1: Shifler Slope Stability Evaluation
- H2: Teichert Shifler Geology Memo
- H3: Teichert Shifler Dewatering Memo

Appendix I Phase I and Limited Phase II Environmental Site Assessment
Appendix J Cache Creek Hydraulics Study and Channel Stability Analysis

- J1: Shifler Off-Channel Hydraulics Study
- J2: Shifler Off-Channel Stability Analysis

Appendix K Groundwater Study and Supplemental Groundwater Memo

- K1: Groundwater Conditions Memo
- K2: Supplemental Analysis of Groundwater Conditions

Appendix L Environmental Noise Assessment
Appendix M Transportation Impact Study and Vehicle Miles Travelled Impact Evaluation

- M1: Shifler Traffic Impact Study
- M2: Shifler Vehicle Miles Travelled Impact Evaluation

Appendix N Moore Canal Avoidance Alternative Mining and Reclamation Plans
Appendix O Moore Canal Avoidance Alternative Tech Memos

- O1: Moore Canal Avoidance Alternative Geotechnical Addendum
- O2: Moore Canal Avoidance Alternative Groundwater Memo

Appendix P Moore Canal Southern Alignment Alternative Mining and Reclamation Plans
Appendix Q Moore Canal Southern Alignment Alternative Tech Memos

- Q1: Moore Canal Avoidance Alternative Geotechnical Addendum
- Q2: Moore Canal Avoidance Alternative Groundwater Memo

Appendix R Cache Creek TAC Review of Teichert Mining and Reclamation Project Technical Memorandum

LIST OF FIGURES

FIGURE **PAGE**

3. Project Description

Figure 3-1 Regional Location Map....3-5
Figure 3-2 Project Area....3-6
Figure 3-3 Project Location Map....3-7
Figure 3-4 Existing Habitat, Wetlands, and Other Features....3-9
Figure 3-5 Surrounding Uses....3-11
Figure 3-6 Proposed Mining Plan....3-13
Figure 3-7 Woodland Plant: Existing Configuration....3-15
Figure 3-8 Canal Crossing and Ingress/Egress Locations....3-16
Figure 3-9 Haul Route Map....3-17
Figure 3-10 Proposed Stockpile Locations....3-18
Figure 3-11 Groundwater Monitoring Well Locations....3-21
Figure 3-12 Location of Existing Elderberry Shrubs....3-23
Figure 3-13 Visual Screening Exhibit....3-24
Figure 3-14 Proposed Phasing Plan....3-27
Figure 3-15 Proposed Reclamation Plan....3-29
Figure 3-16 Proposed General Plan Amendment....3-32
Figure 3-17 Proposed Rezone....3-33
Figure 3-18 In-Channel Bar Skimming....3-36
Figure 3-19 Dedication of Reclaimed Lands....3-37
Figure 3-20 Teichert Muller Trail Access B....3-40
Figure 3-21 Proposed Mining Limits....3-41
Figure 3-22 Proposed Mining Cross-Sections – Section A-A....3-42
Figure 3-23 Proposed Mining Cross-Sections – Section B-B....3-43
Figure 3-24 Proposed Mining Cross-Sections – Section C-C....3-44
Figure 3-25 Proposed Mining Cross-Sections – Section D-D....3-45
Figure 3-26 Proposed Mining Cross-Sections – Section E-E....3-46
Figure 3-27 Proposed Mining Cross-Sections – Section F-F....3-47
Figure 3-28 Proposed Mining Cross-Sections – Section G-G....3-48
Figure 3-29 Proposed Reclamation Elevations....3-49
Figure 3-30 Proposed Reclamation Cross-Sections – Section A-A....3-50
Figure 3-31 Proposed Reclamation Cross-Sections – Section B-B....3-51
Figure 3-32 Proposed Reclamation Cross-Sections – Section C-C....3-52
Figure 3-33 Proposed Reclamation Cross-Sections – Section D-D....3-53
Figure 3-34 Proposed Reclamation Cross-Sections – Section E-E....3-54
Figure 3-35 Proposed Reclamation Cross-Sections – Section F-F....3-55
Figure 3-36 Proposed Reclamation Cross-Sections – Section G-G....3-56

FIGURE **PAGE**

4.1 Aesthetics

Figure 4.1-1 Overview Map of Key Viewpoint Locations 4.1-7
Figure 4.1-2 Existing View of Project Site from County Road 94B Looking Southeast (Key Viewpoint #1) 4.1-8
Figure 4.1-3 Existing View of Project Site from County Road 94B Looking Northeast (Key Viewpoint #2) 4.1-8
Figure 4.1-4 Existing View of Project Site from County Road 22 Looking North 4.1-9
Figure 4.1-5 Existing View of Project Site from Monument Hill Memorial Park Looking North (Key Viewpoint #4) 4.1-9
Figure 4.1-6 Visual Screening Exhibit 4.1-18
Figure 4.1-7 Proposed Mining Plan and Setbacks 4.1-23

4.2 Agricultural Resources

Figure 4.2-1 On-Site Soil Map 4.2-8
Figure 4.2-2 FMMP Designation 4.2-11
Figure 4.2-3 CCAP and OCMP Planning Area Boundaries 4.2-24
Figure 4.2-4 California State Mining and Geology Board Designations 4.2-25
Figure 4.2-5 Mining Reclamation Plan 4.2-27

4.3 Air Quality, Greenhouse Gas Emissions, and Energy

Figure 4.3-1 Location of Nearby Sensitive Receptors and Other Sensitive Land Uses 4.3-16
Figure 4.3-2 Statewide GHG Inventory 4.3-20
Figure 4.3-3 2018 California Energy Consumption 4.3-21

4.4 Biological Resources

Figure 4.4-1 Existing Habitat, Aquatic Resources, and Other Features 4.4-7
Figure 4.4-2 Location of Existing Elderberry Shrubs 4.4-11
Figure 4.4-3 Nearby Special Status Species Occurrences 4.4-12
Figure 4.4-4 CNDDB Occurrences of Swainson's Hawk 4.4-16
Figure 4.4-5 Tree Locations 4.4-20
Figure 4.4-6 Location of Suitable Bat Habitat 4.4-42

4.6 Geology and Soils, Mineral Resources, and Paleontological Resources

Figure 4.6-1 Typical Slope Sections – Northeast and North Central 4.6-16
Figure 4.6-2 Typical Slope Sections – West and East 4.6-17

4.7 Hazards and Hazardous Materials

Figure 4.7-1 Local Evacuation Routes: Zone 35 ..... 4.7-6
Figure 4.7-2 Local Evacuation Routes: Zone 36 ..... 4.7-7
Figure 4.7-3 Watts-Woodland Airport Safety Zones (1 of 2) 4.7-24
Figure 4.7-4 Watts-Woodland Airport Safety Zones (2 of 2) 4.7-25

FIGURE **PAGE**

4.8 Hydrology and Water Quality

Figure 4.8-1 Cache Creek at Shifler Site with Proposed Streambank Stabilization Plan Components Shown 4.8-44

4.9 Land Use and Planning

Figure 4.9-1 Existing General Plan Land Use Designations 4.9-4
Figure 4.9-2 Existing Zoning Designations 4.9-7

4.10 Noise

Figure 4.10-1 Noise Levels Associated with Common Noise Sources 4.10-2
Figure 4.10-2 Noise Measurement Locations: On-Site 4.10-6
Figure 4.10-3 Noise Measurement Locations: Woodland Plant Area 4.10-8
Figure 4.10-4 Existing Receptor Locations 4.10-11

4.11 Public Services, Utilities, and Service Systems

Figure 4.11-1 Proposed Mining Cross Section – Moore Canal North of Mining Pit 4.11-17
Figure 4.11-2 Proposed Mining Cross Section – Moore Canal West of Mining Pit 4.11-18

4.12 Transportation and Circulation

Figure 4.12-1 Study Area 4.12-5

5 Cumulative Impacts and Other Required Sections

Figure 5-1 Off-Channel Mining Plan Boundary 5-5

6 Alternatives Analysis

Figure 6-1 Mining Setback 700 feet from Creek Alternative 6-6
Figure 6-2 Past, Current, and Future Mining within the Cache Creek Area Plan 6-13
Figure 6-3 Moore Canal Avoidance Alternative Conceptual Mining Plan 6-22
Figure 6-4 Moore Canal Avoidance Alternative Conceptional Reclamation Grading Plan 6-23
Figure 6-5 Moore Canal Southern Alignment Alternative Site Plan 6-27

LIST OF TABLES

TABLE **PAGE**

2. Executive Summary

Table 2-1 Summary of Impact and Mitigation Measures....2-6

3. Project Description

Table 3-1 Parcel Overview....3-2
Table 3-2 Teichert Tonnage Summary....3-4
Table 3-3 Typical Mining Equipment....3-19
Table 3-4 Mining and Reclamation Phasing Example....3-28

4.1 Aesthetics

Table 4.1-1 Visual Quality Evaluation Table....4.1-5
Table 4.1-2 Consistency with Applicable Standards....4.1-26

4.2 Agricultural Resources

Table 4.2-1 Land Capability Classification....4.2-3
Table 4.2-2 Storie Index Rating System....4.2-3
Table 4.2-3 On-Site Land Capability Classification and Storie Index Rating....4.2-7
Table 4.2-4 FMMP Designation Summary....4.2-10
Table 4.2-5 Mining and Reclamation Phasing Example....4.2-26
Table 4.2-6 Consistency with Applicable Standards....4.2-30

4.3 Air Quality, Greenhouse Gas Emissions, and Energy

Table 4.3-1 Summary of Criteria Pollutants....4.3-4
Table 4.3-2 Ambient Air Quality Standards....4.3-6
Table 4.3-3 Attainment Status....4.3-7
Table 4.3-4 Air Quality Monitoring Data Summary for Project Area....4.3-8
Table 4.3-5 Existing Agricultural Emissions....4.3-14
Table 4.3-6 Existing Controlled Mining Emissions....4.3-15
Table 4.3-7 Global Warming Potentials and Atmospheric Lifetimes of Select GHGs....4.3-18
Table 4.3-8 YSAQMD Thresholds of Significance....4.3-39
Table 4.3-9 Maximum Unmitigated Short-Term Emissions Related to Relocation of Moore Canal and Modification of Magnolia Canal....4.3-49
Table 4.3-10 Maximum Controlled Net New Operational Emissions....4.3-51
Table 4.3-11 Maximum Cancer Risk and Hazard Index Associated With DPM from Off-Road Equipment....4.3-56
Table 4.3-12 Maximum Cancer Risk and Hazard Index Associated With DPM from Haul Trucks....4.3-58

TABLE **PAGE**

Table 4.3-13 Maximum Cancer Risk and Hazard Index Associated With Respirable Silica....4.3-59
Table 4.3-14 Fuel Consumption – Woodland Plant....4.3-63
Table 4.3-15 Electricity Consumption – Woodland Plant....4.3-64
Table 4.3-16 Cumulative Health Risk....4.3-69
Table 4.3-17 Draft SMAQMD Health Effects Tool: Existing Conditions....4.3-72
Table 4.3-18 Draft SMAQMD Health Effects Tool: Project Conditions....4.3-73
Table 4.3-19 Net New Operational GHG Emissions....4.3-75
Table 4.3-20 Consistency with Applicable Standards....4.3-80

4.4 Biological Resources

Table 4.4-1 Consistency with Applicable Standards....4.4-53
Table 4.4-2 Special-Status Species and Other Protected Species with Potential to Occur within the Project Site....4.4-60

4.5 Cultural and Tribal Cultural Resources

Table 4.5-1 Consistency with Applicable Standards....4.5-24

4.6 Geology and Soils, Mineral Resources, and Paleontological Resources

Table 4.6-1 Consistency with Applicable Standards....4.6-30

4.7 Hazards and Hazardous Materials

Table 4.7-1 Consistency with Applicable Standards....4.7-27

4.8 Hydrology and Water Quality

Table 4.8-1 Groundwater Analysis Scenarios: 2019 Groundwater Memo....4.8-32
Table 4.8-2 Consistency with Applicable Standards....4.8-46

4.9 Land Use and Planning

Table 4.9-1 Summary of Adjacent Land Use Designations....4.9-5
Table 4.9-2 Summary of Adjacent Zoning Designations....4.9-6
Table 4.9-3 Consistency with Applicable Standards....4.9-15
Table 4.9-4 Setback Consistency....4.9-28

4.10 Noise

Table 4.10-1 Ambient Noise Measurement Results: Project Site....4.10-5
Table 4.10-2 Ambient Noise Measurement Results: Woodland Plant Area....4.10-7
Table 4.10-3 Existing Traffic Noise Levels and Distances to Contours....4.10-9
Table 4.10-4 Effects of Vibration on People and Buildings....4.10-12
Table 4.10-5 Reference Noise Levels for Excavation Equipment and Operations....4.10-20
Table 4.10-6 Projected Noise Levels at Nearest Receptors – On-Site Mining Operations....4.10-21



TABLE **PAGE**

Table 4.10-7 Existing Plus Project Traffic Noise Levels....4.10-23
Table 4.10-8 Vibration Levels for Various Construction Equipment....4.10-26
Table 4.10-9 Consistency with Applicable Standards....4.10-28

4.11 Public Services, Utilities, and Service Systems

Table 4.11-1 Projected 2030 Water Demand....4.11-5
Table 4.11-2 Consistency with Applicable Standards....4.11-20

4.12 Transportation and Circulation

Table 4.12-1 Woodland and Esparto Plants: Annual Vehicle Miles Traveled (Existing)....4.12-6
Table 4.12-2 Vehicle Miles Traveled (Mining Operations): Existing and Existing Plus Project....4.12-19
Table 4.12-3 Potential VMT Mitigation Feasibility Assessment....4.12-22
Table 4.12-4 Intersection LOS – Existing Plus Scenario 1....4.12-27
Table 4.12-5 Intersection LOS – Existing Plus Scenario 4....4.12-27
Table 4.12-6 Roadway LOS – Existing Plus Scenario 1....4.12-28
Table 4.12-7 Roadway LOS – Existing Plus Scenario 4....4.12-28
Table 4.12-8 Roadway Segment Capacity – Existing Plus Scenario 1....4.12-29
Table 4.12-9 Roadway Segment Capacity – Existing Plus Scenario 4....4.12-29
Table 4.12-10 Freeway LOS – Existing Plus Scenario 1....4.12-31
Table 4.12-11 Freeway LOS – Existing Plus Scenario 4....4.12-31
Table 4.12-12 Intersection LOS – Cumulative Plus Scenario 2....4.12-32
Table 4.12-13 Intersection LOS – Cumulative Plus Scenario 3....4.12-33
Table 4.12-14 Intersection LOS – Cumulative Plus Scenario 4....4.12-34
Table 4.12-15 Roadway LOS – Cumulative Plus Scenario 4....4.12-36
Table 4.12-16 Roadway Segment Capacity – Cumulative Plus Scenario 4....4.12-36
Table 4.12-17 Freeway LOS – Cumulative Plus Scenario 2....4.12-37
Table 4.12-18 Freeway LOS – Cumulative Plus Scenario 3....4.12-37
Table 4.12-19 Freeway LOS – Cumulative Plus Scenario 4....4.12-38
Table 4.12-20 Consistency with Applicable Standards....4.12-38

5 Cumulative Impacts and Other Required Sections

Table 5-1 Summary of CCAP Mining Tonnages....5-6
Table 5-2 Cumulative Plus Project Traffic Noise Levels....5-17

6 Alternatives Analysis

Table 6-1 Comparison of Environmental Impacts for Project Alternatives....6-33

1. Introduction

1. INTRODUCTION

1.1 INTRODUCTION

Teichert Materials (Teichert) has submitted an application to the County of Yolo (Yolo County or County) to conduct mining and reclamation activities on the Shifler property south of Cache Creek and west of the City of Woodland. This project is known as the Teichert Shifler Mining and Reclamation project (proposed project). The requested approval would be a discretionary action by Yolo County, which will serve as the lead agency under CEQA, responsible for the preparation of this Draft EIR. The proposed project is located within the boundaries of the Cache Creek Area Plan (CCAP) adopted by the Board of Supervisors in 1996, and most recently updated in 2019. The project must comply with the requirements of this program, including all relevant components of adopted plans and regulations. The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project.

The Teichert Shifler Mining and Reclamation Project Draft Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act of 1970, Pub. Res. Code § 21000 et seq., as amended (CEQA) and the Guidelines for Implementation of the California Environmental Quality Act, Cal. Code Regs. Title 14, § 15000 et seq. (CEQA Guidelines). As required by Section 15121 of the CEQA Guidelines, the purpose of an EIR is to: (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project; (b) identify possible ways to minimize the significant adverse environmental effects; and (c) describe reasonable project alternatives. It is not the purpose of an EIR to provide a recommendation of approval or denial of a project; rather the purpose is to disclose information related to environmental impacts. The County is required to consider the information in the EIR in deliberating the merits of the project.

1.2 PROJECT SUMMARY

This section provides an overview of the project location and components. For additional project description details, please refer to Chapter 3, Project Description, of this EIR.

Project Location

The project site consists of approximately 319.3 acres located on the 442.2-acre Shifler property, three miles west of the City of Woodland in Yolo County, California. The project site is bounded by Cache Creek to the north, County Road 94B to the west, County Road 22 to the south, and unpaved dirt access roads to the east.

Currently, the central and southern portions of the project site consist primarily of actively managed agricultural land. The northern portion of the site consists of scattered oak trees and

ruderal grassland vegetation, as well as an electric conveyor and associated gravel road formerly used to transport mined aggregate from Teichert's Storz mining site to the Woodland Plant located north of the project site. Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. The Yolo County General Plan designates the site Agriculture, and about half of the site (about 107 acres) is also designated with the Mineral Resource Overlay (MRO). The site is zoned Agricultural Intensive (A-N).

Project Components

The proposed project requests approval for mining and reclamation of the project site. Overall, the project would allow for mining of approximately 277 acres of the 319.3-acre project site. The four Shifler property parcels in their entirety total approximately 442.4 acres. The portions of the Shifler property within the Cache Creek channel and on Monument Hill have been excluded from the project site for the purpose of this analysis because no disturbance is proposed on those portions of the Shifler property. Thus, the 319.3-acre project site is limited to the proposed 277-acre mining area and surrounding areas needed for the proposed relocation/realignment of Moore Canal, setbacks, visual screening, noise and safety berms, aggregate conveyors, access roads, and other project-related uses described further below.

Excavated material from the proposed mining activities would be processed at the existing Teichert Woodland Plant facility to the northeast of the site. Activities would consist of mining aggregate for use throughout the region. Aggregate mined above the groundwater level would be harvested by scrapers and dozers. Aggregate mined below the water table would be extracted by a combination of equipment such as excavators, draglines, and potentially a floating dredge. In order to conduct the proposed mining activities, the project would require relocation of Moore Canal, construction of a conveyor over-crossing connecting to the Woodland Plant site, provision of new screening features along the southern site boundary, and various other grading and drainage improvements.

The relocated alignment of Moore Canal would be set back 200 feet from the existing channel bank of Cache Creek. The proposed mining activities would be set back 300 feet from top of bank, 50 feet from the County Road 94B right-of-way on the west side of the project site, and 50 feet from the Woodland Plant site to the northeast east. Berms and stockpiles may be located within mining setbacks; however, berms or stockpiles are not proposed within 100 feet of the top of bank of Cache Creek. In addition, the project would include a Reclamation Plan to be implemented after the proposed mining activities are concluded. Approximately 117 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake (113 acres) with riparian woodland along the fringes/shoreline (47.5 acres).

In order to allow mining equipment to move between the Woodland Plant and the Shifler mining site, an over-crossing of the relocated Moore Canal would be constructed as part of the proposed project. Aggregate trucks would continue to access the Woodland Plant site by way of the existing entrance on County Road 20, using the existing haul route discussed previously. This over-crossing would remain in place following reclamation.

The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate or evaporate. At the conclusion of mining, the site would remain contoured such that stormwater runoff would be directed to the reclaimed mining

area. As a part of the proposed Reclamation Plan, new stormwater detention basins would be provided within the western and eastern reclaimed agricultural areas of the site.
The project would require the following approvals by Yolo County:

- General Plan Amendment (GPA) to extend the Mineral Resource Overlay over the entire project site;
- Rezone to add a Sand and Gravel Overlay (SG-O) over the entire project site;
- Mining Permit (30-year Off-Channel Surface Mining Permit) for new excavation site, and continued operation at the Woodland Plant site;
- Transfer of annual permitted tonnage allocation from the Teichert Schwarzgruber and Teichert Esparto projects to the Teichert Shifler project;
- Reclamation Plan;
- Approval of 20 percent exceedance of annual production limits under County Code Section 10.4-405;
- Streambank Stabilization Plan; and
- Development Agreement.

In addition, the project would require the following approvals from responsible agencies:

- Approval of the proposed Moore Canal relocation (YCFCWCD Board of Directors);
- Clean Water Act Section 404 Permit (U.S. Army Corps of Engineers);
- Clean Water Act Section 401 Water Quality Certification (Central Valley RWQCB);
- Waste Discharge Requirements (WDRs) for use of sediment fines from the Woodland Plant site for reclamation of the project site (Central Valley RWQCB);
- SMARA Compliance Review (California Department of Conservation, Division of Mine Reclamation);
- Gas Well Abandonment Permit (California Department of Conservation, Division of Oil, Gas, and Geothermal Resources);
- Water Well Abandonment Permit (Yolo County Environmental Health Division).

1.3 PURPOSE OF THE EIR

As provided in CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors.

CEQA requires the preparation of an EIR prior to approving any discretionary project that may have a significant effect on the environment. For the purposes of CEQA, the term *project* refers to the whole of an action that has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment. (CEQA Guidelines Section 15378(a)). With respect to the proposed project, the County has determined that the proposed development is a project that has the potential to result in significant environmental effects within the definition of CEQA.

The EIR is an informational document that apprises decision-makers and the general public of the potential significant environmental effects of a proposed project. An EIR must describe a reasonable range of potentially feasible alternatives to the project and identify feasible measures to minimize any significant effects. The lead agency, which is Yolo County for this project, is required to consider the information in the EIR in deciding whether to approve or deny the

application. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth inducing impacts, and cumulative impacts.

1.4 EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study. Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies and, when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible and trustee State agencies are properly notified regarding the project and provide responses, if merited, within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Commenting agencies have 30 days to respond to the NOP. An NOP and Initial Study (see Appendix A) were prepared for the proposed project and circulated from August 16, 2019 to September 16, 2019. A public scoping meeting was held on September 12, 2019 for the purpose of informing the public and receiving comments on the recommended scope of the environmental analysis to be prepared for the proposed project. See Section 1.6 below for a summary of comments received on the NOP.

The NOP/Initial Study analyzed and concluded that the following effects would be less-than-significant and therefore would not require additional analysis in the Draft EIR:

- *Aesthetics (b):* The project site is not located within the vicinity of an officially designated State Scenic Highway. Thus, Initial Study concluded that the project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway, and a *less-than-significant* impact would occur.

- *Agriculture and Forest Resources (b, c, and d):* Per Section 8-2.604.5(e) of the County Code of Ordinances, surface mining operations are conditionally allowed in the A-N zone with a Special Sand and Gravel Overlay Zone (SG-O) zone and a Use Permit. The proposed project includes a request for a Rezone to add the SG-O zone to the project site and an application for a Mining Permit to allow for mining of the site. With approval of both entitlements, the project would not conflict with the site's existing agricultural zoning. Thus, the Initial Study concluded that a *less-than-significant* impact would occur related to conflicting with existing zoning for agricultural use or a Williamson Act contract. Furthermore, the project area is not considered forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). Therefore, the Initial Study concluded that the proposed project would have *no impact* with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

- *Geology and Soils (e):* The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the project. Portable toilet facilities would be provided at the project site and existing portable toilet facilities would continue to be used at the adjacent Woodland Plant. Therefore, the Initial Study concluded that *no impact* regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

- *Hazards and Hazardous Materials (c, d, and g):* The nearest school to the project site is Willow Oak School, located approximately 1.5 miles east of the site. Therefore, the Initial Study concluded that proposed project would result in a *less-than-significant* impact related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The project site is not identified on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, thus, *no impact* would occur. Furthermore, the proposed project would not expose people or structures to the risk of loss, injury, or death involving wildland fires. Therefore, the Initial Study concluded that the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands, and a *less-than-significant* impact would occur.

- *Noise (c):* Per the Watts-Woodland Airport Comprehensive Land Use Plan, the northwestern portion of the project site north of the Moore Canal lies within Safety Area 2 (Approach-Departure Zone), while the remainder of the project site lies within Safety Area 3 (Overflight Zone). The proposed project would not include the construction of housing or habitable structures within the site. Therefore, the Initial Study concluded that the proposed project would not expose people residing or working in the project area to excessive noise levels related to air traffic, and a *less-than-significant* impact would occur.

- *Population and Housing (a and b):* The proposed project would not include the development of any new housing. Employees required for the proposed mining operations would be transferred from the existing Esparto Plant. The project would employ approximately 52 workers (28 currently employed at the Woodland Plant and Schwarzgruber site, and 24 currently employed at the Esparto plant and site). For this reason, this workforce would not represent an increase in the overall number of employees associated with aggregate mining and processing in the project area. In addition, the project site is located adjacent to the existing Woodland Plant facility, and other approved mining sites are located within close proximity to the site. Thus, the project would not be located within an undeveloped area. Furthermore, given that the project site is currently used for agricultural production and does not contain any existing habitable structures, the project would not displace existing people or housing. Therefore, the Initial Study concluded that the proposed project would not induce substantial unplanned population growth in the project area, either directly or indirectly, and would not displace substantial numbers of existing housing or people such that replacement housing would be required elsewhere in the County. A *less-than-significant* impact would occur.

- *Public Services (c):* The proposed project would not include the construction of new homes and, thus, would not introduce new residents to the project area. Therefore, the proposed project would have a *less-than-significant* impact related to the need for new or physically altered schools, the construction of which could cause significant environmental impacts.

- *Recreation (a):* The proposed project would not include residential development and would not induce population growth within the project area. Therefore, the project would not result in substantial physical deterioration of any existing neighborhood or regional parks or other recreational facilities. Consequently, the Initial Study concluded that a *less-than-significant* impact would occur.

- *Utilities and Service Systems (c, d, e):* As noted above, portable toilet facilities would be provided at the project site and existing portable toilet facilities would continue to be used at the adjacent Woodland Plant. Therefore, the project would not require connection to public wastewater conveyance and treatment infrastructure. In addition, the proposed mining and reclamation activities would not generate a substantial quantity of solid waste. Any minor increases in solid waste generation occurring as a result of the proposed project would be offset by equivalent reductions in solid waste generation due to planned closure of the nearby Schwarzgruber mining site. Therefore, the Initial Study concluded that a *less-than-significant* impact related to wastewater and solid waste would occur as a result of the proposed project.

- *Wildfire (All Sections):* According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is not located within or near a Very High or High FHSZ. Only the northernmost portion of the site adjacent to Cache Creek is mapped as a Moderate FHSZ, while the remainder of the site is not located within a FHSZ. Furthermore, the project would not include the development of housing or habitable structures within the project site. Thus, the Initial Study concluded that the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a *less-than-significant* impact would occur.

The Draft EIR provides an analysis of impacts determined to be potentially significant in the areas of: Aesthetics; Agricultural Resources; Air Quality, Greenhouse Gas Emissions, and Energy; Biological Resources; Cultural and Tribal Cultural Resources; Geology and Soils, Mineral Resources, and Paleontological Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Noise; Public Services, Utilities, and Service Systems; and Transportation and Circulation.

The Draft EIR will be circulated for a minimum of 45 days, during which time reviewers may make comments. The review period for this Draft EIR is identified in the Notice of Availability inserted after the cover page. Following the public review period, the County will respond to comments in writing, describing the disposition of any significant environmental issues raised by the commenter. The Draft EIR will be revised, if needed, and a Final EIR (Response to Comments document) will be released.

The Final EIR will include a Mitigation Monitoring and Reporting Program (MMRP). The intent of the MMRP is to ensure the implementation of adopted mitigation measures. The MMRP will provide for monitoring of construction activities as necessary and in-the-field identification and resolution of environmental concerns. The applicant will be responsible for fully understanding and effectively implementing the mitigation measures contained within the MMRP.

The Yolo County Planning Commission will consider the project and provide a recommendation to the Board of Supervisors regarding certification of the EIR and action on the project. The Board of Supervisors will take final action on the project.

1.5 SCOPE OF THE EIR

This EIR constitutes a project-level analysis, and pursuant to CEQA Guidelines Section 15161, covers “all phases of the project including planning, construction, and operation.” State CEQA Guidelines Section 15126.2(a) states, in pertinent part:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the NOP is published, or where no NOP is published, at the time environmental analysis is commenced.

Pursuant to these guidelines, the scope of this EIR addresses specific issues and concerns identified as potentially significant in the NOP prepared for the proposed project (see Appendix A). The County determined that the following issues will be addressed in the EIR:

- Aesthetics;
- Agricultural Resources;
- Air Quality, Greenhouse Gas Emissions, and Energy;
- Biological Resources:
- Cultural and Tribal Cultural Resources;
- Geology and Soils, Mineral Resources, and Paleontological Resources;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Noise;
- Public Services, Utilities, and Service Systems; and
- Transportation and Circulation.

The evaluation of effects is presented on a resource-by-resource basis in Chapters 4.1 through 4.12 of the EIR. Each of these chapters is divided into four sections: Introduction, Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures.

Impacts that are determined to be significant, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as significant and unavoidable. Chapter 5 of the EIR presents a discussion of growth-inducing impacts, summary of cumulative impacts, and significant irreversible environmental changes associated with the project. Alternatives to the proposed project are also discussed in Chapter 6 of the EIR.

1.6 COMMENTS RECEIVED ON THE NOP

Yolo County received 53 timely comment letters, plus verbal comments presented at September 12, 2019 Planning Commission scoping meeting. Another six letters were received after the close of the comment period. Copies of all of these letters are provided in Appendix B and a list of the commenters is provided below:

1. Rigo Torres – 8.18.19
2. Matthew Pirtle – 8.18.19
3. Lisa Nicholas – 8.18.19
4. Pacific Gas and Electric Company – 8.19.19
5. Elise Brandwajn – 8.19.19
6. Gregory Ramirez – 8.19.19
7. Jon Huffine – 8.21.19
8. California Department of Conservation – Division of Oil, Gas, and Geothermal Resources – 8.22.19

9. California Department of Conservation – Division of Land Resource Protection – 8.26.19
10. Julie Frommelt Payne – 8.26.19
11. Aaron Johnson – 8.27.19
12. Pamela Van Brocklin – 8.29.19
13. Rudy Lopez – 8.29.19
14. Joyce and Ranse Reynolds – 8.29.19
15. Eric Dowdy – 8.29.19
16. Mark and Katherine Stinson – 8.30.19
17. Yolo-Solano Air Quality Management District – 9.3.19
18. Yolo County Environmental Health Division – 9.4.19
19. Tim and Barbara Sharp – 9.4.19
20. Annette Davis – 9.4.19
21. Dale Sumersille and Dawne Koranda – 9.4.19
22. Northwest Information Center – 9.5.19
23. California Department of Fish and Wildlife – 9.6.19
24. Heidi Frommelt Potter – 9.6.19
25. Bea Leonardi – 9.6.19
26. Cathy Stamey – 9.6.19
27. Julie Payne – 9.8.19
28. Native American Heritage Commission – 9.10.19
29. Margaret Kronenberg – 9.10.19
30. Ruth Schreiber (verbal comment) – 9.10.19
31. Monique Marin – 9.11.19
32. NOP Public Scoping Meeting – 9.12.19
33. Dayle Murray – 9.12.19
34. Joyce and Ranse Reynolds – 9.13.19
35. Diane Tauzer – 9.13.19
36. Jerry and Stacy Beckwith – 9.14.19
37. Lynn Shaw Reynolds – 9.14.19
38. Thomas Wilkop – 9.15.19
39. Keila Golden – 9.15.19
40. Sergio Hernandez – 9.15.19
41. Amanda Jarose – 9.15.19
42. Georgia Cochran – 9.16.19
43. Daren Robbins – 9.16.19
44. Barbara Koerber – 9.16.19
45. George Lu – 9.16.19
46. Ryan Payne – 9.16.19
47. Janet Levers – 9.16.19
48. Phil and Mary Beck – 9.16.19
49. Joyce Reynolds – 9.16.19
50. Alan Koerber – 9.16.19
51. Lori Sinor – 9.16.19
52. Cynthia Johe – 9.16.19
53. Paul Sinor – 9.16.19
54. Ryan Hall – 9.16.19

Letters Received After Close of the Comment Period

55. Monique Marin – 9.16.19
56. Rick and Janet Sitts – 9.16.19
57. Ruth Schreiber – 9.17.19
58. Laura Smyth – Wild Wings HOA, Community Association Manager – 9.18.19
59. Paul Crist – 9.19.19
60. California State Clearinghouse – 8.16.19

The following list, categorized by issue, summarizes the concerns brought forth in the comment letters and where the comments are addressed within this EIR:

Aesthetics (see Chapter 4.1)	Concerns related to: • Aesthetic impacts due to the loss of agricultural land and open space. • Visual impacts of the project site from the Monument Hill Memorial Park cemetery. • Views of mining equipment and fencing.
Agricultural Resources (see Chapter 4.2)	Concerns related to: • The conversion of prime farmland to non-agricultural uses. • Reclamation of the site back to farmland. • Conflict with agricultural zoning or the Williamson Act. • The percentage of agricultural land relative to total mining acreage of the site. • The Williamson Act Contract and State Reclamation regulations. • Health of topsoil post-reclamation. • Agricultural conservation easements regarding the removal of prime farmland. • Incremental impacts leading to cumulative impacts on agricultural land.
Air Quality, Greenhouse Gas Emissions, and Energy (see Chapter 4.3)	Concerns related to: • Increase in criteria pollutants and greenhouse gas (GHG) emissions. • Dust associated with mining operations. • Impacts on air quality from the use of heavy-duty mining equipment. • Impacts to animal health from air emissions. • Use of renewable energy at project site. • Use of electric vehicles to replace heavy-duty equipment. • Movement of mined material on railways rather than on-road hauling. • Compliance with the Environmental Protection Agency's (EPA) Tier 4 emission standards. • Compliance with the 2016 California Green Building Standards Code. • Provision of electric vehicle parking infrastructure. • Provision of electrical power to any long-haul heavy-duty trucks parked on-site. • Planting of vegetation at border of project site to potentially screen diesel particulate matter. • Use of carbon credits to offset potential GHG emissions. • Odor impacts from construction and operations of the proposed project. • Potential impacts on nearby sensitive receptors, including the school operated by the West Valley Baptist Church, and sensitive receptors along truck routes. • Construction of Class I Bicycle infrastructure to the project site.

Biological Resources (see Chapter 4.4)	Concerns related to: • The presence of listed rare, threatened, endangered, locally unique, and special-status species. • Potential impacts to wildlife habitat on the project site. • Potential impacts to rivers, streams, lakes, or other waterways in the area. • Potential impacts to migratory birds and birds of prey that may be present in the project area. • Impacts to wildlife movement corridors and migratory species. • Negative impacts to Cache Creek Nature Conservancy.
Cultural and Tribal Cultural Resources (see Chapter 4.5)	Concerns related to: • Potential impacts to tribal cultural resources. • Potential impacts to unknown archaeological resources. • Potential impacts to historical resources, specifically the Moore Canal.
Geology and Soils, Mineral Resources, and Paleontological Resources (see Chapter 4.6)	Concerns related to: • The depletion of minerals and natural resources. • Risk of soil erosion during mining operations. • Potential impacts to the relocation of the Moore Canal. • The erosion of Cache Creek from gravel mining and bank disturbances. • Potential impacts from the removal of topsoil and soil compaction.
Hazards and Hazardous Materials (see Chapter 4.7)	Concerns related to: • Potential impacts regarding the abandonment of existing well systems. • Increased mosquito population from the reclaimed lake. • Potential impacts from vector-borne diseases. • Potential impacts from the disposal of asphalt remnants. • Potential impacts from soil contamination. • Potential impacts from the handling of hazardous materials, hazardous waste generation, aboveground storage tanks, and waste tires. • Potential impacts related to emergency access and evacuation.
Hydrology and Water Quality (see Chapter 4.8)	Concerns related to: • Existing issues with water supply and quality. • Current concentrations of boron and arsenic in the water. • Water quality impacts regarding the removal of the natural filtering system of topsoil, natural rocks, and minerals. • Potential impacts to the groundwater table. • Potential impacts to water supply. • Depth to the groundwater table following reclamation of the site. • Potential impacts from the connectivity of the reclaimed lake and the active creek channel. • Sand and other debris which could enter water wells during mining operations. • Potential impacts to water supply in the event of a drought. • Potential impacts to water flows from the Moore Canal relocation. • Potential impacts regarding the rising water levels of Cache Creek.
Land Use and Planning (see Chapter 4.9)	Concerns related to: • Potential impacts to nearby schools, including the school operated by the West Valley Baptist Church. • Impacts to Yolo Fliers Club, which organizes activities for children. • Delay in completion of reclamation as compared to other mining sites. • Potential impacts on local schools and outdoor recreation areas. • Potential impacts to the Monument Hill Memorial Park cemetery.

Noise (see Chapter 4.10)	Concerns related to: • Potential noise impacts to neighboring residences from mining operations and increased traffic. • Noise impacts on the Monument Hill Memorial Park cemetery. • Mining and processing noise impacts during hours outside of the regular hours of operation. • Increased vibrations from on-site mining equipment and gravel trucks traveling on the roadways. • Impacts on farm animals and handlers from increased noise. • Outdoor events that could be impacted by noise pollution. • Noise generation from truck back-up beepers, conveyor belts, and security alarms. • Compliance with hours of operation.
Public Services, Utilities, and Service Systems (see Chapter 4.11)	Concerns related to: • Cumulative impacts related to wastewater, groundwater, and other utility services. • Violence and crime that could increase, particularly by people trespassing and breaking into private property. • The purchase of supplemental electricity from the grid which could be generated from solar, wind, geothermal, or small-scale hydroelectric generation sources. • Potential impacts to existing gas and electric facilities.
Transportation and Circulation (see Chapter 4.12)	Concerns related to: • Cumulative transportation and circulation impacts. • Potential impacts to County Roads 20, 21, 95B, 96, 97, and 98, State Route 16, and Kentucky Avenue. • Increased vehicle volumes leading to wear and tear on local roadways. • Increased hazards on roadways resulting from traffic congestion. • Trucks entering and exiting the project site from County Road 94B. • Damage to vehicles traveling on State Route 16 from large gravel trucks and increased debris on the roadways. • Potential impacts to State Route 16 and surrounding access to roads and highways. • Lack of traffic signal at the intersection of State Route 16 and County Road 94B. • Lack of access to Interstate 505. • On-site vehicle parking and electric vehicle charging (EVC) stations. • Pedestrian and bicycle infrastructure facilities. • Need for background traffic counts to accurately reflect seasonal variations in traffic volumes. • Compliance with the truck haul road regulations and standards. • Impacts to narrow roadways that already experience a substantial amount of traffic by farmers, residents, and commuters. • Reduction of the speed limit on County Road 96. • Potential impacts regarding the stability of the County Road 94B bridge.
Alternatives (see Chapter 6)	Concerns related to: • Project alternatives that include a different project site. • Project alternatives that incorporate a Reduced Footprint/Aggregate Tonnage Alternative.

All of these issues are addressed in this EIR, in the relevant chapters identified in the first column.

1.7 ORGANIZATION OF THE EIR

The EIR for the proposed project is organized into the following chapters:

Chapter 1 – Introduction

Provides an introduction and overview describing the intended use of the EIR and the review and certification process, as well as summaries of the chapters included in the EIR and summaries of the issues and concerns identified by the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary

Summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, summarizes significant and unavoidable impacts, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation. Summarizes the results of the analysis of alternatives.

Chapter 3 – Project Description

Provides a detailed description of the proposed project, including project location, background information, major objectives, technical characteristics, and discretionary approvals required for the project to proceed.

Chapter 4 – Existing Environmental Setting, Impacts, and Mitigation

Contains a project-level analysis of environmental issue areas associated with the proposed project. Each environmental issue chapter contains an introduction and description of the project setting, identifies impacts, and recommends appropriate mitigation measures, if needed.

Chapter 5 – Cumulative Impacts and Other Required Sections

Provides other analysis required by CEQA including cumulative impacts, potential growth-inducing impacts, and significant irreversible changes to the environment.

Chapter 6 – Alternatives Analysis

Describes the alternatives to the proposed project, their respective environmental effects, and a determination of the environmentally superior alternative.

Chapter 7 – EIR Authors and Persons Consulted

Lists EIR and technical report authors who provided technical assistance in the preparation and review of the Draft EIR.

Chapter 8 – References

Provides bibliographic information for all references and resources cited.

Appendices

Includes NOP, comments received during the NOP comment period, Initial Study and all technical reports prepared for the proposed project.

2. Executive Summary

2. EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Executive Summary chapter of the EIR provides an overview of the proposed project (see Chapter 3, Project Description, for further details), a summary of the conclusions of the environmental analysis provided in Chapters 4.1 through 4.12, Chapter 5, and a summary of the project alternatives. This chapter also includes a summary of areas of controversy known to the County, issues to be resolved, a summary of the regulatory/policy consistency analysis provided in the EIR, and a list of all significant and unavoidable impacts identified in the EIR. Table 2-1 summarizes the environmental impacts associated with the proposed project, the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures.

2.2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

Teichert Materials has submitted an application to Yolo County to conduct mining and reclamation activities on the Shifler property south of Cache Creek and west of the City of Woodland. This project is known as the Teichert Shifler Mining and Reclamation project. The requested approval would be a discretionary action by Yolo County. As such, the County is the lead agency under CEQA, responsible for the preparation of this Draft EIR. The proposed project is located within the boundaries of the Cache Creek Area Plan (CCAP) adopted by the Board of Supervisors in 1996, and most recently updated in 2019. The project must comply with the requirements of this program, including all relevant components of adopted plans and regulations. The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project.

The project site consists of approximately 319.3 acres located three miles west of the City of Woodland in unincorporated Yolo County, California. The site contains all or portions of four parcels identified by Assessor's Parcel Numbers (APNs) 025-120-032, 025-120-033, 025-430-001, and 025-430-002. The four Shifler property parcels in their entirety total approximately 442.4 acres. However, the portions of the Shifler property within the Cache Creek channel and on Monument Hill have been excluded from the project site for the purpose of this analysis because no disturbance is proposed to those portions of the Shifler property. Thus, the 319.3-acre project site is limited to the proposed 277.1-acre mining area and surrounding areas needed for the proposed relocation/realignment of Moore Canal, setbacks, visual screening, noise and safety berms, aggregate conveyors, access roads, and other project-related uses.

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. Most of the project site (APNs 025-120-

032 and 025-430-002) was subject to a Williamson Act contract that expired at the end of January 2016. The northern portion of the site consists of scattered oak trees and ruderal grassland vegetation, as well as an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant located north of the project site. Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. The Yolo County General Plan designates the site as Agriculture (AG), with a portion also designated Mineral Resource Overlay (MRO). The site is zoned Agriculture Intensive (A-N).

The proposed project would allow for mining on 277.1 acres of the 319.3-acre project site. All of the proposed mining area would be off-channel and set back more than 200-feet from Cache Creek. The project proposes relocation of Moore Canal to an alignment along the western and northern boundary of the project site. Relocation would occur prior to commencement of mining within 50 feet of the canal. The relocated Moore Canal would be concrete-lined and have an access road on each side for periodic maintenance by the YCFCWCD. Aggregate mined from the project site would be processed at the existing Woodland Plant located northeast of the site. Two over-crossings of the relocated Moore Canal would be constructed to facilitate the transport of aggregate by conveyor to the Woodland Plant site and to allow mining equipment to access the project site from the Woodland Plant site. Topsoil or “overburden” would be removed and stockpiled. The marketable sand and gravel deposits below would be continuously loaded and hauled to the plant by conveyor.

Following mining activities, approximately 117 acres of the mining area would be reclaimed to agricultural use, approximately 113 acres to lake, and the remaining 47.5 acres to grasslands and riparian habitat.

The proposed project would require County approval of the following:

- General Plan Amendment (GPA) to extend the MRO over the entire project site;
- Rezone to add a Sand and Gravel Overlay (SG-O) over the entire project site;
- Mining Permit (30-year Off-Channel Surface Mining Permit) for new excavation site, and continued operation at the Woodland Plant site;
- Transfer of annual permitted tonnage allocation from the Teichert Schwarzgruber and Teichert Esparto projects to the Teichert Shifler project;
- Reclamation Plan;
- Approval of 20 percent exceedance of annual production limits under County Code Section 10.4-405;
- Streambank Stabilization Plan; and
- Development Agreement.

In addition, the project would require the following approvals/permits from other agencies:

- Approval of the proposed Moore Canal relocation (YCFCWCD Board of Directors)
- Clean Water Act Section 404 Permit (U.S. Army Corps of Engineers)
- Clean Water Act Section 401 Water Quality Certification (Central Valley RWQCB)
- Waste Discharge Requirements (WDRs) for use of sediment fines from the Woodland Plant site for reclamation of the project site (Central Valley RWQCB)

- SMARA Compliance Review (California Department of Conservation, Division of Mine Reclamation)
- Permit to Plug Abandoned Gas Well (California Department of Conservation, Division of Oil, Gas, and Geothermal Resources)
- Well Abandonment Permit from Yolo County Environmental Health

Please refer to Chapter 3, Project Description, of this EIR for a detailed description of the proposed project and entitlements, as well as a list of the applicant's project objectives.

2.3 ENVIRONMENTAL IMPACTS AND PROPOSED AND RECOMMENDED MITIGATION

A summary of the impacts identified in the impact analysis sections of the EIR is presented in Table 2-1. In addition, Table 2-1 includes the level of significance of each impact, mitigation measures identified for each impact, and the resulting level of significance after implementation of mitigation measures for each impact.

2.4 SUMMARY OF PROJECT ALTERNATIVES

The following section presents a summary of the evaluation of the alternatives considered for the proposed project, which include the following:

- No Project Alternative: This alternative assumes that applicant will finish mining out their operations at the Esparto and Schwarzgruber sites, followed by closure and reclamation of the two plant sites. The proposed excavation on the Shifler site would not occur at this time, and the site would remain in its current condition;
- Off-Site Alternative: Under this Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other off-site lands within the Cache Creek Area Plan area that are currently zoned SGRO. Mined aggregate would be hauled to the Woodland Plant for processing; and
- Reduced Tonnage Alternative: This alternative assumes the existing annual permitted tonnage allocation associated with the Teichert Esparto operation would not be transferred to the Teichert Shifler operation. Thus, the Alternative would be limited to a maximum of total of 1.4 million tons mined (1.2 million tons sold) in any given year.
- Moore Canal Avoidance Alternative: This alternative assumes that mining and reclamation would commence as proposed except that the relocation of Moore Canal would not occur.
- Moore Canal Southern Alternative: This alternative assumes that mining and reclamation would commence as proposed except that Moore Canal would be relocated to the southern border of the project site rather than the northern border.

For a more thorough discussion of project alternatives, please refer to Chapter 6, Alternatives Analysis.

Environmentally Superior Alternative

As detailed in Chapter 6, Alternatives, the Moore Canal Southern Alignment Alternative would result in reduced impacts compared to the proposed project, meet all the project objectives, and would be considered the Environmentally Superior Alternative.

2.5 AREAS OF CONTROVERSY

CEQA Guidelines Section 15123(b)(2) requires a discussion of areas of controversy known to the lead agency, including issues raised by agencies and the public. The following areas of controversy have been identified.

- Approval of new mining site at this location;
- Impacts to agricultural land;
- Consideration of Tribal Cultural Resources;
- Analysis of potential for adverse impacts in CEQA impact areas, especially noise and vibration, aesthetics, air quality and odor, traffic and access, hydrology and water quality, and others;
- Proximity to Wild Wings subdivision;
- Effects on property values;
- Effects on quality of life for residents in the area;
- Hours of operation;
- Transfer of tonnage allocation from Esparto to Shifler;
- Relocation of the Moore Canal;
- Effects on Monument Hills Memorial Park cemetery;
- Success of approved and proposed reclamation; and
- Security and crime associated with reclamation.

2.6 ISSUES TO BE RESOLVED

CEQA Guidelines Section 15123(b)(3) require a discussion of issues to be resolved, including a choice of alternatives and whether or how to mitigate the significant effects of the proposed action. The primary issues to be resolved for this project include the issues raised above, whether or not to approve the project, consideration of identified mitigation measures, identification of appropriate conditions of operation, and identification and acceptance of “net gains”.

2.7 SUMMARY OF REGULATORY / POLICY CONSISTENCY

Section 15125(d) of the CEQA Guidelines requires that EIRs include a discussion of any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans. A number of plans and regulations apply to the proposed actions including, but not limited to, the Surface Mining and Reclamation Act, the Yolo County General Plan, the County Zoning Ordinance, the CCAP, and the Surface Mining and Reclamation Ordinance (SMRO). Chapters 4.1 through 4.12 of this EIR includes an analysis of the proposed project’s consistency with applicable policies and regulations specific to each resource area.

2.8 SIGNIFICANT AND UNAVOIDABLE IMPACTS

According to CEQA Guidelines, an EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented (CEQA Guidelines §15126.2(b)). Such impacts would be considered unavoidable when the determination is made that either mitigation is not feasible or only partial mitigation is feasible such that the impact is not reduced to a level that is less-than-significant. This section identifies significant impacts that could not be eliminated or reduced to a less-than-significant level by mitigations imposed by the County. The final determination of the significance of impacts and the feasibility of mitigation measures would be made by the County as part of the County’s certification action. The significant and

unavoidable impacts of the proposed project are listed below. A complete analysis of the significant and unavoidable impacts can be found in Chapters 4.2, 4.5, 4.12, and 5 of this EIR.

4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

4.5-1 Cause a substantial adverse change in the significance of a historical resources as defined in Section 15064.5.

4.5-4 The project has the potential to eliminate important examples of the major periods of California history or prehistory.

4.12-2 Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

5-2 Cumulative impacts to farmland.

5-14 Cumulative impacts to transportation and circulation.

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1 Aesthetics				
4.1-1	**Have a substantial adverse effect on a scenic vista.**	LS	*None required.*	N/A
4.1-2	**Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.**	LS	*None required.*	N/A
4.1-3	**In a non-urbanized area, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point).**	LS	*None required.*	N/A
4.1-4	**Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**	LS	*None required.*	N/A
4.1-5	**Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of**	LS	*None required.*	N/A

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
avoiding or mitigating impacts to aesthetics.			
4.2 Agricultural Resources			
4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	S	*4.2-1* *The applicant shall complete the following, subject to approval by the County. Item a) shall be completed in accordance with the approved reclamation plan and conditions of approval. Items b) and c) shall be completed prior to the commencement of mining activity on any Prime Farmlands, Unique Farmlands, or Farmland of Statewide Importance:* *a) Reclaim 116.7 acres of Prime Farmland onsite, equivalent in quality and capacity to existing Prime Farmland permanently converted as a result of the project.* *b) Establish a permanent agricultural conservation easement on 452.4 acres (267.50 disturbed acres – 116.7 reclaimed acres, at a 3:1 ratio) of equivalent or better (in quality and capability) Prime Farmland compliant with the requirements in County Code Sections 8-2.404(d) and Section 8-2.404(e), (f) and (g). The total acreage placed in permanent easement may be reduced to a minimum of 150.8 acres (267.50 disturbed acres – 116.7 reclaimed acres at a 1:1 ratio) in accordance with Sections 8-2404(d) or 10-5.525(a), (b), (c), or (d), provided the total acreage is determined to be equivalent to the*	SU

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		applicable ratio and acreage required under Section 8-2.404. The proposal and the substantiation in support of finding equivalency shall be provided in writing by the applicant, for review by staff and acceptance by the Board of Supervisors. The County may in its discretion approve phasing of the required easement so long as mitigation is satisfied prior to or coincident with impacts to Prime Farmland. *c) Establish a permanent agricultural conservation easement on 17.5 acres (0.5 acres + 8.25 acres, at a 2:1 ratio) of equivalent or (in quality and capability) better Farmland of Statewide Importance and Unique Farmland compliant with the requirements in County Code Sections 8-2.404(d) and 8-2.404(e), (f), and (g). The total acreage placed in permanent easement may be reduced to a minimum of 8.75 acres (0.50 acres + 8.25 acres, at a 1:1 ratio) in accordance with Sections 8-2.404(d) or 10-5.525(a), (b), (c), or (d), provided the total acreage is determined to be equivalent to the applicable ratio and acreage required under Section 8-2.404. The proposal and the substantiation in support of finding equivalency shall be provided in writing by the applicant, for review by staff and acceptance by the Board of Supervisors. The County may in its discretion approve phasing of the required easement so long as mitigation is satisfied prior*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
			to or coincident with impacts to Farmland of Statewide Importance and Unique Farmland.	
4.2-2	**Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.**	LS	*None required.*	N/A
4.2-3	**Cause a significant environmental impact due to a conflict with any applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to agricultural resources.**	LS	*None required.*	N/A
4.3 Air Quality, Greenhouse Gas Emissions, and Energy				
4.3-1	**Conflict with or obstruct implementation of the applicable air quality plan.**	LS	*None required.*	N/A
4.3-2	**Expose sensitive receptors to substantial pollutant concentrations.**	LS	*None required.*	N/A
4.3-3	**Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**	LS	*None required.*	N/A
4.3-4	**Result in potentially significant environmental**	LS	*None required.*	N/A

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Table 2-1
Summary of Impacts and Mitigation Measures

	Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.			
4.3-5	**Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**	LS	*None required.*	N/A
4.3-6	**Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.**	LCC	*None required.*	N/A
4.3-7	**Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.**	CC	*4.3-7* *Prior to initiation of mining activity at the Shifler mining site, the project applicant shall submit, for review and approval, a Greenhouse Gas Reduction Plan (GHGRP) to the Yolo County Department of Community Services. In order to demonstrate that implementation of the proposed project would not result in a net increase in GHG emissions from baseline conditions, the GHGRP shall demonstrate how operational emissions of the proposed project would be reduced by at least 1,887.84 $MTCO_2e$/yr. Strategies to achieve emissions reductions may include, but are not limited to, the following:*	LCC

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Replacement of existing fossil fueled equipment with hybrid or electrically powered equipment;* • *Installation of additional renewable energy systems on-site;* • *Purchase of an increased proportion of electricity from renewable sources;* • *Purchase carbon credits to offset Project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB, YSAQMD, or Yolo County.* *If purchase of off-site mitigation credits is selected as a means of meeting the requirements of this mitigation measure, purchase of off-site mitigation credits shall be negotiated with the County and YSAQMD at the time that credits are sought. Off-site mitigation credits purchased as part of this mitigation measure shall be real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Such credits shall be based on protocols that are consistent with the criteria set forth in subdivision (a) of Section 95972 of Title 17 of the California Code of Regulations, and shall not allow the use of offset projects originating outside of California, except to the extent that the quality of the offsets, and their sufficiency under the standards set forth herein, can*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		be verified by Yolo County and/or the YSAQMD. The credits must be purchased through one of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the CAPCOA GHG Rx and the YSAQMD.	
4.3-8 Conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	CC	*4.3-8 Within the first three years of initiation of mining activity at the Shifler Project site, the project applicant shall submit to the County an Electric Vehicle Parking Plan for the Woodland Plant, that shall specify the number and location of electric vehicle charging installations.*	LCC
4.3-9 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to air quality, GHG emissions, and energy.	LS	*None required.*	N/A
4.4 Biological Resources			
4.4-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or	S	*VELB* *4.4-1(a) Prior to initiation of any ground-disturbing activities at the project site, the project applicant shall obtain coverage under the Yolo HCP/NCCP, remit payment of any applicable Yolo HCP/NCCP fees, and*	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.		*implement all applicable Yolo HCP/NCCP Avoidance and Minimization Measures (AMMs). Proof of payment of HCP/NCCP coverage and fee payment shall be submitted to the County. This requirement may be satisfied by the execution of an agreement with the Yolo Habitat Conservancy, which could include, at the discretion of the YHC, phased payment of fees consistent with phased project approvals.* *4.4-1(b) The project applicant shall implement Yolo HCP/NCCP AMM-12 (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle) to the satisfaction of the County and the YHC.* *Western Pond Turtle* *4.4-1(c) Implement Mitigation Measure 4.4-1(a), which mitigates for the loss of habitat for the Western Pond Turtle by funding the acquisition of suitable habitat easements through the Yolo HCP/NCCP.* *4.4-1(d) The project applicant shall implement Yolo HCP/NCCP AMM-14 (Minimize Take and Adverse Effects on Habitat of Western Pond Turtle) to the satisfaction of the County and the YHC. In addition, prior to demolition and grading activities associated with the existing alignment of Moore Canal and Magnolia Canal, the existing on-site sections of each canal that are to be abandoned or disturbed shall be*	

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Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		surveyed in order to confirm that no Western pond turtles have become stranded. Should Western pond turtles be found within the portions of Moore Canal or Magnolia Canal that are to be abandoned or disturbed, the turtles shall be physically moved by a qualified biologist in compliance with the guidance provided in AMM-14. *Northern Harrier and Short-Eared Owl* *4.4-1(e)* *The project applicant shall not initiate project-related vegetation removal or earthmoving within 500 feet of the nearest potential nesting tree during the nesting season (February 15 through August 31). All initial project-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the maximum extent feasible.* *Alternatively, if project-related vegetation removal or earthmoving is required within 500 feet of the nearest potential nesting tree between February 15 and August 31, a qualified biologist shall conduct a survey for northern harrier and short-eared owl in suitable nesting habitat within and out to 500 feet from the area proposed for disturbance. Any surveys conducted outside the project site shall occur to the extent practicable from publicly accessible areas. The survey(s) shall be conducted no more than 14 days prior to initiation of each phase of project-related vegetation removal or earthmoving on the project*	

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Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		site. A written summary of the survey results shall be submitted to the County within 14 days of survey completion. If nesting individuals are not identified, further mitigation is not required for that phase. *4.4-1(f) If nesting individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 500 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.* *Alternatively, the project applicant may retain a qualified biologist to monitor on a weekly basis active nests that are within 500 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 500 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Project-related vegetation removal or earthmoving shall not be initiated within 200 feet of an active nest once nesting has begun, under any circumstances. The project applicant shall establish a 500-foot protective buffer around active Northern harrier or short-eared owl nests if nesting is initiated*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		after active mining has begun. The biologist shall submit a written summary of the monitoring results to the County. *Swainson's Hawk and White-Tailed Kite* *4.4-1(g)* *Implement Mitigation Measure 4.4-1(a), which mitigates for the loss of habitat for the Swainson's Hawk and White-Tailed Kite by funding the acquisition of suitable habitat easements through the Yolo HCP/NCCP.* *4.4-1(h)* *The project applicant shall implement Yolo HCP/NCCP AMM-16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the County and the YHC. Any surveys outside the project site conducted pursuant to AMM-16 shall occur to the extent practicable from publicly accessible areas. In addition to implementing AMM-16, the project applicant shall establish a 500-foot protective buffer around active Swainson's hawk/white-tailed kite nests on or near the project site if nesting is initiated after active mining has begun.* *Loggerhead Shrike* *4.4-1(i)* *The project applicant shall not initiate project-related vegetation removal or earthmoving within 200 feet of the nearest potential nesting tree during the loggerhead shrike/migratory bird nesting season*	

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Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		(February 15 through August 31). All initial project-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the maximum extent feasible. *Alternatively, if project-related vegetation removal or earthmoving is required within 200 feet of the nearest potential nesting tree between February 15 and August 31, a survey shall be conducted for non-special-status nesting raptors in suitable nesting habitat within and out to 200 feet from the area proposed for disturbance. Any surveys conducted outside the project site shall occur to the extent practicable from publicly accessible areas. The survey(s) shall be conducted by a qualified biologist within 14 days prior to initiation of each phase of project-related vegetation removal or earthmoving on the project site. This survey may be conducted concurrently with the survey required per Mitigation Measure 4.4-4(a). A written summary of the survey results shall be submitted to the County within 14 days of survey completion. If nesting individuals are not identified, further mitigation is not required for that phase.* *4.4-1(j) If nesting loggerhead shrike individuals or other nesting migratory birds are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 200 feet of the active nest(s)*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing. *Alternatively, the project applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Project-related vegetation removal or earthmoving shall not be initiated within 100 feet of an active nest once nesting has begun, under any circumstances. The project applicant shall establish a 200-foot protective buffer around active nests if nesting is initiated after active mining has begun. The biologist shall submit a written summary of the monitoring results to the County.* *Other Nesting Raptors Protected Under the MBTA* *4.4-1(k) The project applicant shall not initiate project-related vegetation removal or earthmoving within 300 feet of the nearest potential nesting tree during the raptor nesting season (February 15 through August 31). All initial project-related vegetation removal and*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		earthmoving removal shall occur between September 1 and February 14 to the maximum extent feasible. *Alternatively, if project-related vegetation removal or earthmoving is required within 500 feet of the nearest potential nesting tree between February 15 and August 31, a survey shall be conducted for non-special-status nesting raptors in suitable nesting habitat within and out to 500 feet from the area proposed for disturbance. Any surveys conducted outside the project site shall occur to the extent practicable from publicly accessible areas. The survey(s) shall be conducted by a qualified biologist within 14 days prior to initiation of each phase of project-related vegetation removal or earthmoving on the project site. This survey may be conducted concurrently with the survey required per Mitigation Measure 4.4-4(a). A written summary of the survey results shall be submitted to the County within 14 days of survey completion. If nesting individuals are not identified, further mitigation is not required for that phase.* *4.4-1(l)* *If nesting raptor individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 300 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.*	

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		All exclusion zones shall be demarcated by security fencing. *Alternatively, the project applicant may retain a qualified biologist to monitor any active nests that are within 300 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 300 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Project-related vegetation removal or earthmoving shall not be initiated within 200 feet of an active nest once nesting has begun, under any circumstances. The project applicant shall establish a 300-foot protective buffer around active raptor nests if nesting is initiated after active mining has begun. The biologist shall submit a written summary of the monitoring results to the County.* *Other Nesting Birds Protected Under the MBTA* *4.4-1(m) Implement Mitigation Measures 4.4-1(i) and (j).* *Foraging Habitat for Tricolored Blackbirds, Swainson's Hawk, and White-Tailed Kite and Winter Foraging Habitat for Ferruginous Hawk and Merlin*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.4-1(n) Implement Mitigation Measures 4.4-1(a), which mitigates for the loss of habitat for the Tricolored Blackbirds, Swainson's Hawk, and White-Tailed Kite and Winter Foraging Habitat for Ferruginous Hawk and Merlin by funding the acquisition of suitable habitat easements through the Yolo HCP/NCCP. *Silver-Haired Bat, Western Red Bat, and Hoary Bat* *4.4-1(o) Removal of the four trees identified as potential special-status bat species habitat in Figure 4.4-6 of this EIR shall occur either prior to formation of maternity bat colonies (April 15) or after young are capable of flight (August 15). Disturbance-free buffer zones, as determined by a qualified biologist, shall be observed for maternity roosts or hibernacula found during the maternity roost season (i.e., April 15 through August 15).* *Tree removal activities shall take place over a minimum of two days, with the first day consisting of trimming to open the roosting area up to airflow. Final tree removal shall only occur after at least one night has passed since trimming has been completed, to allow bats to wake from torpor and leave during darkness. The biologist shall submit a written summary of the tree removal activities, including any bat individuals observed, to the County within 14 days of completion of tree removal.*	

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Table 2-1
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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.4-2 Have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.	LS	*None required.*	N/A
4.4-3 Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	S	*4.4-3(a) Implement Mitigation Measure 4.4-1(a), which mitigates for the loss of aquatic resources by funding the acquisition of aquatic habitat easements through the Yolo HCP/NCCP.* *4.4-3(b) Prior to disturbance associated with relocation of the Moore and/or Magnolia Canal, the applicant shall secure a Section 1602 Lake or Streambed Alteration Agreement from CDFW, for the relocation of the Moore/Magnolia Canal and any other activities affecting the bed, bank, or associated riparian vegetation of the canals. The information provided in the application(s) shall include a description of all of the activities associated with the proposed project, and shall not be limited to those associated solely with the drainages and/or riparian vegetation. Impacts shall be outlined in the application and shall be substantially consistent with the impacts to biological resources outlined in this EIR. If this is not the case, the County shall be immediately notified to determine an appropriate response pursuant to CEQA. Impacts for each activity shall be broken*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
			down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts shall be outlined per activity and as temporary or permanent. Information regarding project-specific drainage and hydrology changes resulting from project implementation shall be provided as well as a description of storm water treatment methods. Mitigation may include restoration or enhancement of resources on- or off-site, purchase habitat credits from an agency-approved mitigation/conservation bank, off-site, working with a local land trust to preserve land, or any other method acceptable to CDFW. Written verification of the Section 1600 Lake or Streambed Alteration Agreement shall be submitted to the County.	
4.4-4	**Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.**	LS	*None required.*	N/A
4.4-5	**Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan.**	LS	*None required.*	N/A

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4.4-6 The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare or threatened species.	LS	*None required.*	N/A
4.4-7 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LS	*None required.*	N/A
4.4-8 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to biological resources.	LS	*None required.*	N/A
4.5 Cultural and Tribal Cultural Resources			

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Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
4.5-1	**Cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5.**	S	*4.5-1*	*Prior to initiation of construction activities associated with relocation of Moore Canal within the project site, the project applicant shall retain a qualified archaeologist to provide for documentation of the Canal. A series of high-resolution photographs shall be taken of the resource, including any features and general overviews of canal segments planned for removal, to document the current appearance, with associated GPS readings. In addition, GPS readings shall be taken of the linear extent of Moore Canal.* *Cross-sectional profiles shall be recorded at various points along the segments, depending on variations of the width and depth of the feature. The project applicant shall ensure that copies of the photographs of the canal section are filed with the Northwest Information Center, the Yolo County Archives, the Yolo County Flood Control and Water Conservation District, and the Yolo County Department of Community Services.*	SU
4.5-2	**Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5 or disturb any human remains, including those interred outside of dedicated cemeteries.**	LS	*None required.*		N/A

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.5-3 Directly or indirectly disturb or destroy a unique tribal cultural resource, such as a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American tribe.	S	*4.5-3(a)* *Prior to initiation of ground-disturbing activities associated with removal of overburden material on the project site, within 500 feet of the Cache Creek bank (i.e., streamway influence zone), local Native American tribes or groups that have responded to the request for information regarding sacred lands or other heritage sites that might be impacted by the proposed project shall be apprised by the applicant of the proposed mining schedule and be afforded the opportunity to provide a tribal monitor at their discretion. Written proof of notification shall be submitted to the Yolo County Department of Community Services. The opportunity to monitor shall be provided during all ground-disturbing activities occurring within 500 feet of the Cache Creek bank, down to a depth of 10 feet below the existing ground surface. The monitor shall meet all applicable Occupational Safety and Health Administration (OSHA) requirements and abide by the operator schedule. The operator shall be responsible for reimbursing the costs of one (1) tribal monitor.* *4.5-3(b)* *Prior to initiation of ground-disturbing activities, a consultant and construction worker cultural resources awareness brochure and training program for all personnel involved in project implementation shall be developed in coordination with interested Native American tribes. The brochure shall be distributed and the training shall be conducted in*	LS

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		coordination with qualified cultural resources specialists and Native American Representative and monitors from culturally affiliated Native American Tribes. The program shall include relevant information regarding sensitive tribal cultural laws and regulations. The worker cultural resources awareness program shall describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project site and shall outline what to do and whom to contact if any potential archeological resources or artifacts are encountered. The program shall also underscore the requirement for confidentiality and culturally-appropriate treatment of any find of significance to Native American and for behavior consistent with Native American Tribal values. A copy of the cultural resources awareness brochure and written verification of completion of the training program shall be submitted to the Yolo County Department of Community Services.	
4.5-4 The project has the potential to eliminate important examples of the major periods of California history or prehistory.	S	*4.5-4 Implement Mitigation Measures 4.5-1, 4.5-3(a), and 4.5-3(b).*	SU
4.5-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations	LS	*None required.*	N/A

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	adopted for the purpose of avoiding or mitigating impacts to cultural and tribal cultural resources.			
	4.6 Geology and Soils, Mineral Resources, and Paleontological Resources			
4.6-1	**Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides.**	LS	*None required.*	N/A
4.6-2	**Result in slope failure or substantial erosion or loss of topsoil.**	LS	*None required.*	N/A
4.6-3	**Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and**	LS	*None required.*	N/A

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	potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.				
4.6-4	**Be located on expansive soils, as defined in Table 18-1-B of the California Building Code, creating substantial risks to life or property.**	LS	*None required.*		N/A
4.6-5	**Directly or indirectly destroy a unique paleontological resource.**	S	*4.6-5*	*Pursuant to Section 10-4.410(b) of the mining ordinance, should paleontological resources be discovered during ground disturbing activities, work shall be halted in the area within 75 feet of the find. The applicant shall notify the Director (as defined by the OCSMO as the County Administrator or designee chosen by the Administrator) and the Yolo County Department of Community Services and retain a qualified paleontologist to inspect the discovery. The find must be recorded by a qualified archaeologist or paleontologist using relevant professional protocols and a report fully recording the find submitted to the County Administrator or designee chosen by the Administrator and the Yolo County Department of Community Services. This report shall include recommendations for appropriate removal and preservation of the artifact. If deemed appropriate in the report, the resource(s) shall then be salvaged and deposited at the Cache Creek Nature Preserve, or other appropriate venue, where the discovery would*	LS

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		be properly curated and preserved for the benefit of current and future generations. The language of this mitigation measure shall be included on any future grading plans, mining plans, and reclamation plans approved by the Department of Community Services for the proposed project, where ground disturbance would be required.	
4.6-6 The loss of availability of a known mineral resource that would be of value to the region and the residents of the State.	LS	*None required.*	N/A
4.6-7 The loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	LS	*None required.*	N/A
4.6-8 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to geology and soils, mineral resources, and paleontological resources.	LS	*None required.*	N/A

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4.7 Hazards and Hazardous Materials			
4.7-1 Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials.	LS	*None required.*	N/A
4.7-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	S	*4.7-2(a)* *Prior to initiation of ground-disturbing activities within 50 feet of the domestic water well on the project site, the project applicant shall obtain a water well abandonment permit from the Yolo County Environmental Health Division (YCEHD), and coordinate with the YCEHD regarding procedures for abandonment of the on-site domestic water well.* *4.7-2(b)* *Prior to initiation of ground-disturbing activities within 50 feet of the natural gas well on the project site, the project applicant shall submit a Notice of Intention (Form OG106) to the California Division of Oil, Gas, and Geothermal Resources (DOGGR) stating the applicant's intent to re-abandon the existing on-site gas well. Subsequent to acquisition of an approved gas well abandonment permit from DOGGR, the project applicant shall retain a licensed contractor to cut off the well at the maximum depth of the proposed excavation and install a cement plug at least 25 feet below the final proposed elevation of the well. Subsequently, the casing of the well shall be cut off five to 10 feet below the final ground surface and a*	LS

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		steel plate affixed to the top of the casing with the well identifier number, indicated by the last five digits of the API well number, welded onto the plate. The location of the well shall be surveyed for future reference. The project applicant shall submit a copy of the approved well abandonment permit to the Yolo County Department of Community Services. Records of all re-abandonment activities shall be submitted to the Yolo County Department of Community Services and DOGGR. *4.7-2(c)* *During removal of overburden associated with the proposed project, potentially hazardous materials identified in the vicinity of the former ranch headquarters on the project site, shall be removed from the site and disposed of in accordance with the following regulations and requirements:* • *Hazardous materials identified on the project site shall be handled in accordance with Chapter 6.5, Division 20, of the California Health and Safety Code.* • *Hazardous materials shall be disposed of at an approved disposal site and shall only be hauled by a current California registered hazardous waste hauler using correct manifesting procedures and vehicles displaying a current Certificate of Compliance. The project applicant shall identify by name and address*	

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		the site where toxic substances shall be disposed of. Disposal shall be coordinated with the Yolo County Environmental Health Division, and the necessary applications shall be filed. The applicant shall provide CEHD with a valid certification from the approved disposal site that the material was delivered. *The applicant shall notify the Yolo County Department of Community Services and the Yolo County Environmental Health Division when this measure has been fulfilled and provide supporting documentation.*	
4.7-3 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.	LS	*None required.*	N/A
4.7-4 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LS	*None required.*	N/A

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4.7-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to hazards and hazardous materials.	LS	*None required.*	N/A
4.8 Hydrology and Water Quality			
4.8-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	LS	*None required.*	N/A
4.8-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LS	*None required.*	N/A
4.8-3 Substantially alter the existing drainage pattern of the site or	LS	*None required.*	N/A

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area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.			
4.8-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.	S	*4.8-4(a) Prior to mining or other activity closer than 700 feet to the top of bank, the applicant shall implement a reinforcement improvement in an approximately 600-foot area of streambank (shown in Figure 4.8-1 of the Draft volume of the EIR) which lies in the path of a potential theoretical migration of the creek meander bend. Along this alignment the improvements will consist of a soil-backfilled and planted rock revetment designed and installed to help prevent future bank erosion in the area closest to the Moore Canal and where there is the highest potential for*	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		channel migration. The design and placement of this improvement will be subject to review and approval by the Cache Creek TAC. *4.8-4(b)* *Prior to mining of other activity closer than 700 feet to the top of bank, the applicant shall implement a habitat enhancement improvement in an approximately 6-acre area of inset terrace (shown in Figure 4.8-1 of the Draft volume of the EIR). There exists an area on the inset terrace below the Shifler property that extends from County Road 94B along the right (south) bank to the Teichert Aggregates Woodland Plant. This terrace has some native woody vegetation along the first approximately 1,000 feet east of CR 94B but is otherwise predominantly bare or covered with non-native ruderal species. Within the approximately 6-acre zone shown in the referenced figure, the applicant shall remove non-native species and plant appropriate native woody (tree and shrub) species (with the species selection informed by which trees and shrubs are already present on the terrace). This action shall be undertaken in a manner so as not to disturb existing native species (especially elderberry) that already exist within this 6-acre zone. This action will help stabilize this terrace in addition to enhancing habitat between the creek channel and the project site, further reducing potential for channel migration. The habitat enhancement project shall be implemented, monitored, and maintained to the same revegetation*	

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		standards as stipulated in the approved reclamation plan. *4.8-4(c) The minimum allowed setback between the top of bank and mining or other activity shall be 250 feet. Mining and reclamation plans shall be modified accordingly.*	
4.8-5 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	LS	*None required.*	N/A
4.8-6 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of mitigating impacts to hydrology and water quality.	LS	*None required.*	N/A
4.9 Land Use and Planning			
4.9-1 Physically divide an established community.	LS	*None required.*	N/A
4.9-2 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to land use and planning.	LS	*None required.*	N/A

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4.10 Noise			
4.10-1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	*4.10-1(a) The following language shall be included as a condition of approval on the Mining Permit for the proposed project, to the satisfaction of the Yolo County Department of Community Services:* • *Initial scraper operations occurring within 300 feet of the project site boundary near Receptors 1 or 6 (as identified in Figure 4.10-4 of this EIR) shall be limited to 15 minutes per hour;* *OR* • *An earth berm or other form of noise barrier shall be constructed along 300 feet of the eastern and western site boundaries nearest to Receptors 1 and 6. The barrier shall be a minimum of eight feet in height relative to the existing ground elevation.* *In addition, the Mining Permit shall be conditioned with the following language, to the satisfaction of the Yolo County Department of Community Services, to further reduce the potential for annoyance associated with proposed excavation activities:* • *Excavation activities occurring within 560 feet*	LS

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		of an existing residence shall be limited to the hours of 6:00 AM to 6:00 PM until such time as the excavation equipment has recessed in the pit a sufficient depth to no longer be visible from the nearest residences. • *Teichert shall coordinate with Monument Hill Memorial Park cemetery representatives on an ongoing basis to determine when funeral services are scheduled to occur at the cemetery, and shall limit on-site operations during such services. Alternatively, Teichert may initiate communication with Monument Hill Memorial Park representatives to identify other feasible methods for minimizing potential noise intrusion during services.* *4.10-1(b) A noise survey shall be conducted following the installation and operation of any new equipment which will be required to increase processing capacity of the Woodland Plant. The results of the noise survey shall be submitted to the Yolo County Department of Community Services within two months of the new equipment being brought online. In the event that the survey results indicate the additional equipment has resulted in a substantial increase in processing plant noise emissions (in excess of 5 dB), the equipment causing the substantial increase shall cease operation until the following noise mitigation options shall be*	

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		implemented, as appropriate, to reduce the overall increase in plant noise levels to less than 5 dB at the nearest residences: • *Construct localized noise barriers adjacent to ground level equipment determined to be responsible for substantial increases in ambient noise levels.* • *Suspend acoustic curtains adjacent to elevated equipment determined to be responsible for substantial increases in ambient noise levels.* • *Line new conveyor transfer points and hoppers with heavy urethane linings.* • *Utilize urethane screens in new screen decks.* • *Utilize automatic reverse-activated strobe lights in lieu of audible backup beeper devices for any new mobile equipment, if the applicant can obtain a variance from Cal/OSHA. If a variance cannot be obtained, then utilize MHSA-approved broad-band backup warning devices for any new mobile equipment rather than the traditional tonal back-up beeper devices.* • *Ensure that all internal combustion engines which may be required to drive new equipment is equipped with appropriate mufflers.*	
4.10-2 Generation of excessive groundborne vibration or groundborne noise levels.	LS	*None required.*	N/A

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4.10-3 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating noise impacts.	LS	*None required.*	N/A
4.11 Public Services, Utilities, and Service Systems			
4.11-1 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.	LS	*None required.*	N/A
4.11-2 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities,	LS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection services.			
4.11-3 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks.	LS	*None required.*	N/A
4.11-4 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities,	LS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities.			
4.11-5 Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	LS	*None required.*	N/A
4.11-6 Require or result in the relocation or construction of new or expanded water, electric power, or natural gas facilities, the construction or relocation of which could cause significant environmental effects.	LS	*None required.*	N/A
4.11-7 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during	LS	*None required.*	N/A

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
normal, dry, and multiple dry years.			
4.11-8 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to public services, utilities, and service systems.	LS	*None required.*	N/A
4.12 Transportation and Circulation			
4.12-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities.	LS	*None required.*	N/A
4.12-2 Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).	S	*4.12-2* ***Transportation Demand Management (TDM) Program.*** *Prior to commencement of mining activities at the project site, the project applicant shall develop and implement a TDM program to reduce the number of daily employee commute trips made to the project site, and shall submit the TDM Program to Yolo County for review and approval. The TDM Program shall identify trip reduction strategies as well as mechanisms for funding and overseeing the delivery of trip*	SU

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		reduction programs and strategies. The TDM Program shall be designed to achieve the following trip reduction: • *Reduce employee commute VMT to the maximum extent feasible.* *Feasible trip reduction strategies may include, but are not limited to, the following:* • *Develop an employer-led program that considers:* o *Carpooling encouragement;* o *Ride-matching assistance; and* o *Vanpool assistance.*	
4.12-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LS	*None required.*	N/A
4.12-4 Result in inadequate emergency access.	LS	*None required.*	N/A
4.12-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of	LS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	avoiding or mitigating impacts to transportation and circulation.			
5 Cumulative Impacts and Other Required Sections				
5-1	**Cumulative impacts to aesthetics.**	LCC	*None required.*	N/A
5-2	**Cumulative impacts to farmland.**	CC	*Implement Mitigation Measure 4.2-1.*	SU
5-3	**Cumulative impacts to air quality.**	LCC	*None required.*	N/A
5-4	**Cumulative greenhouse gas emissions.**	LCC	*None required.*	N/A
5-5	**Cumulative impacts to energy.**	LS	*None required.*	N/A
5-6	**Cumulative impacts to biological resources.**	LCC	*None required.*	N/A
5-7	**Cumulative impacts to cultural and tribal cultural resources.**	LS	*None required.*	N/A
5-8	**Cumulative increase in the potential for impacts to geology and soils, mineral resources, and paleontological resources.**	LS	*None required.*	N/A
5-9	**Cumulative exposure to potential hazards and increases in the transport, storage, and use of hazardous materials.**	LS	*None required.*	N/A

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5-10	**Cumulative impacts related to the violation of water quality standards or waste discharge requirements, groundwater quality, management, and recharge, and impacts resulting from the alteration of existing drainage patterns.**	LCC	*None required.*	N/A
5-11	**Cumulative land use impacts.**	LS	*None required.*	N/A
5-12	**Generation of a substantial permanent cumulative increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**	LCC	*None required.*	N/A
5-13	**Cumulative impacts to public services, utilities, and service systems.**	LS	*None required.*	N/A
5-14	**Cumulative impacts to transportation and circulation.**	CC	*Implement Mitigation Measure 4.12-2.*	SU

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

3. Project Description

3. PROJECT DESCRIPTION

3.1 INTRODUCTION

This chapter provides a detailed description of the proposed Teichert Shifler Mining and Reclamation Project, based on the application and supporting information submitted by the applicant (Teichert Materials) on September 25, 2018 and found to be substantially complete on May 21, 2019.

3.2 OVERVIEW AND BACKGROUND

Teichert Aggregates (Teichert) has submitted an application to Yolo County to conduct mining and reclamation activities on the Shifler property south of Cache Creek and west of the City of Woodland. This project is known as the Teichert Shifler Mining and Reclamation project (proposed project). The requested approval would be a discretionary action by Yolo County. As such the County is the lead agency under CEQA, responsible for the preparation of this Draft EIR. The proposed project is located within the bounnetries of the Cache Creek Area Plan (CCAP) adopted by the Board of Supervisors in 1996, and most recently updated in 2019. The project must comply with the requirements of this program, including all relevant components of adopted plans and regulations. The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project.

The project site consists of approximately 319 acres located three miles west of the City of Woodland in unincorporated Yolo County, California. The project site is bounded by Cache Creek to the north, County Road 94B to the west, County Road 22 to the south, and unpaved dirt access roads to the east. Currently, the central and southern portions of the project site consist primarily of actively managed agricultural land. The northern portion of the project site consists of 52 scattered oak trees and ruderal grassland vegetation, as well as an electric conveyor and associated gravel roads formerly used to transport mined aggregate from Teichert's Storz mining site to the Woodland Plant located north of the project site. Moore Canal, an approximately 15-foot wide concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. A gate structure exists near the northeastern portion of the project site, which allows water from the Moore Canal to be diverted into the Magnolia Canal. Within the project site, the Magnolia Canal is an approximately seven-foot-wide earthen-lined canal that starts at the gate structure and flows in a northeasterly direction.

The site contains all or portions of the following Assessor's Parcel Numbers (APNs): 025-120-032, 025-120-033, 025-430-001, 025-430-002, 025-430-009, and 025-430-011 (see Table 3-1). The Shifler property parcels in their entirety total approximately 442.4 acres. However, the portions of the Shifler property within the Cache Creek channel and on Monument Hill have been

excluded from the project site for the purpose of this analysis because no disturbance is proposed to those portions of the Shifler property. Thus, the 319.3-acre project site is limited to the proposed 277.1-acre mining area and surrounding areas needed for the proposed relocation/realignment of Moore Canal, setbacks, visual screening, noise and safety berms, aggregate conveyors, access roads, and other project-related uses.

Table 3-1
Parcel Overview

APN	Total Parcel Acreage	Acreage Included in Site	Acreage Included in Proposed Mining Area
Shifler Property Project Site			
025-120-032	186.2	127.6	115.8
025-120-033	4.4	2.8	1.3
025-430-001	66.5	1.9	0
025-430-002	188.3	187	160
025-430-009	--	-	-
025-430-011	--	-	-
EIR Total:	**442.4**	**319.3**	**277.1**
Woodland Plant Site			
025-350-018	2.65	2.65	0
025-350-037	111.27	111.27	0
025-120-039	18.25	18.25	0
025-120-041	6.65	0	0
Total:	**138.82**	**132.17**	**0**

Note: APNs 025-430-009 and 025-430-011 not included in Shifler property/project site totals. APN 025-120-041, known as the County Borrow Pit property, is leased to Teichert Materials by the County.

The proposed project is mining of 41.6 million tons (35.25 million tons sold) of aggregate resources (sand and gravel) over a requested 30-year period at an annual rate not to exceed 2.6 million tons mined per year (2.2 million tons sold). Mining is proposed in two phases moving from north to south, commencing with Phase A on the north. Reclamation is proposed in three phases, resulting ultimately in approximately 86 acres of agricultural land on the west, approximately 31 acres of agricultural land on the east, and a 161-acre open water lake in the central portion of the proposed mining area. As a component of the project, the applicant proposes relocation of the Moore Canal to the northerly portion of the project site.

The aggregate removed from the subject site would be processed at the adjoining Teichert Woodland Plant. Teichert's Woodland Plant has been operating since the 1950s. The applicant has indicated that the plant serves the surrounding region, including, Yolo, Solano, and Sacramento counties. Processing facilities include, a rock plant, a recycle plant, and an asphalt plant. The Woodland Plant does not include concrete batch facilities. The processing plant and associated processing facilities are located on the approximately 132.17-acre plant site, which is comprised of three parcels (APNs 025-350-018 and -037, and 025-120-039). Teichert also has a long-term lease agreement with the County for the use of a fourth parcel totaling 6.65-acre (APN 025-120-041), known as the County Borrow Site, as a part of their plant operations. The plant, including associated processing facilities, is considered part of the proposed project; however, no new areas of disturbance at the Woodland Plant site are proposed.

The Reclamation Plan for the Woodland Plant site was approved in 2013. The property will be reclaimed as grassland, mixed riparian forest, and willow/cottonwood forest. Reclamation on APN 25-120-41 (6.65 acres), which is owned by the County, will consist of removal of stockpiles and returning the parcel to the condition it was found at the commencement of Teichert's lease in 2002. The timing for completion of reclamation activities at the Woodland Plant may vary depending on market conditions, quality of mineable materials, and ultimate mining depths at the properties supplying aggregate to the facility. All reclamation on the Woodland Plant site is anticipated to be completed within two years following the completion of processing operations.

Approval of the Teichert Shifler proposal would extend the life of the Woodland Plant commensurate with the requested 30-year mining permit. If approved, the Teichert Shifler project and the Woodland Plant would be authorized to operate for 30-years (through approximately 2050) or until the approved mining is completed, whichever occurs first.

Between 1998 and 2017, the Woodland Plant processed materials from the Teichert Woodland operation consisting of the Muller, Coors, and Storz properties totaling 252 acres. Mining at the Teichert Woodland operation was approved in December 1996 for a total of 17.88 million tons (15.2 million tons sold) over a maximum 30-year period at an annual rate not to exceed 1,176,471 tons mined (1.0 million tons sold) per year (Zone File 95-095). Mining on all three sites has been completed and reclamation is underway. The Muller property has been reclaimed to agriculture and habitat uses, consisting of a seasonal pond and riparian habitat uses. The Coors property has been reclaimed to agriculture. The Storz property is being reclaimed to habitat uses, including open water and riparian wetland.

In November 2012, the County approved the Teichert Schwarzgruber operation with mining to commence following the completion of mining at the Teichert Woodland sites. Mining at the 41-acre Schwarzgruber site was approved for a total of 4.65 million tons (4.0 million tons sold) over a maximum 30-year period at an annual rate not to exceed 1,176,471 tons mined (1.0 million tons sold) per year (Zone File 2011-0035). Mining on the Schwarzgruber site commenced in 2017 and if anticipated to be completed in 2020, depending on market demand. Aggregate extracted from the Schwarzgruber site is being processed at the Teichert Woodland Plant. Teichert is seeking approval of mining at the Shifler property to commence following the completion of mining at the Schwarzgruber site. The Schwarzgruber site will be reclaimed to habitat uses, consisting of seasonal pond, grassland, riparian, and riparian wetland habitat. Teichert is requesting to transfer the annual production allotment from the Schwarzgruber operation to the Shifler site.

The Teichert Esparto operation was approved in December 1996 for a total of 25.88 million tons (22.0 million tons sold) over a maximum 30-year period at an annual rate not to exceed 1,176,471 tons mined (1.0 million tons sold) per year. Teichert is also requesting that it be allowed to transfer its annual production allotment from the Teichert Esparto operation to the Shifler site once mining at the Teichert Esparto site has been completed or the Teichert Esparto mining permit expires (January 1, 2028), whichever occurs first. The Teichert Esparto site, including the Esparto Plant site, will be reclaimed to open space and habitat uses, consisting of open water and riparian wetland uses.

Together the proposed transfers (from Schwarzgruber and Esparto) would allow the Teichert Shifler operation to excavate a maximum of 2,588,237 tons mined (2.2 million tons sold) in any given year, provided that production over a consecutive 10-year period does not exceed 20 million tons sold (23,529,430 tons mined) (see Table 3-2).

Table 3-2
Teichert Tonnage Summary

Plant (Mining Site)	Maximum Tons/Year Mined (10-Year Average)	Maximum Tons/Year Mined (20% Exceedance)	Maximum Tons/Year Sold (10-Year Average)	Maximum Tons/Year Sold (20% Exceedance)
Existing Conditions – Schwarzgruber and Esparto				
Schwarzgruber	1,176,471	1,411,766	1,000,000	1,200,000
Esparto	1,176,471	1,176,471	1,000,000	1,000,000
Total	**2,352,942**	**2,588,237**	**2,000,000**	**2,200,000**
Proposed Conditions – Shifler and Esparto Mining				
Schwarzgruber	0	0	0	0
Shifler	1,176,471	1,411,766	1,000,000	1,200,000
Esparto	1,176,471	1,176,471	1,000,000	1,000,000
Total	**2,352,942**	**2,588,237**	**2,000,000**	**2,200,000**
Proposed Conditions – Shifler, Post-Esparto Operations				
Schwarzgruber	0	0	0	0
Shifler	2,352,942	2,588,237	2,000,000	2,200,000
Esparto	0	0	0	0
Total	**2,352,942**	**2,588,237**	**2,000,000**	**2,200,000**

The Teichert Esparto Plant is comprised or newer and more modern equipment than the Teichert Woodland Plant. Upon completion of mining at the Esparto site, the Esparto Plant equipment is proposed to be dismantled and moved to the Teichert Woodland Plant site where the Esparto equipment will replace most of the Woodland equipment. The existing Woodland asphalt plant would remain in operation. One additional crusher and two additional screens are proposed at the Woodland Plant to facilitate processing of the requested total annual production of 2.6 million tons mined.

3.3 SETTING

The following sections describe the existing setting of the project site, including the site location, existing on-site uses, and land uses in the site vicinity.

Site Location and Description

The project site consists of 319.3 acres[1] located three miles west of the City of Woodland in unincorporated Yolo County, California (see Figure 3-1 through Figure 3-3). The site contains all or portions of four parcels identified by Assessor's Parcel Numbers (APNs) 025-120-032, 025-120-033, 025-430-001, and 025-430-002.[2]

[1] The four Shifler property parcels (APNs 025-120-032, 025-120-033, 025-430-001, and 025-430-002) in their entirety total approximately 442.4 acres. However, the portions of the Shifler property within the Cache Creek channel and on Monument Hill have been excluded from the project site for the purpose of this analysis because no disturbance is proposed to those portions of the Shifler property. The 319.3-acre project site is defined as the proposed 277.1-acre mining area and surrounding areas that would be modified for the proposed relocation/realignment of Moore Canal, setbacks, visual screening, noise and safety berms, aggregate conveyors, access roads, and other project-related uses.

[2] The portions of the Moore Canal and Magnolia Canal that traverse the project site have been assigned APNs by the Yolo County Assessor (APNs 025-120-010, 025-120-011, and 025-430-009), but these APNs are easements held by the YCFCWCD, not separate legal parcels The District does not have fee title to the land underlying the canals on the project site.

Figure 3-1
Regional Location Map

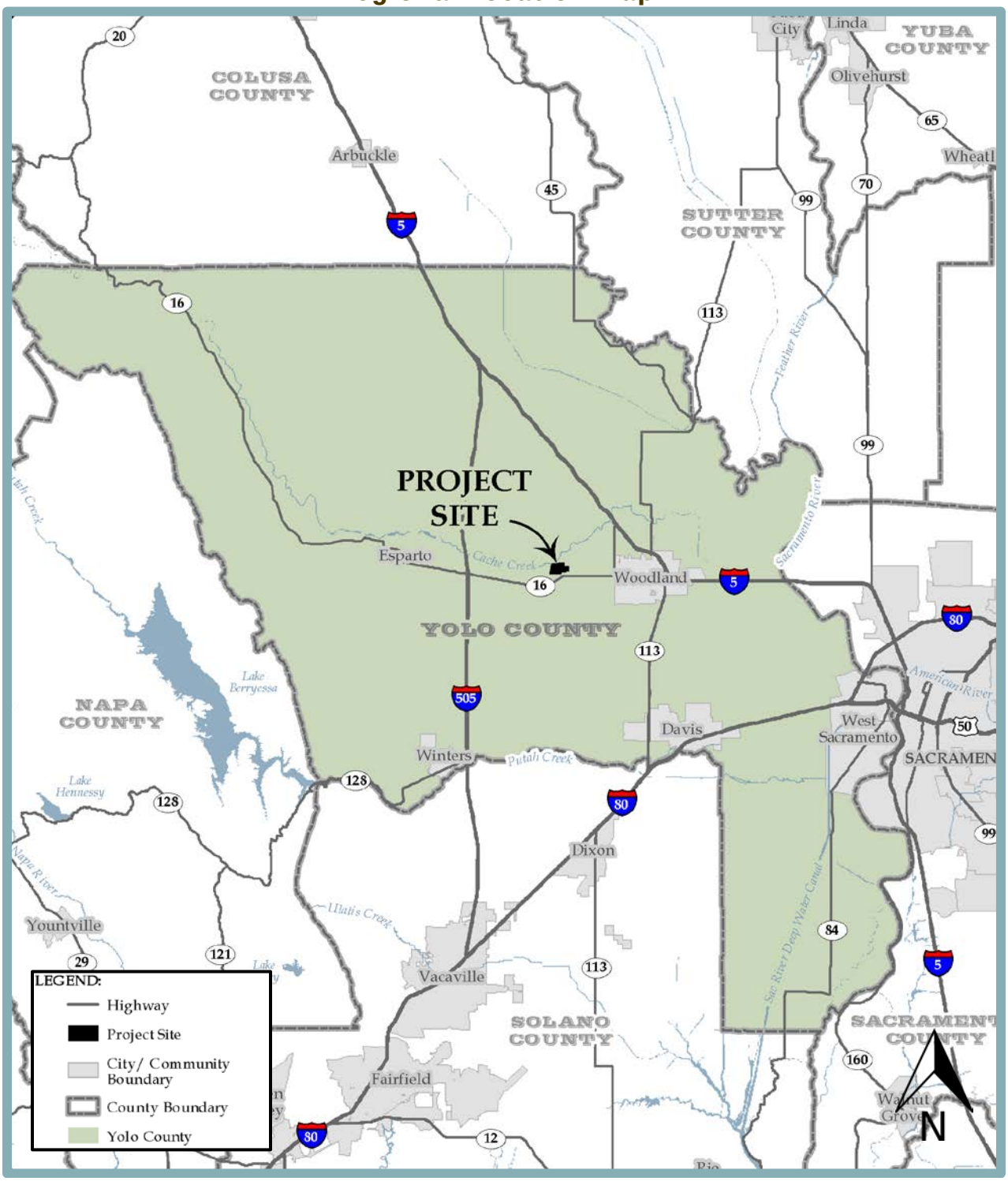


Figure 3-2
Project Area

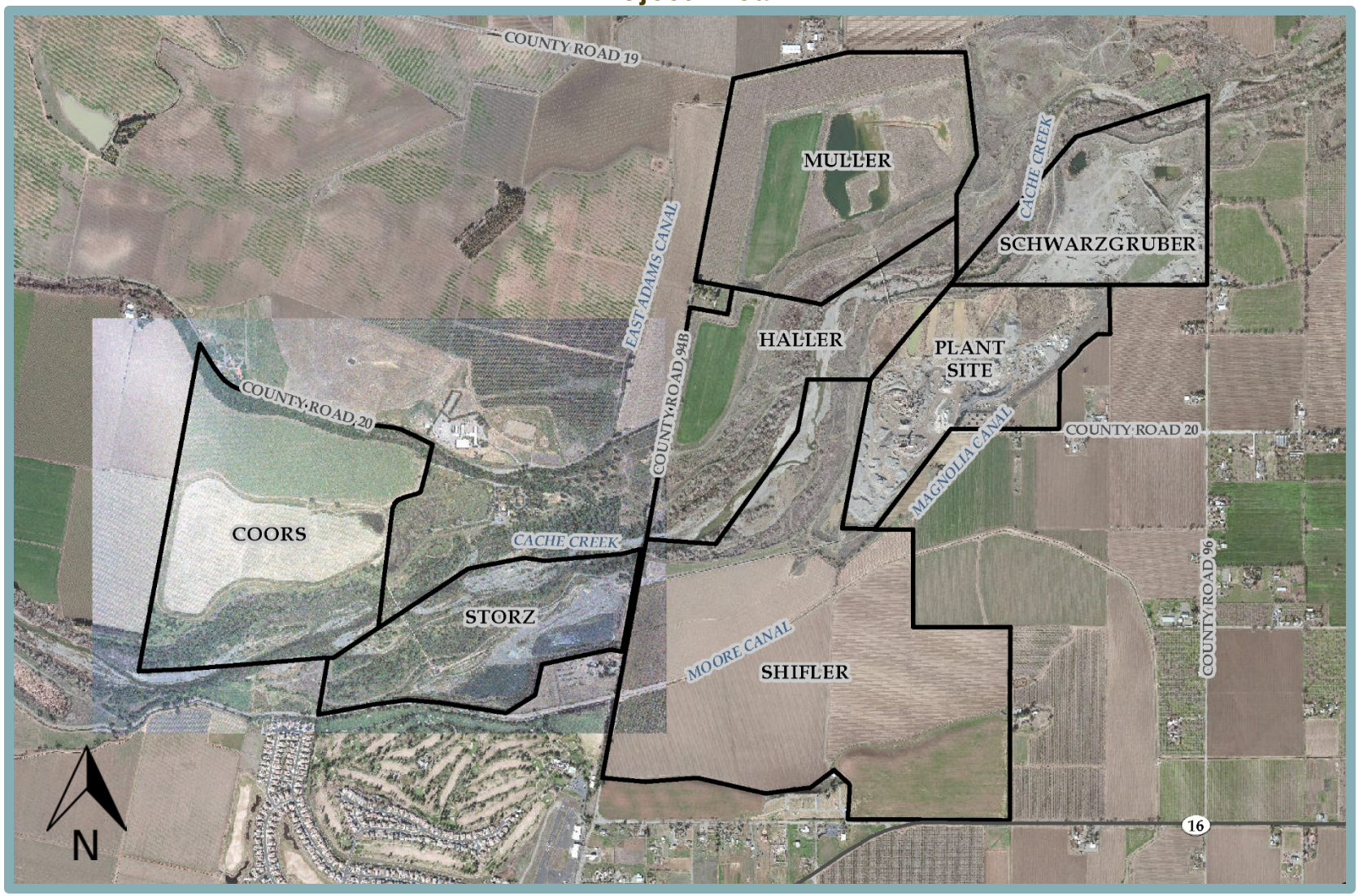
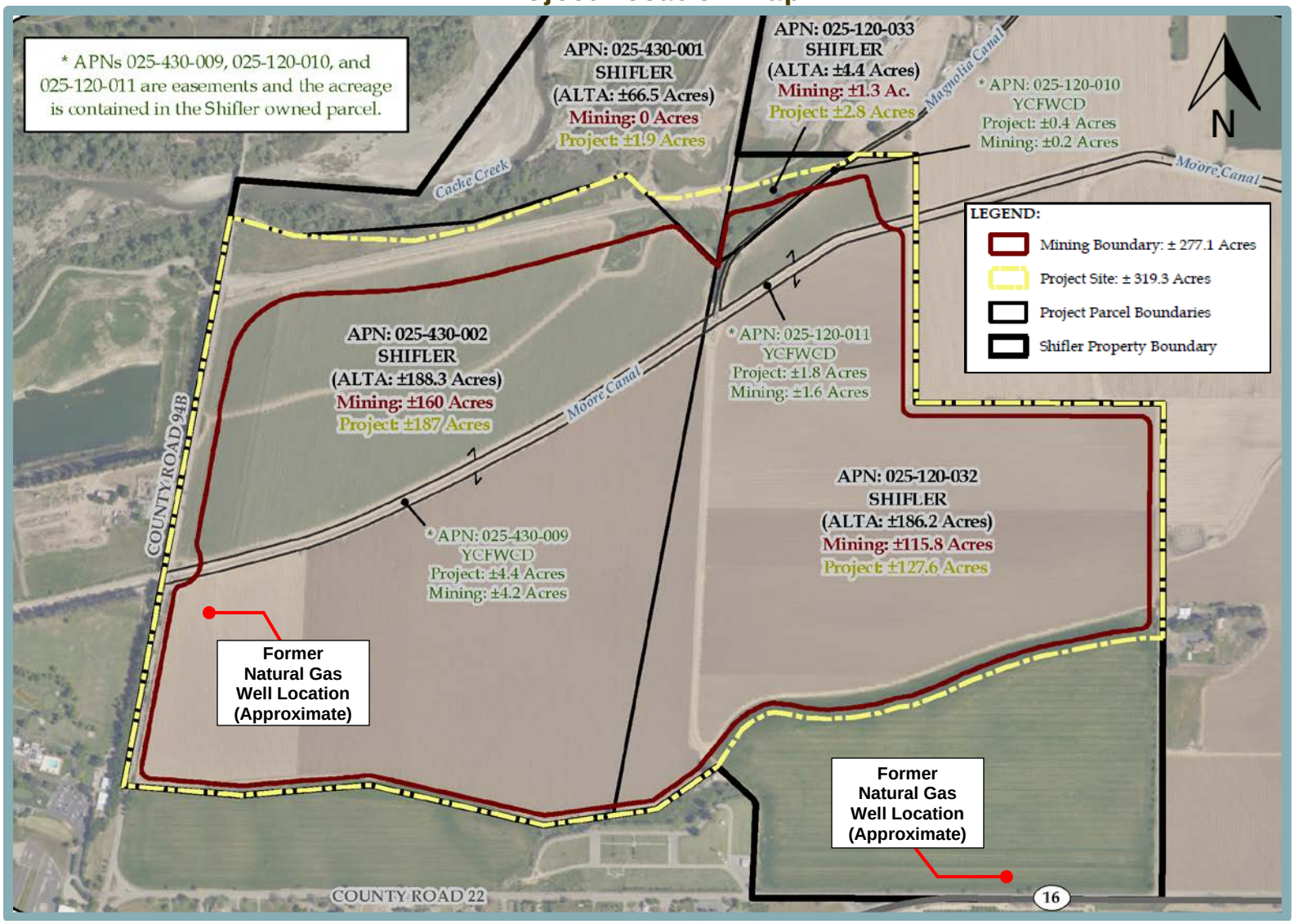


Figure 3-3
Project Location Map



As noted above and shown in Figure 3-4, the central and southern portions of the project site consist primarily of actively managed agricultural land.

Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. An abandoned gas well is located within the southwestern portion of the site (see Figure 3-3). The on-site gas well was abandoned in 1994. The southern portion of Parcel 3 also includes a gas well, abandoned in 1985; however, this gas well is located outside of the project site boundaries, along County Road 22.[3] Most of the project site (APNs 025-120-032 and 025-430-002) was subject to a Williamson Act contract that expired at the end of January 2016.

The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation, as well as an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant located north of the project site. Moore Canal, a concrete-lined water conveyance structure owned and operated by the YCFCWCD, bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. A small oak woodland stand is located north of where the Moore Canal meets the Magnolia Canal, with additional scattered oaks occurring along the northern portion of the project site. The Yolo County General Plan designates the site Agriculture (AG), with approximately 107 acres within the northern portion of the project site also designated Mineral Resource Overlay (MRO). The site is zoned Agriculture Intensive (A-N).

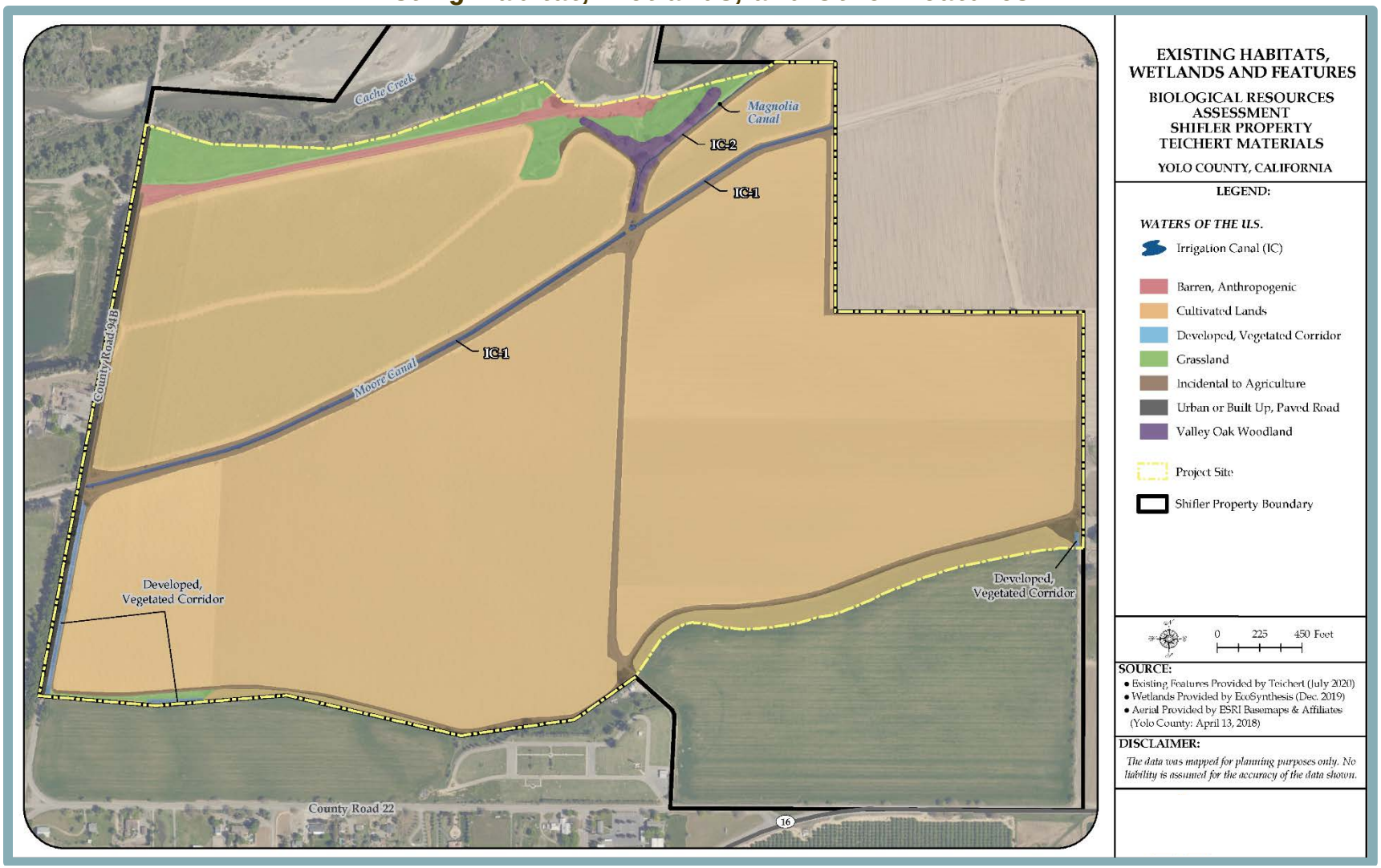
Existing surface elevations on the project site range from approximately 98 to 112 feet above mean sea level (MSL), with the proposed mining area elevations between approximately 103 and 112 feet above MSL. On-site soils include Brentwood silty clay loam, 0 to 2 percent slopes, Loamy alluvial land, Riverwash, Sehorn-Balcom complex, 2 to 15 percent slopes, Sehorn-Balcom complex, 30 to 50 percent slopes, eroded, and Yolo silt loam, 0 to 2 percent slopes. Approximately 107 acres of the project site are located within Mineral Resources Zone (MRZ)-2, which generally includes areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present. The remainder of the project site is located within MRZ-3, which indicates that this area includes mineral deposits, the significance of which cannot be evaluated from available data.

Land Uses in the Vicinity

The project site is bounded by Cache Creek to the north, County Road 94B to the west, County Road 22 to the south, and unpaved dirt access roads to the east.

[3] Nichols Consulting Engineers, Chtd. *Phase I and Limited Phase II Environmental Site Assessment, Shifler Property, Yolo County APNs 025-430-01, 025-430-02, 025-120-32, and 025-120-33, Yolo County, California.* September 27, 2007.

Figure 3-4
Existing Habitat, Wetlands, and Other Features



Source: Teichert Materials, 2020.

Surrounding land uses include Teichert's Woodland Plant site to the northeast; Teichert's Storz mining site and the Cache Creek Nature Preserve to the northwest; agricultural land and farm dwellings (APNs 025-430-006 and -007) to the west; the Yolo Fliers Club golf course, the Watts-Woodland Airport, and Wild Wings residential subdivision to the southwest; the Monument Hill Memorial Park cemetery[4] and Rural Residential to the south; and agricultural lands to the east (see Figure 3-5). The agricultural land to the east of the site includes one farm dwelling located near the eastern project site boundary.

On December 16, 2014, the County Board of Supervisors held a public hearing and approved a recommended action to consider authorization to further study a General Plan Amendment and Rezone for the Teichert Shifler Mining and Reclamation Project, which is the subject of this EIR.[5]

Policy CO-A107 of the Yolo County General Plan provides a County specific definition of sensitive receptors using the following criteria: residentially designated land uses; hospitals, nursing/convalescent homes, and similar board and care facilities; hotels and lodgings; schools and day care centers; and neighborhood parks. Considering Yolo County's definition of sensitive receptors, the nearest sensitive receptors to the project site are a church-run school located approximately 650 feet south of the Shifler mining site, residences located approximately 430 feet south of the site across County Road 22, and residences located in the Wild Wings subdivision, which is located approximately 1,140 feet to the southwest of the Shifler mining site. The residences to the south of the site, across County Road 22, are located on parcels zoned Rural Residential – 5 Acre (RR-5). The residences to the southwest of the site within the Wild Wings subdivision are located on parcels zoned Low Density Residential (R-L).

Although not considered sensitive receptors per the County's General Plan, various farm dwellings exist within areas designated for agricultural uses by Yolo County, which are in close proximity to both the existing Teichert operational areas as well as the proposed Shifler site. For instance, the nearest farm dwelling to the Shifler site is approximately 165 feet to the west, while another farm dwelling approximately 180 feet to the east, and multiple farm dwellings exist to the south of the Shifler site, beyond the County Road 22 as well as in close proximity to the existing Woodland Plant.

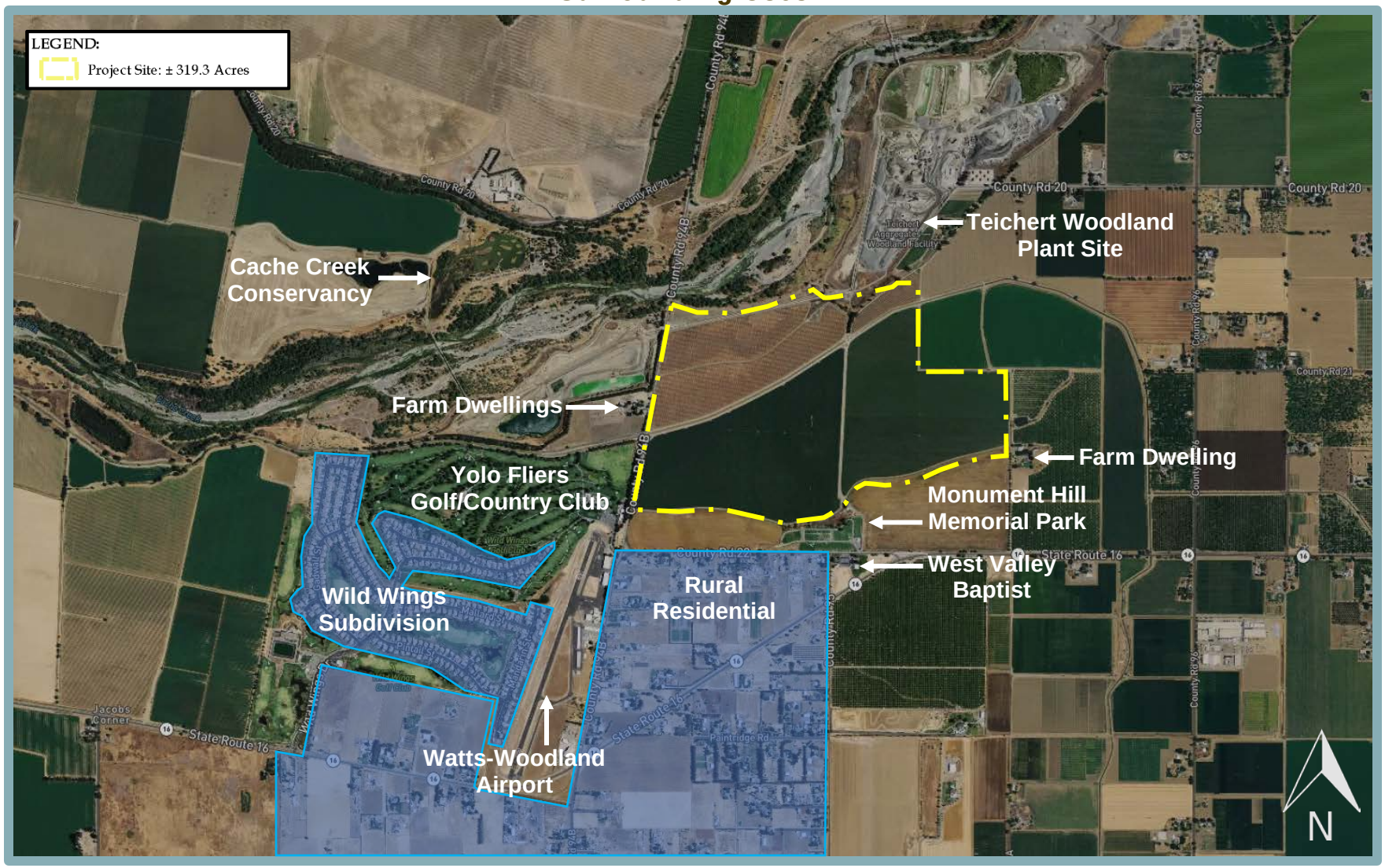
3.4 PROJECT OBJECTIVES

The following project objectives have been submitted by the project applicant (Teichert):

1. Permit an additional 277± acres of permitted mining area with approximately 35.25 million tons sold (41.6 million tons mined) of Portland Cement Concrete (PCC) grade aggregate reserves for mining and processing at Teichert's Woodland Plant for a period of 30 years;
2. Extend the life of the existing Woodland Plant consistent with the requested 30-year life of the Shifler mining permit and allow the facility to continue to operate as needed to meet market demand;
3. Allow Teichert to transfer the Esparto Plant's current annual permitted volume of 1 million tons sold (1.18 million tons mined) to the Woodland Plant once mining is complete at Esparto or the Esparto permit expires, whichever occurs first;
4. Ensure that irrigation water deliveries in Moore Canal are not affected by the proposed project;

[4] This cemetery is privately owned by Yateman and Associates.
[5] Yolo County Board of Supervisors. *Minutes & Supporting Materials.* December 16, 2014.

Figure 3-5
Surrounding Uses



5. Reclaim the mined land to agriculture and a mix of habitat uses, including pond, grassland, riparian woodland, and native landscape, in accordance with the requirements of the Surface Mining and Reclamation Act (SMARA), the Yolo County Off-Channel Mining Plan (OCMP), Off-Channel Surface Mining Ordinance (OCSMO), and Surface-Mining Reclamation Ordinance (SMRO).

3.5 PROJECT COMPONENTS

The project is a proposed new aggregate mining operation on the Shifler property. Excavated sand and gravel would be processed at the existing Teichert Woodland Plant northeast of the site. The project components, including requested entitlements, are discussed in greater detail below.

Mining Plan

The proposed project would allow for mining of approximately 277 acres of the 319.3-acre project site (see Figure 3-6). All of the proposed mining area would be off-channel and set back a minimum of 200 feet from Cache Creek.

Depth of mining will vary depending on the location, quality, and quantity of aggregate reserves present. Existing surface elevations on the project site range from approximately 98 to 112 feet above MSL, with the proposed mining area elevations between approximately 103 and 112 feet above MSL. It is anticipated that the proposed mining would reach a maximum depth of 5 feet below MSL, or approximately 110 feet below existing ground surface, near the northeastern corner of the mining area. The proposed depths of mining for the remainder of the site would be approximately 40 feet below existing ground surface in the southeastern portion of the mining area, approximately 65 feet below existing ground surface in the northwestern corner of the mining area, and approximately 70 feet below existing ground surface in the southwestern corner of the mining area. Detailed mining sheets are provided at the end of this chapter (see Figure 3-21 through Figure 3-28). The total amount of aggregate (sand and gravel) proposed to be mined will vary depending upon the quality and location of aggregate onsite, but will not exceed 35.25 million tons (approximately 23.5 million cubic yards) sold (41.6 million tons mined).

The proposed mining activities would comply with the following minimum slopes, described as a ratio of horizontal to vertical:

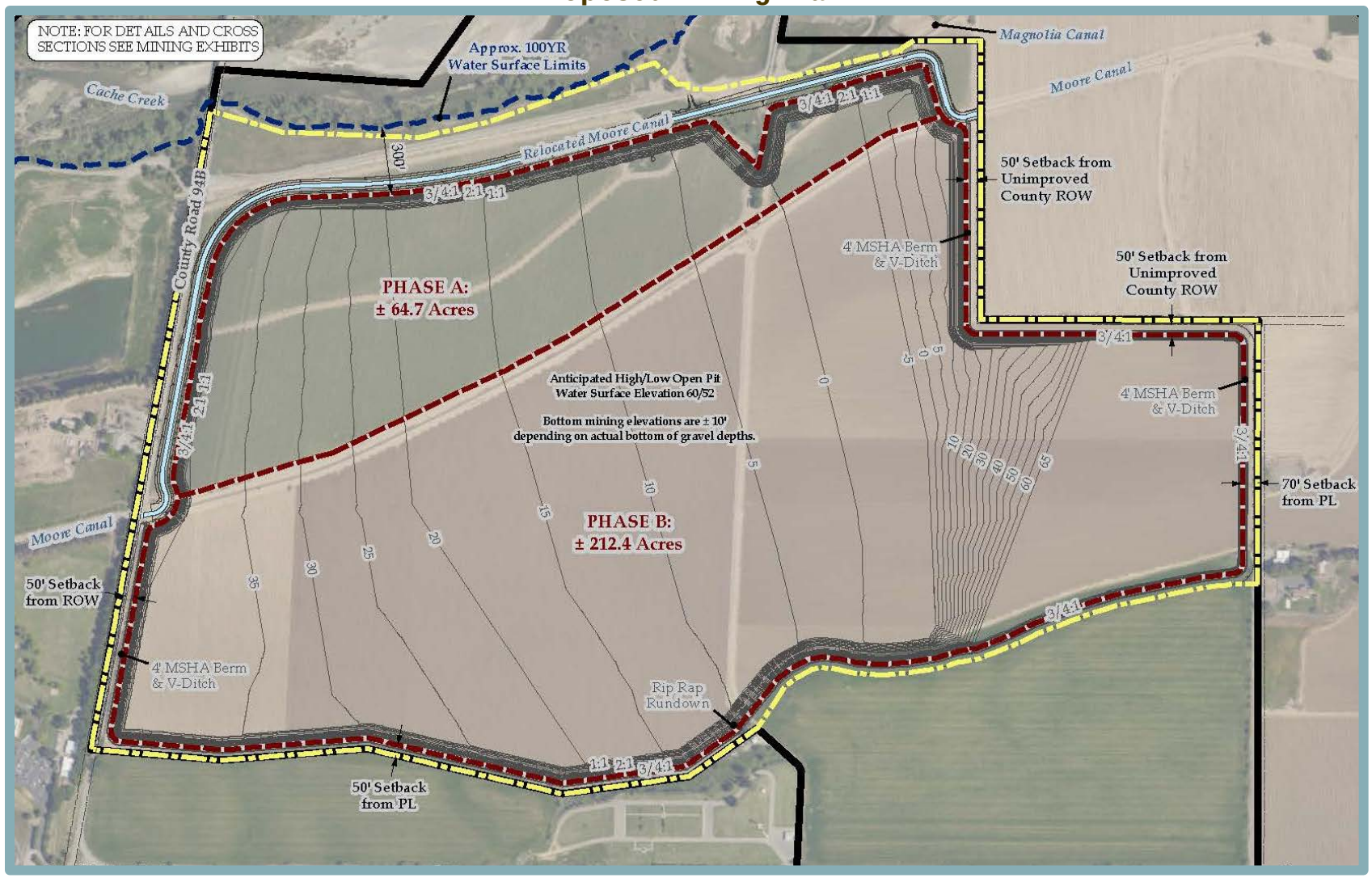
- 0.75:1 down to average low groundwater level during mining (52 feet above MSL);
- 2:1 between average low groundwater level during mining (52 feet MSL) and five feet below average low groundwater level during mining (47 feet MSL); and
- 1:1 five feet or greater below average low groundwater level during mining (47 feet MSL).

The proposed mining activities would necessitate removal of 46 of the 52 existing oak trees on the project site.

Aggregate Processing

Aggregate mined from the project site would be processed at the existing Woodland Plant located northeast of the site. The proposed project includes a request to extend the permitted life of the Woodland Plant from the current expiration date of January 1, 2028 (under the Schwarzgruber approval) to 30 years beyond approval of mining activities on the project site, consistent with the requested Shifler Mining Permit. Continued operation of the Woodland Plant is incorporated as a part of the subject application.

Figure 3-6
Proposed Mining Plan



Relevant conditions of approval for this project would extend to the Plant and its operations. Figure 3-7 shows the existing configuration of the Woodland Plant. The proposed project would not result in new areas of disturbance at the Plant.

In order to transfer mined aggregate from the location of mining to the Woodland Plant, a conveyor/equipment over-crossing of the relocated Moore Canal is proposed (see Figure 3-8). Aggregate trucks going to and from the Woodland Plant currently access the plant from its entrance on County Road 20. Trucks are required to use designated haul routes of County Road 20, County Road 96, and State Route 16 to and from Interstates 5 and 505 (see Figure 3-9). Local deliveries are allowed to use roads other than State Route 16, County Road 20, or County Road 96. The project does not propose changes to the designated haul routes.

Excavation Operations

The proposed mining would generally be conducted with the same equipment, technology, and design considerations as utilized at the Teichert Esparto and Teichert Schwarzgruber operations. Topsoil or "overburden" would be removed and stockpiled (see Figure 3-10). The marketable sand and gravel deposits below would be continuously loaded and hauled to the plant by conveyor. Removal of overburden on the project site would be accomplished using scrapers, motor graders and bull dozers. Overburden would be progressively removed ahead of mining and stockpiled in setback areas and internal storage locations until retrieved for reclamation. The top layers of topsoil would be placed in temporary berms and/or stockpiles and seeded with naturalized annual grasses and forbs. Considering that the proposed excavation activity would result in disturbance of the majority of the project site, the proposed project would result in the loss of all aquatic habitats depicted in Figure 3-4.

Berms and stockpiles would not exceed 40 feet in height with slopes no steeper than 2:1 horizontal to vertical. All stockpiles would remain a minimum of 100 feet from the top of bank of Cache Creek. The stockpiles would be trapezoidal in shape. As shown in Figure 3-10, all proposed overburden stockpiles would be located within the boundaries of the mining area. The overburden stockpiles within the western and central portions of the site would be set below grade, while the easternmost overburden stockpile would be at grade. These stockpiles would be planted with an annual grassland seed mix to minimize soil erosion. Material stockpiles would be primarily located at the Woodland Plant site (see Figure 3-7), with smaller material stockpiles at the conveyor loading locations. Visual and noise berms would be located along the perimeter of mining areas, including within mining setbacks, to provide noise shielding of mining activities from nearby noise-sensitive uses and to allow mining to occur without the need to relocate berms and/or stockpiles before reclamation occurs. The visual and noise berms would be 300 feet long (minimum), eight feet tall (minimum), and would be triangular or trapezoidal in shape. The berms would be seeded with seed mix; the seed mix would be similar to the mix type identified in the Reclamation Plan.

As required by the Mine Safety and Health Administration (MSHA), the proposed project include four-foot-high, 10-foot-wide berms around the perimeter of the mining pit (see Figure 3-10). The MSHA berm would serve to prevent vehicles or personnel from accidentally falling into the mining pit. The MSHA berm would include 2:1 slopes on either side, with a V-shaped ditch along the outside perimeter of the berm, and would be hydro-seeded to prevent erosion and limit growth of invasive weeds.

Figure 3-7
Woodland Plant: Existing Configuration

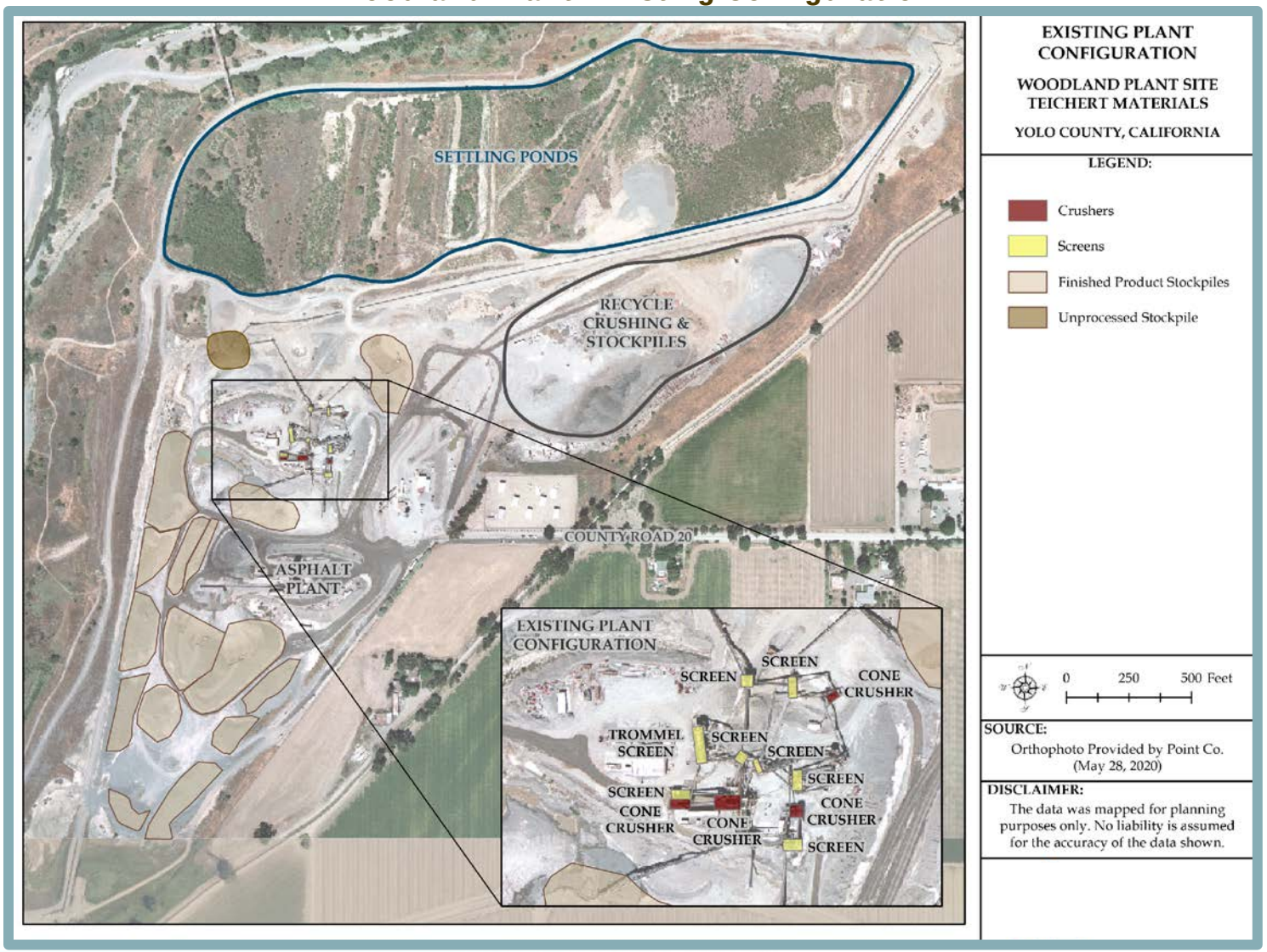


Figure 3-8
Canal Crossing and Ingress/Egress Locations

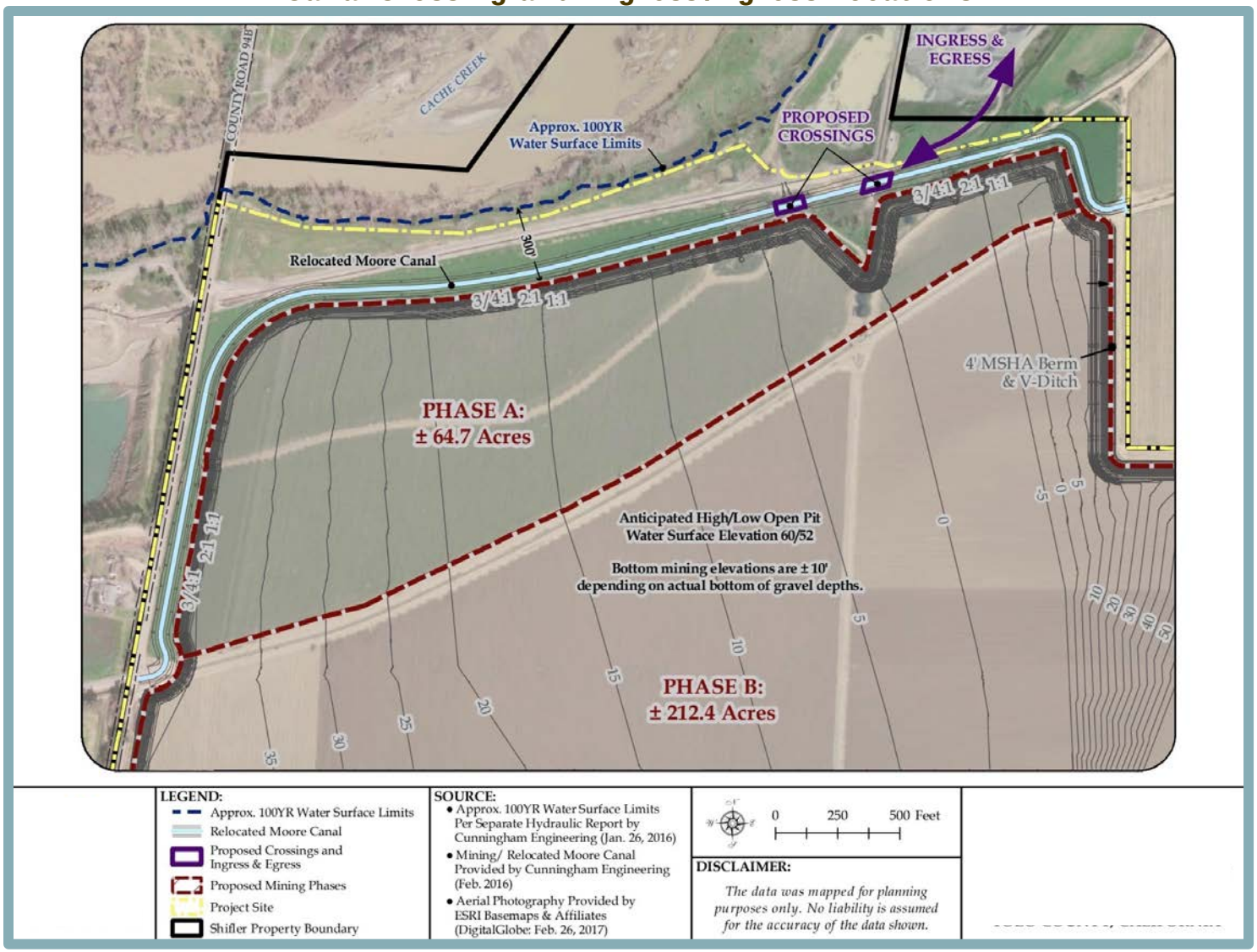


Figure 3-9
Haul Route Map

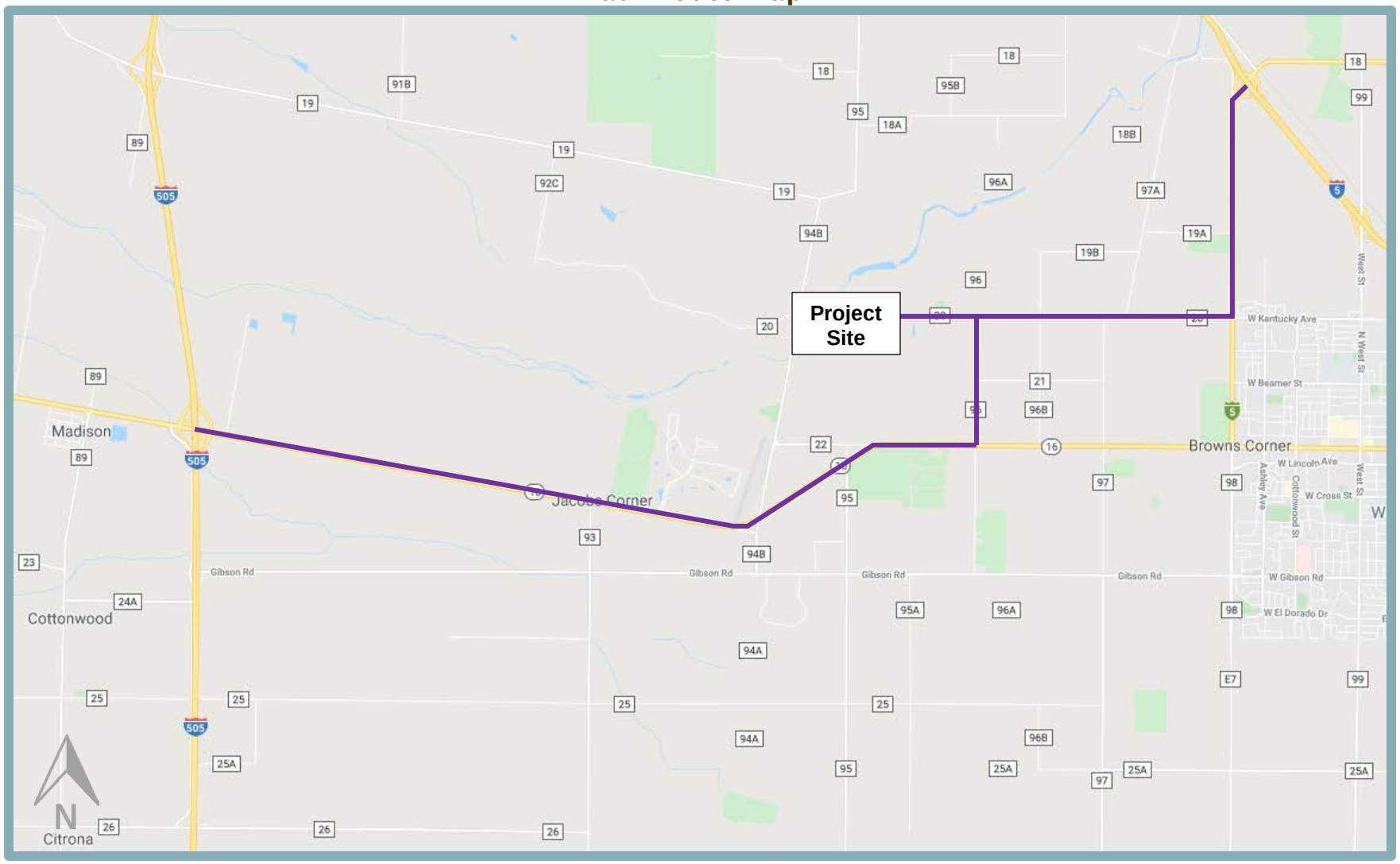
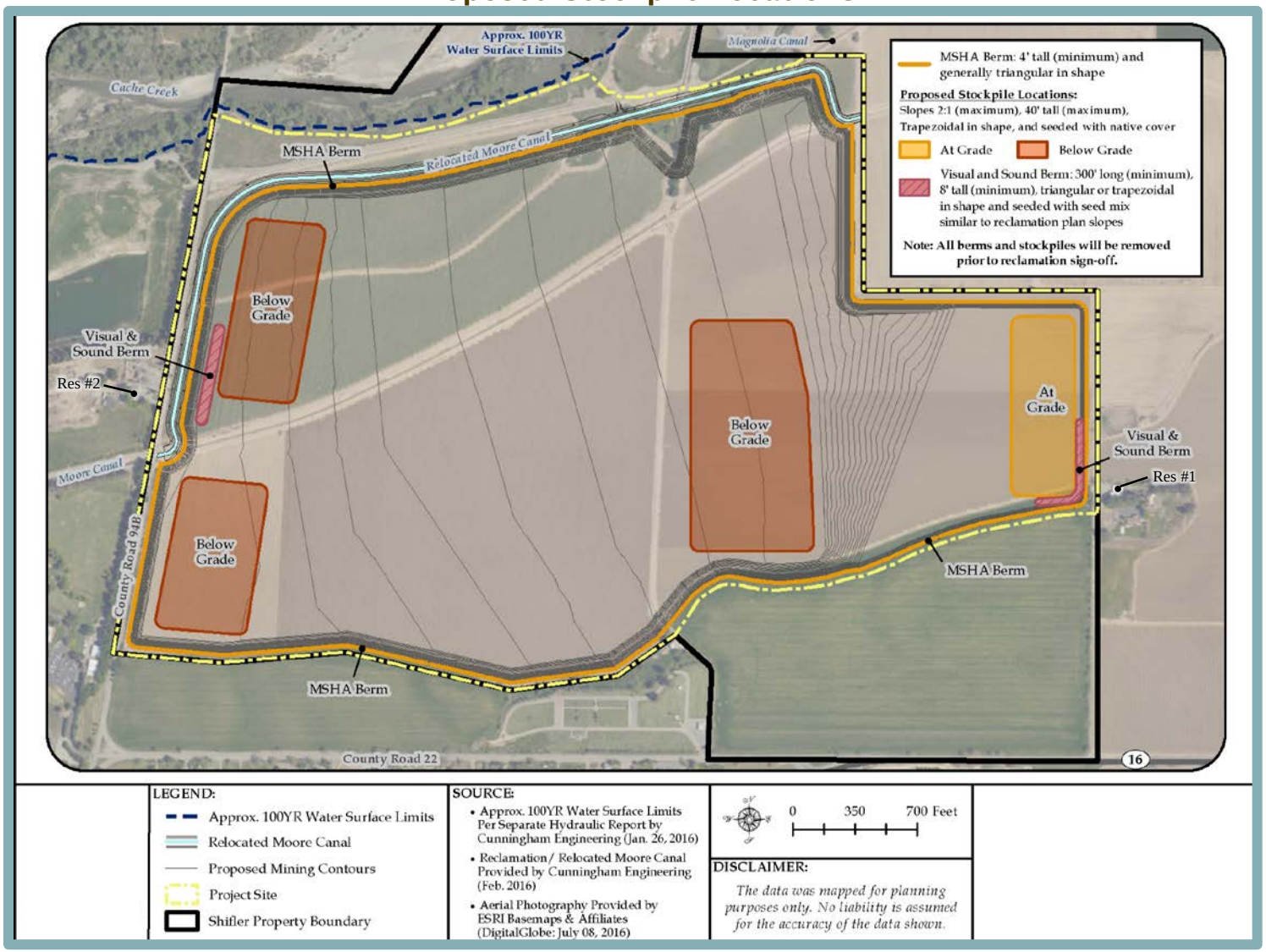


Figure 3-10
Proposed Stockpile Locations



Aggregate above the groundwater level would be harvested by scrapers and dozers. Aggregate mined below the water table would be extracted by a combination of equipment such as excavators, draglines, and potentially a floating dredge. Water trucks would be used to control dust. Table 3-3 below provides a summary of the mining equipment that would typically be used on-site.

Table 3-3
Typical Mining Equipment

Type	Quantity
Motor Grader	1
Excavator	1 to 2
Scraper	1 to 4
Water Truck	1 to 3
Crane/Winch	1
Dozer	1
Dredge or Dragline	1

As discussed under the "Schedule and Employees" section below, normal operating hours for the mining site would be 6:00 AM to 6:00 PM, Monday through Saturday. Typically, nighttime operations, when needed, would only occur for processing and load out at the Woodland Plant, not at the mining site. Because nighttime mining would be a rare occurrence, stationary lighting would not be provided on the mining site. However, should nighttime mining be required, which is unlikely, the mining equipment used on-site would include lighting that would be directed downwards toward the active work area. Some safety lighting may be used for the conveyor, which would primarily be located at transfer points and as the conveyor approaches the Woodland Plant.

Project Energy Supply

Both the proposed mining and processing activity would require energy for various activities. For instance, mining at the Shifler site would entail the use of heavy-duty off-road equipment, which is typically diesel fueled, as well as electricity to transport the mined material from the Shifler site to the Woodland Plant. Processing activities would also require the use of some heavy-duty off-road equipment, as well as electricity for conveyors, crushing machinery, and sorting machinery.

Existing operations at the Woodland and Esparto Plants currently create demand for electricity, while existing mining activity at Esparto and the Schwarzgruber site similarly requires the use of heavy-duty off-road equipment. In order to meet the existing demand for electricity, Teichert has voluntarily installed a photovoltaic energy system at the Woodland Plant. The electricity generated by the photovoltaic energy system is fed into the grid, and off-sets a portion of the electricity demanded by existing operations. The photovoltaic system would remain in operation with implementation of the proposed project, and would continue to provide renewably sourced electricity to the existing and proposed equipment at the plant.

Teichert investigated the potential for installation of either a wind energy or photovoltaic system at the Shifler site. Based on Teichert's research, the Shifler site does not experience adequate wind to make a wind turbine feasible. Photovoltaic installations of sufficient size for the project would require substantial amounts of space. Dedicating space to a photovoltaic installation would interfere with the mining activity proposed for the site. Furthermore, use of a mobile photovoltaic system would be hindered through conflict with the phased approach to farming, mining, and

reclamation. Consequently, Teichert concluded that installation of renewable energy systems at the Shifler site would be infeasible.

Environmental Monitoring

Groundwater levels and quality in the vicinity of the project site have been monitored since 1986 as required by permit conditions for Teichert's Woodland mining operations. The groundwater monitoring network across the Teichert Woodland properties currently consists of 26 monitoring wells and 13 water supply wells monitored by Teichert. In addition, numerous water supply wells near the Teichert Woodland properties are monitored by the YCFCWCD. The locations of these wells are shown in Figure 3-11 below.

The results of groundwater monitoring by the applicant and the YCFCWCD show that groundwater levels on the project site are highest in the western and northwestern portions of the site and lowest in the eastern and south eastern portions of the site.

During a typical spring, high groundwater levels range from approximately 50 feet above MSL in the southeastern corner of the site to approximately 70 feet above MSL in the northwestern corner of the site.[6] During a typical fall, low groundwater levels range from approximately 35 to 40 feet above MSL in the eastern portion of the site to approximately 65 feet above MSL in the northwestern portion of the site.[7] However, during unusually wet or dry years, seasonal differences can vary greatly with historical lows ranging from 10 to 60 feet above MSL onsite and historical highs ranging from 60 feet to 75 feet above MSL onsite.[8]

Moore / Magnolia Canal Relocation

The project proposes relocation of Moore Canal to an alignment along the western and northern boundary of the project site. Mining of the project site would commence in the northwest corner of the site. Relocation of the canal would occur prior to the commencement of mining within 50 feet of the canal. The relocated canal would be located a minimum of 200 feet from the existing top bank of Cache Creek, and the reclaimed mining slopes within 50-feet of the relocated canal would have 3:1 slopes. The proposed project would also include modification of Magnolia Canal to accommodate the proposed Moore Canal alignment. The proposed locations of the modified canals are shown in Figure 3-6.

The relocated Moore Canal would be concrete-lined and have an access road on each side for periodic maintenance by the YCFCWCD. Two over-crossings (see Figure 3-8) of the relocated Moore Canal would be constructed to facilitate the transport of aggregate by conveyor to the Woodland Plant site and to allow mining equipment to access the project site from the Woodland Plant site. The over-crossings would remain after completion of mining and reclamation to allow vehicular access across the relocated Moore Canal.

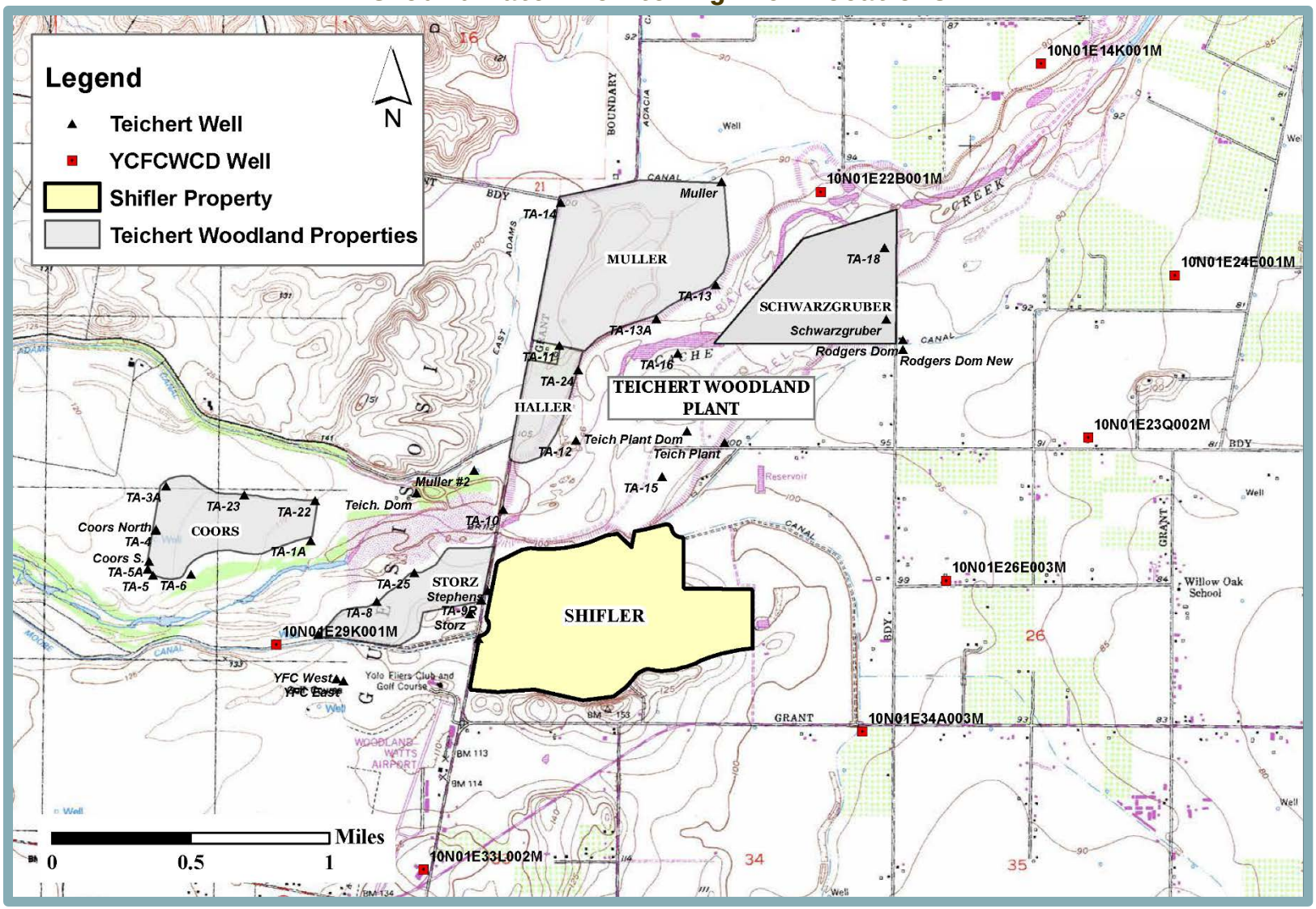
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6 Luhdorff & Scalmanini Consulting Engineers. *Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations, Shifler Property* [Figure 23]. February 2016.

7 Luhdorff & Scalmanini Consulting Engineers. *Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations, Shifler Property* [Figure 22]. February 2016.

8 Luhdorff & Scalmanini Consulting Engineers. *Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations, Shifler Property* [Figures 24 and 25]. February 2016.

Figure 3-11
Groundwater Monitoring Well Locations



Operations and maintenance activities of the YCFCWCD that occur under existing conditions would continue after canal relocation. During the summer irrigation season, the canal road is driven multiple times per day to deliver water, measure flows, check and adjust gates, inspect the canals and infrastructure, perform gate maintenance, control terrestrial and aquatic weeds, and maintain native habitat plantings. During winter, major maintenance occurs, such as removing silt with an excavator, and rebuilding roads with bulldozers, dump trucks, backhoes, and graders. Erosion repairs and gate replacements also occur in the winter time. Cranes are sometimes used. Culverts, bridge crossings, and drop structure also need periodic maintenance or replacement. Canal roads are also traveled for water quality sample collection, groundwater monitoring, access to other canal locations, and similar activities related to delivering water. Temporary storage of equipment and material will also occur along canal rights-of-way, along with burning of downed vegetation and woody debris occurs when permitted by air quality regulations. Encroachment permits are also sometimes granted for installation of private infrastructure, such as field drains and backwash disposal from pump station filters. During winter rain storms, the canal system receives storm runoff, and the system must be patrolled to find and remove blockages. During non-storm periods in the winter, winter water from Cache Creek is placed (when available and by State permit), into the canals for groundwater recharge purposes.

Setbacks and Landscaping

The relocated Moore Canal would be set back a minimum of 200 feet from top of bank and the nearest mining activities would be located approximately 300 feet from Cache. The project is proposed to include a minimum 50-foot setback from County Road 94B to the west of the proposed site with visual screening consisting of berms and landscaping and a setback of approximately 400 feet or more from County Road 22 to the south of the site with visual screening provided by existing topography and landscaping. A 50-foot setback is proposed between the site and the adjacent Woodland Plant site to the north. Implementation of the project would include removal of 46 of the 52 existing oak trees identified within the project site (see Figure 4.4-5 in Chapter 4.4, Biological Resources, of this EIR).

Several elderberry bushes located along the northern boundary of the project site near Cache Creek (see Figure 3-12) are potential habitat for the endangered valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a threatened species under the federal Endangered Species Act (ESA). The proposed project would not include disturbance within 50 meters (165 feet) of the identified elderberry bushes.

Currently, a landscape buffer is located along the southern portion of the western perimeter of the project site along County Road 94B (see Figure 3-13). A second landscape buffer is provided along a portion of the southern site boundary near County Road 22. As part of the proposed project, the northern section of the western perimeter would be planted with native tree and shrub species prior to commencement of mining activities. The proposed landscape buffers would extend along the north side of the relocated Moore Canal, eventually connecting with the existing Cache Creek riparian corridor.

The project proposes a visual screening program to screen views of the proposed mining operations from the Monument Hill Memorial Park cemetery to the south of the project site. Due to the topography at that location, the landscape plantings would need to be on the Memorial Park property to be effective. Teichert is proposing that the visual screening would be planted on the cemetery property prior to commencement of mining activities on the project site, and is currently in negotiations with the property owner regarding this proposal.

Figure 3-12
Location of Existing Elderberry Shrubs

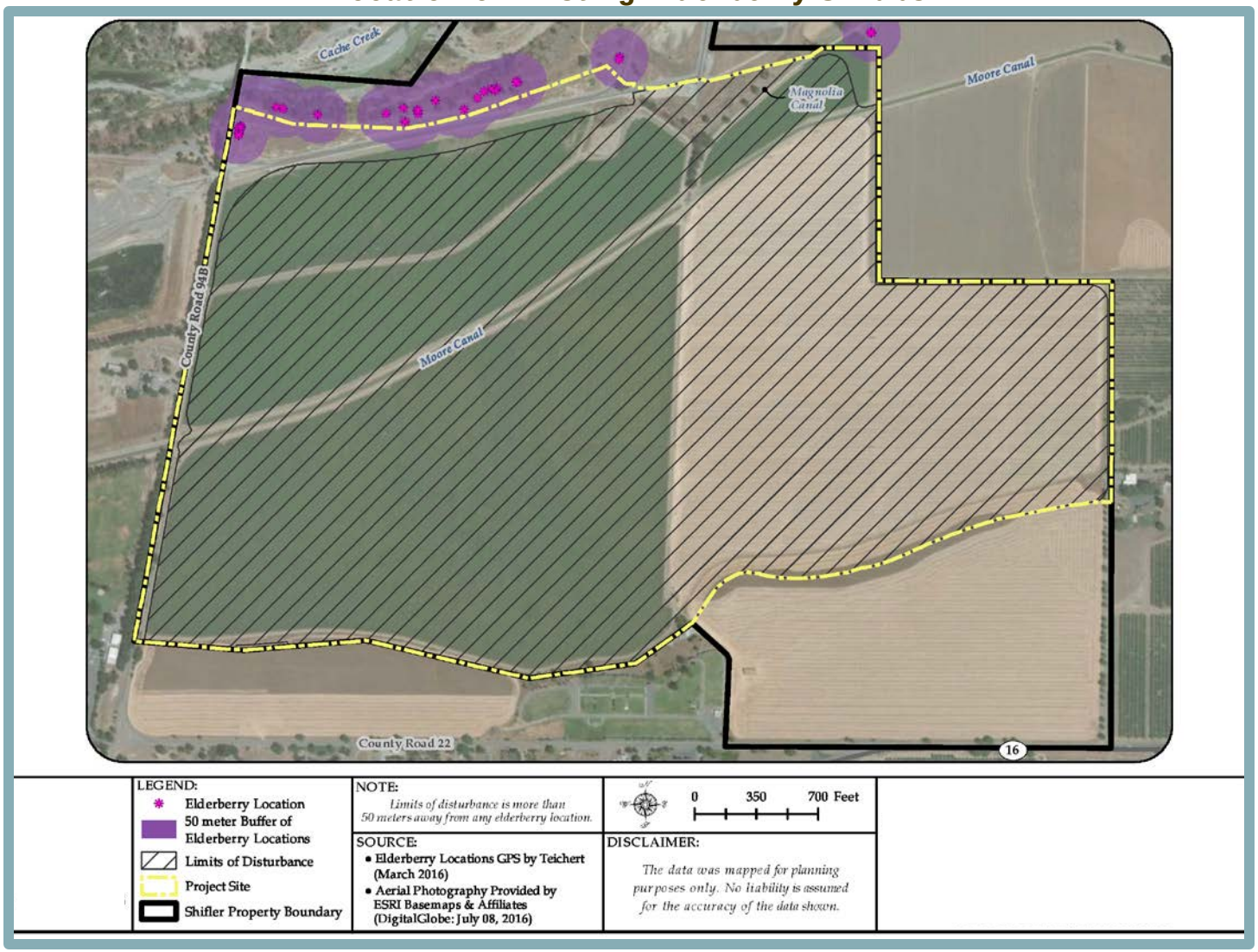
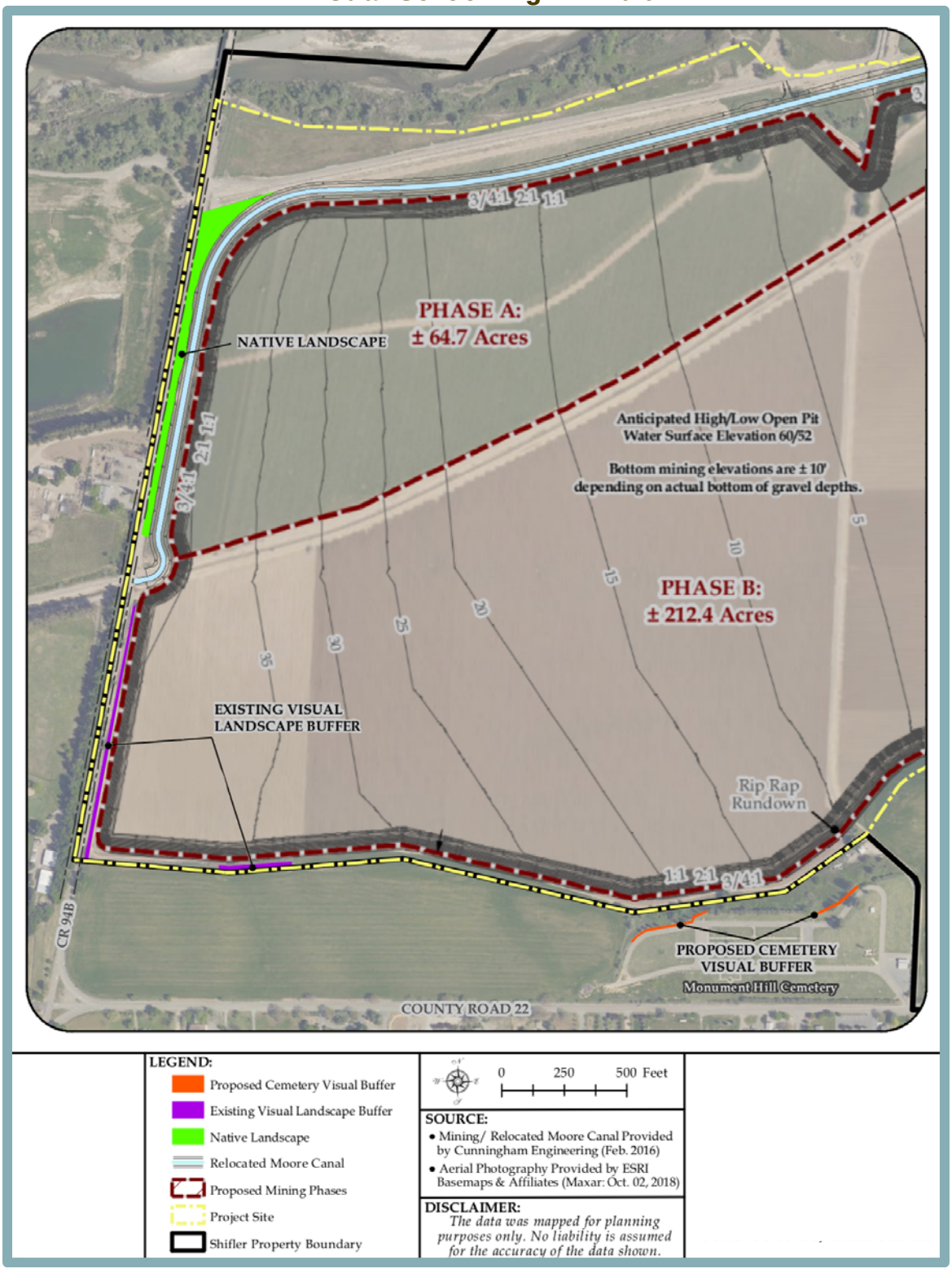


Figure 3-13
Visual Screening Exhibit



Schedule and Employees

Existing operations at the Woodland Plant and the associated Schwarzgruber mining site are governed by Condition 38 of the Schwarzgruber Mining Permit, which states the following:

> 38. The hours of operation for the mining site are 6:00am to 6:00pm Monday through Saturday. Occasional 24-hour operations to fulfill contract requirements are allowed within the regulations established in Section 10-4.421 of the mining ordinance. The hours of operation for the Teichert-Woodland plant are 6:00am to 6:00pm Monday through Friday. For the months of August, September, and October, hours may be extended to 10:00pm (Monday through Friday) and 6:00am to 6:00pm Saturday and/or Sunday subject to compliance with Section 10-4.421 of the Mining Ordinance.

Operations at the project site would be consistent with the existing hours of operation as described in this condition.

The Teichert Schwarzgruber operation involves 28 employees, including 22 operating engineers, one teamster, one laborer, and four clerical staff, for aggregate processing activities occurring at the Woodland Plant site and mining and reclamation activities occurring at the Schwarzgruber mining site. The proposed project would maintain similar levels of employment.

Employment at Teichert's Esparto Plant has varied historically depending on production. While the Esparto Plant is currently idle, the Esparto Plant was operating at peak production as recently as April 2017. At peak production, the Esparto Plant employed 24 people, including 18 operating engineers, one teamster, one laborer, and four clerical staff. Once mining ceases at the Esparto Plant, these employees would be transferred over to the Woodland Plant to accommodate the production increase associated with the proposed Shifler operation. Thus, with the proposed transfer of the Esparto production allotment to the Shifler operation, total employment for operations at Shifler including operation of the Woodland Plant, under peak production, would consist of 52 people, including 40 operating engineers, two teamsters, two laborers, and eight clerical staff.

Drainage and Water Supply

Stormwater runoff would not leave the site during, or after completion of, the proposed mining activities. The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate or evaporate. At the conclusion of mining, the site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. New stormwater detention basins would be provided within the western and eastern reclaimed agricultural areas of the site.

The project site is currently provided with agricultural water from the YCFCWCD by way of the Moore Canal, which would continue to supply on-site agricultural activities during mining and after reclamation. The project site contains two unused wells: one agricultural well located near the western boundary of the site, and a domestic well located near the northern boundary of the site. The applicant proposes to fill and seal the domestic well, and retain the unused agricultural well as a monitoring well.

As is currently the case for the Teichert Schwarzgruber mining operations, water for aggregate processing and dust suppression at the project site would be supplied by two wells at the



Woodland Plant site and groundwater from the proposed mining pit. Groundwater from the mining pit would be pumped to the Woodland Plant to supply aggregate processing operations at the plant. The proposed water transfer to the Woodland Plant would require installation of a new underground water pipe, to be located alongside the existing conveyor belt alignment. Processing water (also called aggregate wash water) from the project site and the Woodland Plant would be recycled through the use of settling ponds located at the Woodland Plant site. The discharge of aggregate wash water to the settling ponds at the Woodland Plant site would be regulated through Waste Discharge Requirements (WDRs) issued by the Central Valley Regional Water Quality Control Board (RWQCB), as is currently the case. The project proposes modifications to the existing WDRs to allow for the use of fine sediment from aggregate processing (i.e., "fines") in the eventual reclamation of the project site. The processing fines would be pumped from the Woodland Plant site as a slurry (mix of water and fines) and discharged into the mining area/pond in accordance with the requirements of the revised WDRs.

Teichert requests the ability to conduct dewatering activities at the project site subject to the following conditions:

- Groundwater pumping rate from the Shifler mining area may not exceed 3,500 gallons per minute (gpm), consistent with the maximum pumping rate for dewatering at Esparto.
- Annual water use may not exceed 1,910 acre-feet/year (average steady state flow rate of 1,184 gpm or 227,920 cubic feet per day based on 24 hours/day, 365 days/year operations).
- Off-site discharge of pumped groundwater shall not occur. Groundwater from the Shifler mining area would be pumped through a new water pipe to the adjacent Woodland Plant for use in aggregate processing. Aggregate wash water from the Woodland Plant would be discharged to the Shifler mining area in accordance with WDRs to be specified by the RWQCB.
- Groundwater levels would be monitored quarterly, as required under OCSMO Section 10-4.412.
- Groundwater pumping volumes would be recorded, as required under OCSMO Section 10-4.412.

As required under Section 10-4.412 of the OCSMO, Teichert proposes to monitor water levels in the wet pit(s), and nearby monitoring wells on a quarterly basis and would quantify the amount of water pumped from and returned to the wet pit(s).

Potable water demand would be met through bottled drinking water, which would be provided at the adjacent Woodland Plant. Portable toilet facilities would be provided at the project site and existing portable toilet facilities would continue to be used at the adjacent Woodland Plant.

Phasing

The project includes a phasing plan to minimize the area of disturbed agricultural lands during each mining phase and to encourage the early completion of agricultural reclamation (see Table 3-4). Under the proposed phasing plan, mining activities within the project site would be phased generally from north to south (see Figure 3-14). Agricultural reclamation of the western portion of the project site would occur concurrently with mining activities within the eastern portion of the project site. Mining would occur in two phases: (Phase A (64.7 acres) and Phase B (212.4 acres). Reclamation would occur in three phases: Phase A (98.1 acres), Phase B (142.2 acres), and Phase C (36.8 acres).

Figure 3-14
Proposed Phasing Plan

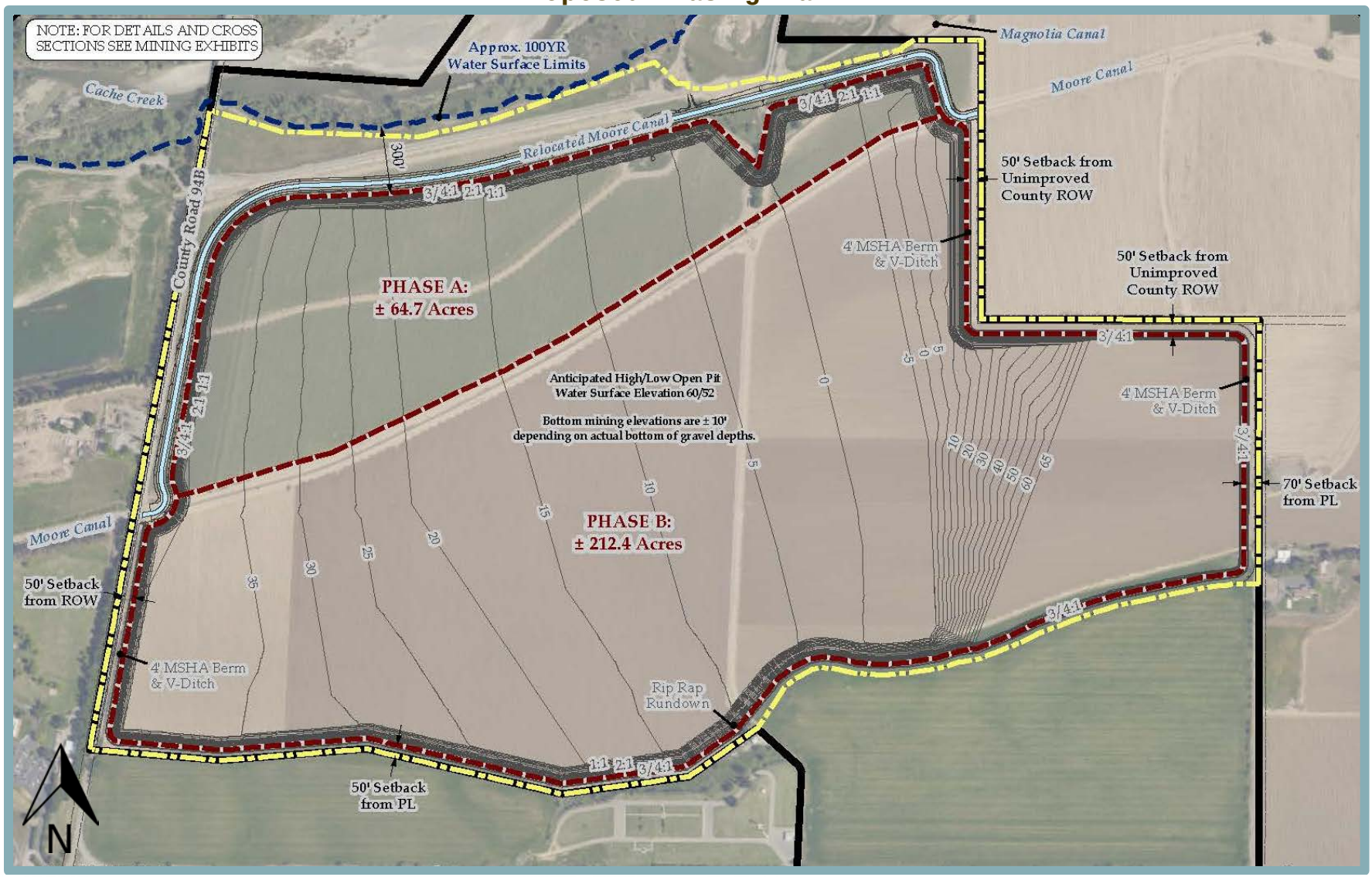


Table 3-4
Mining and Reclamation Phasing Example

Years	Mining Activity	Reclamation Activity	Farming Activity
1 to 10	Mining in Phase A	Begin Reclamation in Phase A	Farming in Phase B until disturbance and in Phase C
11 to 20	Mining in Phase B	Continue Reclamation in Phase A, Start Reclamation in Phase B	Continue Farming in Phase B until disturbance
21 to 30	Mining in Phase B	Complete Reclamation in Phase A, Continue Reclamation in Phase B, Begin Reclamation in Phase C	Begin Farming in reclaimed Phase A
2 years Post Mining	None	Complete Reclamation in Phase B and Phase C	Continue Farming in reclaimed Phase A and Begin Farming in reclaimed Phase C

Reclamation Plan

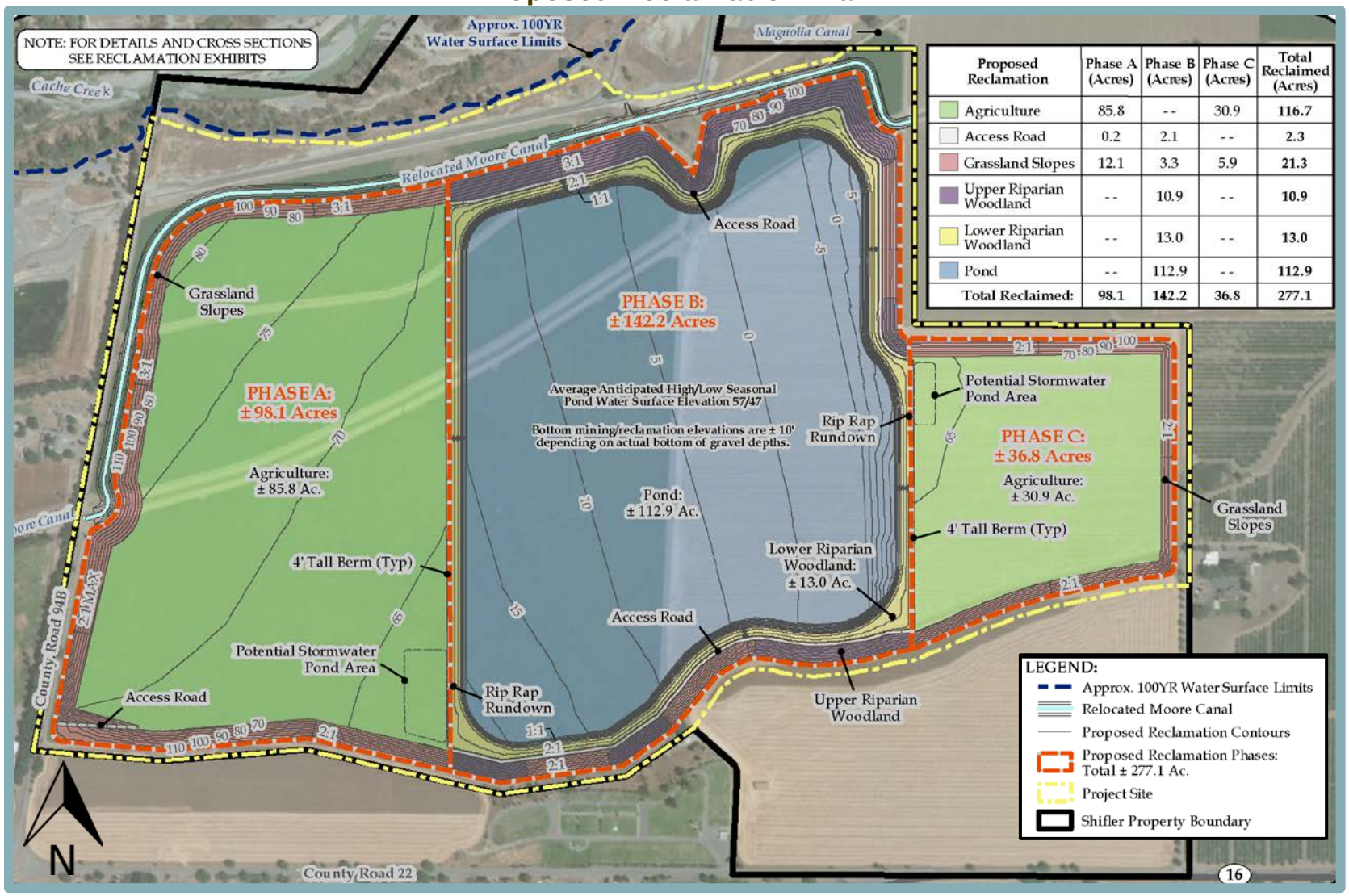
The applicant proposes to reclaim the approximately 277-acre proposed mining area to agriculture and habitat uses (see Figure 3-15). Approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. Slopes would be reclaimed to grassland. The amount of each habitat type could vary depending on actual mining depths and groundwater elevations. Detailed reclamation sheets are provided at the end of this chapter (see Figure 3-29 through Figure 3-36).

Approximately 798,000 cubic yards of reclamation soils would be spread across the 85.8-acre agricultural field and slopes. The agricultural field would have a minimum four feet of reclamation soils placed. The slopes would be graded from the mining grade of 0.75:1 to on average between 2:1 and 3:1 in accordance with the Reclamation Plan using scrapers. Slopes would be track walked using dozers to prepare the slopes for seeding. The seed mix would contain the following pounds per acre (lbs/acre) mix: eight lbs/acre Blue Wild Rye, 12 lbs/acre California Brome, six lbs/acre Annual Fescue, one lb/acre California Poppy, five lbs/acre Arroyo Lupine.

In addition to agriculture and associated access roads, a total of four reclaimed habitat communities are proposed. These include grassland slopes, lake, upper riparian woodland, and lower riparian woodland. Some of these communities may overlap or transition into one another. Grassland and woodland communities would be established surrounding a reclaimed lake in order to enhance habitat values and protect neighboring agricultural fields. These vegetation communities and their associated microhabitats are typical of naturally-occurring ones in the area. Each habitat community is designed to have a diversity of plants and conditions that would complement each other and provide a diverse habitat for wildlife.

After mining has ceased on the project site, all mining equipment would be removed from the site. Reclamation of the project site would occur as soon as feasible. Once groundwater elevations have reached equilibrium, reclamation of the pit floor would occur.

Figure 3-15
Proposed Reclamation Plan



Proposed Reclamation	Phase A (Acres)	Phase B (Acres)	Phase C (Acres)	Total Reclaimed (Acres)
Agriculture	85.8	--	30.9	**116.7**
Access Road	0.2	2.1	--	**2.3**
Grassland Slopes	12.1	3.3	5.9	**21.3**
Upper Riparian Woodland	--	10.9	--	**10.9**
Lower Riparian Woodland	--	13.0	--	**13.0**
Pond	--	112.9	--	**112.9**
Total Reclaimed:	**98.1**	**142.2**	**36.8**	**277.1**

Overburden and processing fines generated from the Woodland Plant would be used to create any remaining slopes and benches within the mining area. Reclamation to habitat uses (lake, riparian wetland, riparian oak woodland, and grassland/slopes) would include a minimum of 12 inches of soil (topsoil/overburden/silt) to be placed on all surfaces.[9]

Agricultural reclamation would require the use of overburden and processing fines to raise the pit floor elevation above the average high groundwater level followed by the placement of a minimum of four feet of salvaged reclamation soils (stockpiled topsoil and upper layers of overburden) on the created land (see Appendix C).[10] The Reclamation Plan proposes reclaimed agricultural field elevations of a minimum of five feet above the average high groundwater elevations.

Average high groundwater levels would range from 75 feet MSL in the northwestern corner to 57 feet MSL in the southeastern corner of the western agricultural field, and from 57 feet MSL in the northwestern corner to 47 feet MSL in the southeastern corner of the eastern agricultural field. The Reclamation Plan requires that the reclaimed agricultural land demonstrate productivity that is equal to or greater than existing productivity (see Appendix C).[11]

Reclamation Slopes

Reclamation of the project site would comply with the following minimum slopes, as described as a ratio of horizontal to vertical:

- 2:1 above average high reclaimed groundwater level (57 feet MSL at the reclaimed lake), except for reclaimed mining slopes that are within 50 feet of the relocated Moore Canal, which will have a minimum slope of 3:1;
- 4:1 between average high reclaimed groundwater level (57 feet MSL) and five feet below average high reclaimed groundwater level (52 feet MSL);
- 2:1 between five feet below average high reclaimed groundwater level (52 feet MSL) and five feet below average low reclaimed groundwater level (42 feet MSL); and
- 1:1 below five feet below average low reclaimed groundwater level (42 feet MSL).

Financial Assurances

SMARA requires that each mining operation have a financial assurance to ensure that reclamation is performed in accordance with the approved reclamation plan. Financial assurances must be payable to "lead agency" and the Department of Conservation. If a change of ownership occurs, the existing financial assurance remains in force until a replacement financial assurance is approved by the lead agency.

For private entities, financial assurances must be in the form of surety bond, irrevocable letter of credit, or trust fund (such as an assigned certificate of deposit) acceptable to the State. SMARA requires that the financial assurances be adjusted annually. The adjustments account for new lands disturbed, inflation and for reclamation of lands accomplished in accordance with the approved reclamation plan (PRC 2773.1(a)(3). In other words, the financial assurances are calculated based on the state of the mining operation each year (e.g. the cost to reclaim should the operation close during that year) rather than from the final anticipated state of the land at the planned end of mining. Teichert's Shifler Mining and Reclamation Plan application included a Financial Assurance Cost Estimate (FACE) of $777,486.43 for the first phase of mining.

[9] Teichert Materials. *Shifler Mining and Reclamation Project, Project Description.* August 2018.
[10] Teichert Materials. *Shifler Mining and Reclamation Plan, Yolo County, California.* June 2018.
[11] Teichert Materials. *Shifler Mining and Reclamation Plan, Yolo County, California.* June 2018.

3.6 REQUIRED DISCRETIONARY APPROVALS

The following sections describe the required Yolo County approvals associated with the proposed project. In addition to certification of this EIR, the proposed project would require the following approvals from Yolo County. Each entitlement is described in greater detail below:

- General Plan Amendment (GPA) to extend the MRO over the entire project site;
- Rezone to add a Sand and Gravel Overlay (SG-O) over the entire project site
- Mining Permit (30-year Off-Channel Surface Mining Permit) for new excavation site, and continued operation at the Woodland Plant site;
- Transfer of annual permitted tonnage allocation from Teichert Schwarzgruber and Teichert Esparto projects to the Teichert Shifler project;
- Reclamation Plan;
- Approval of 20 percent exceedance of annual production limits under County Code Section 10.4-405;
- Streambank Stabilization Plan; and
- Development Agreement.

General Plan Amendment

Per the Yolo County General Plan, the project site is designated AG, and approximately 107 acres of the project site is included in the MRO designation. The proposed project requires a General Plan Amendment to extend the MRO designation over an additional 212 acres to cover the remainder of the 319.3-acre project site (see Figure 3-16).

At the time of the Notice of Preparation (NOP), the project required an amendment to the CCAP to include the project site in the OCMP boundary. However, an update to the CCAP was approved in December 2019 and included the necessary amendments to the OCMP boundary. The OCMP "Planning Area" now covers all land inside the CCAP boundary but outside the CCRMP boundary, as depicted in Figure 4 of the CCAP. Thus, as a result of the recent updates to the CCAP, the project site is now included in the OCMP Planning Area, and amendment to the CCAP is no longer required.

Rezone

The project site is currently zoned A-N. The proposed project would include a rezone to add the SG-O overlay to the site, resulting in a zoning designation of A-N/SG-O (see Figure 3-17). Aggregate mining is a conditionally allowed use in the A-N/SG-O zone subject to the approval of a Surface Mining Permit as described below.

Mining Permit

The proposed project would require approval of a Surface Mining Permit (Mining Permit) as described in Chapter 4 of Title 10 of the County Code entitled Off-Channel Surface Mining Ordinance (Mining Ordinance). A mining permit is a type of conditional use permit.

Figure 3-16
Proposed General Plan Amendment

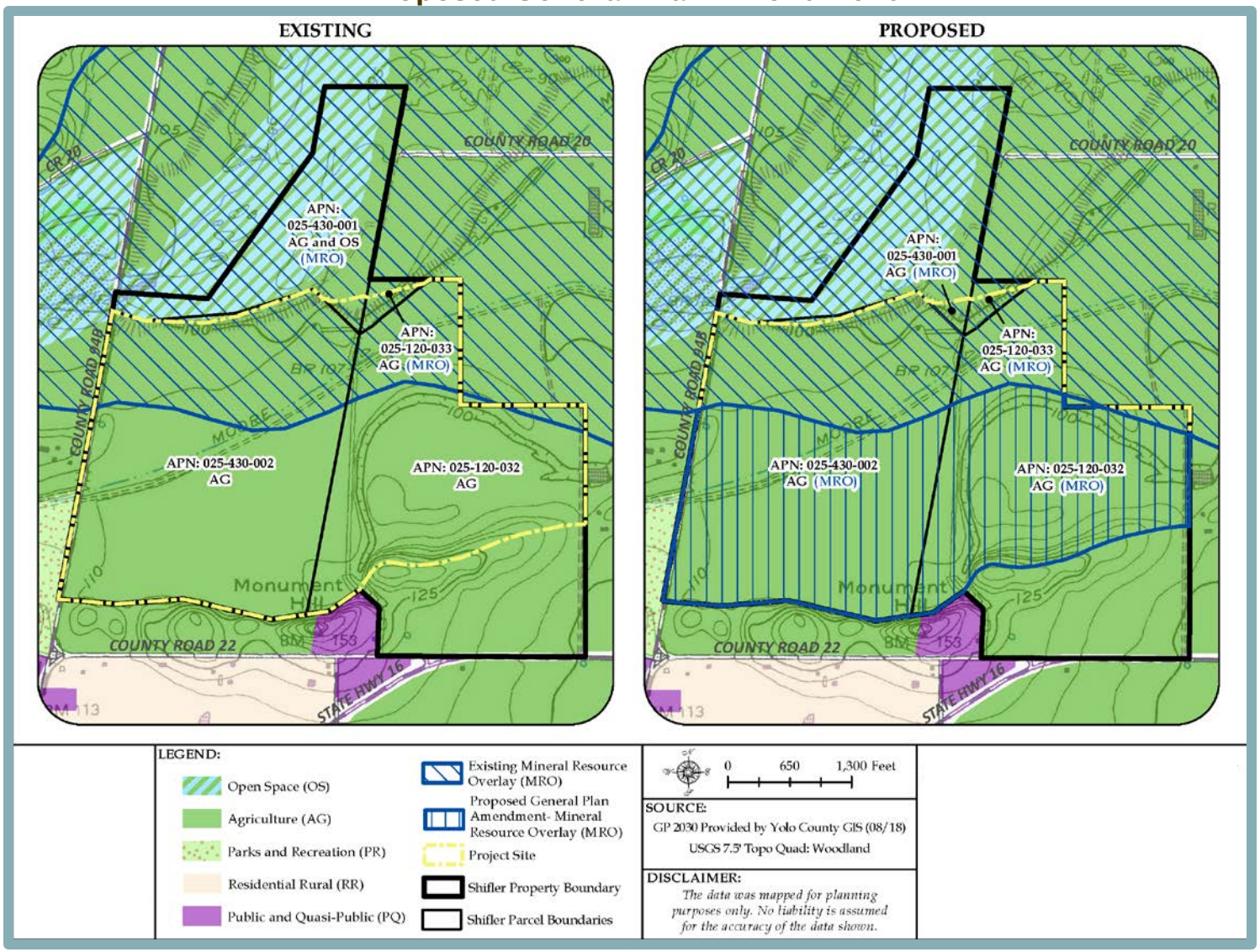
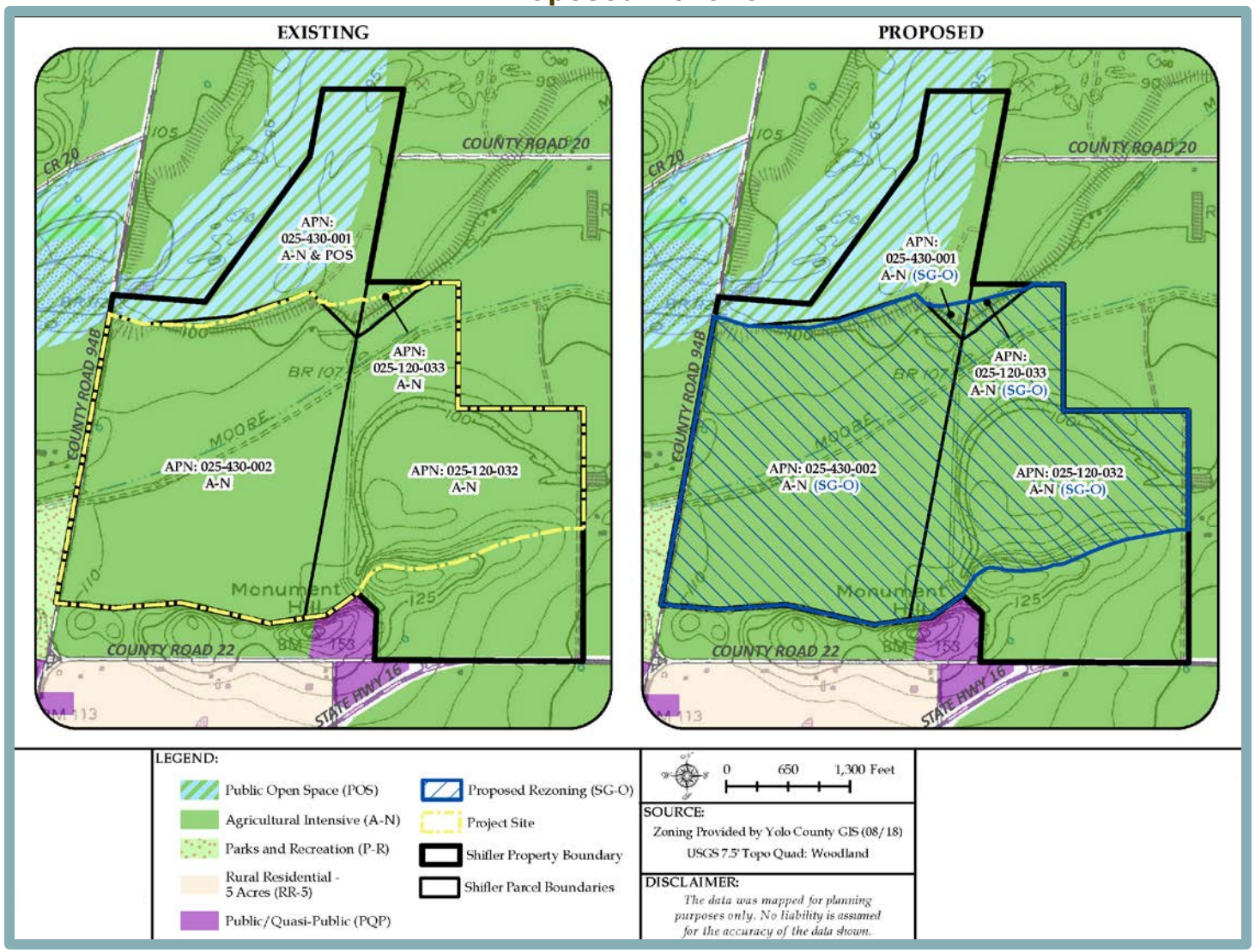


Figure 3-17
Proposed Rezone



Mining of the aggregate reserves on the project site could take 20 years or longer, depending on market demand. OCMP Policy 2.4-3 limits surface mining permits to a maximum of 30 years, with the potential to extend the permit life by a maximum of 20 years with subsequent approvals. Accordingly, the applicant is requesting approval of a Mining Permit with a duration of 30 years from the commencement of mining on the project site. Thus, if approval is granted in 2020, the permit would expire in 2050. Reclamation activities could continue for an additional two years after the expiration of the requested Mining Permit.

The proposed project includes a request to extend the permitted life of the Woodland Plant from the current expiration date of January 1, 2028 (under the Schwarzgruber approval) to 30 years beyond approval of mining activities on the project site, consistent with the requested Shifler Mining Permit. Increased processing capacity, new equipment, and continued operation of the Woodland Plant is incorporated as a part of the subject application. Relevant conditions of approval for this project would extend to the Plant and its operations.

Transfer of Mining Allocation

The applicant is requesting to transfer the annual permitted tonnage allocation associated with the Teichert Schwarzgruber operation and the Teichert Esparto operation upon completion of mining or permit expiration at either site. Together, the proposed transfers would allow the Teichert Shifler operation to mine a maximum of 2,588,237 tons (2.2 million tons sold) in any given year, provided that production over a consecutive 10-year period does not exceed 23,529,430 tons mined (20 million tons sold).

Reclamation Plan Approval

The project proposes reclamation of the 277.1-acre mining area to 116.7 acres of agriculture, 112.9 acres of lake, 45.2 acres of grasslands and riparian habitat, and 2.3 acres of access road. Reclamation would be undertaken over time as mining occurs, and would be completed within approximately two-years of completion of the final phase of mining.

Exceedance of Annual Production Limits

Pursuant to Section 10-4.405 of the Mining Ordinance, surface mines must operate within the limits of the annual production level established in the applicable mining permit. Annual aggregate production may not exceed the established annual level, except to meet temporary market demand. Individual producers may exceed their maximum annual allocation by up to 20 percent in any one calendar year, so long as their running 10-year average does not exceed the maximum level. Aggregate sold in excess of the established annual level is subject to a $0.10/ton mining fee surcharge. The Teichert Schwarzgruber operation has approval under this section of the code. The Teichert Esparto operation does not. The project includes a request to apply this Section of the code to the tonnage allocation transferred from the Schwarzgruber operation to Shifler.

Streambank Stabilization Plan

The proposed project is requesting approval of mining, and relocation of the Moore Canal, within 700 feet of, but no closer than 200 feet to, the Cache Creek channel bank. The area within 700 feet of the channel bank is called the “streamway influence boundary”. In support of this request a Streambank Stabilization Plan (SSP) is required for the south bank of Cache Creek adjacent to the northern margin of the proposed mining area. The SSP must comply with the provisions of Section 10-4.429(d) of the Mining Ordinance and must implement channel bank improvements (referred to as the Channel Form Template) along the property creek frontage, consistent with

the CCRMP and Cache Creek Improvement Plan (CCIP), if the aforementioned improvements are required.

The technical analysis of conditions at this location (see Appendix J) demonstrates that this area has low potential for lateral stream migration or bank retreat, that additional bank stabilization measures are not currently necessary, and that the channel bank alignment is substantially consistent with the CFT along the property creek frontage. This is discussed further in Chapter 4.8, Hydrology and Water Quality. Therefore, the purpose of the required SSP is to identify preventive measures (bank reinforcement and habitat enhancement), operation and maintenance requirements, and any requirements for preemptive stream stabilization mechanisms that the County determines to be necessary to support activity within the streamway influence boundary at this location. The applicant will be required to secure a Flood Hazard Development Permit (FHDP) in conjunction with approval of an SSP, pursuant to Section 8-4.404 of the County Code, to address required improvements within a special flood hazard area. The FHDP will be examined at the time of submittal will be subject to review at that time to ensure compliance with the CCRMP/CCIP and appropriate CEQA coverage in the CCAP Update FEIR.

Development Agreement

The proposed project includes the execution of a new development agreement between the applicant and the County. Among other things, the development agreement vests the requested approvals and commits the applicant to participation in the CCAP including payment of per-ton mining fees and the provision of other specified public benefits known also as “net gains”.

The following net gains are under consideration as a part of the Teichert Shifler development agreement and are analyzed in this EIR as a part of the proposed project:

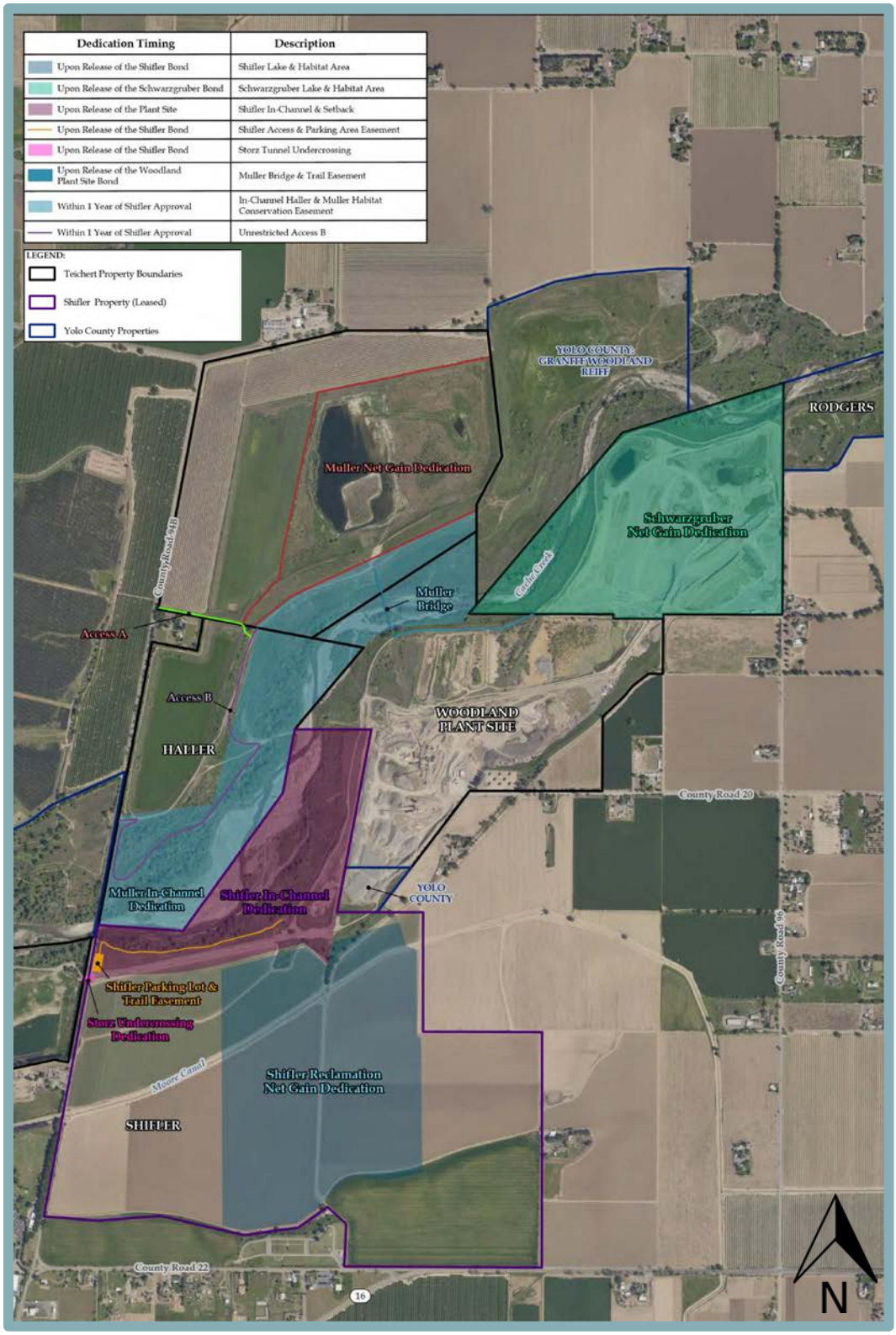
- In-channel bar skimming pursuant to the CCRMP – Figure 3-18 identifies the extent of the area proposed for in-channel bar skimming. The applicant is proposing to design and complete a gravel bar removal project to help prevent further channel bank erosion and provide for addition capacity in the Cache Creek channel. The proposed in-channel bar skimming would take place over a five-year period in the area in-channel segment bounded by the County Road 87 bridge to the west and the Interstate 505 bridge to the east. The project would remove approximately 3,000,000 tons of excess sand and gravel material from the Cache Creek channel, realign the low-flow channel of Cache Creek away from the banks and toward the center of the creek channel, remove invasive species from the project area, and complete bank repairs adjacent to the Teichert Esparto Plant consistent with the CRMP/CCIP Channel Form Template. The amount of material removed in any one year would be governed by Section 10.3-409 of the In-Channel Maintenance Mining Ordinance and would generally not exceed 690,800 tons in any one year.

  This work is anticipated and encouraged in the CCRMP/CCIP and associated impacts are addressed in the CCAP Update EIR (certified December 2019). The work would require issuance of a subsequent Flood Hazard Development Permit (FHDP) by the County and would require subsequent hydraulic analysis to confirm public benefit through reduction of flood risk. All removal would be subject to review and oversight by the Cache Creek Technical Advisory Committee (TAC).

Figure 3-18
In-Channel Bar Skimming



Figure 3-19
Dedication of Reclaimed Lands



- Dedication of reclaimed lands – Figure 3-19 identifies three properties offered for dedication to the County. Future uses would include public recreation, open space, and habitat pursuant to the proposed/approved reclamation plan for each property and consistent with the Cache Creek Parkway Plan documents.

    - Shifler Lake -- the Shifler reclaimed lake and surrounding habitat totaling approximately 142 acres would be dedicated to the County as part of the Cache Creek Parkway system following reclamation which is estimated to occur in 2051. Dedication would include trails, the existing conveyor tunnel under County Road 94B, and a gravel parking area to be constructed by the applicant.

    - Shifler In-Channel – the northerly area of the Shifler property totaling approximately 123 acres lies primarily in-channel, between the Haller-Muller In-Channel property already slated for dedication to the County and the Woodland Plant. Dedication would occur following reclamation of the Woodland Plant which is estimated to occur in 2051. This dedication would also serve to partially offset the requirements of Mitigation Measure 4.2-1 related to agricultural mitigation equivalency allowed under Section 10-5.525 of the County Reclamation Ordinance.

    - Schwarzgruber Property – the Schwarzgruber reclaimed lake and surrounding habitat totaling approximately 132 acres would be dedicated to the County as part of the Cache Creek Parkway system following reclamation which is estimated to occur in 2028. This dedication would also serve to partially offset the requirements of Mitigation Measure 4.2-1 related to agricultural mitigation equivalency allowed under Section 10-5.525 of the County Reclamation Ordinance.

    - Woodland Plant Site – the reclaimed Woodland Plant site totaling approximately 132 acres may be offered for dedication in partial satisfaction of Mitigation Measure 4.2-1 related to agricultural mitigation equivalency allowed under Section 10-5.525 of the County Reclamation Ordinance.

- Cash donation of $15,000 to Cache Creek Nature Preserve within one year of approval of the Shifler project.

- Cash donation of $5,000 to the County for update of the Cache Creek Parkway Plan documents within one year of approval of the Shifler project.

- Cash or in-kind donation equivalent to $20,000 for safe pedestrian crossing of County Road 94B for purposes of trail connection within one year of approval of the Shifler project.

- Continued designation of the Woodland Plant site as sales tax place of sale

- Dedication of Teichert In-Channel Haller/Muller within one year of approval of the Shifler project. Dedication of this property was a commitment of two previous agreements however the dedication date was tethered to the date of reclamation of the Woodland Plant site; this commitment provides a date certain.

- Enhanced reclamation of the County Borrow Site property to include improvements consistent with the Cache Creek Parkway Plan documents including trail connections, grading for mountain bike pump track use, and installation of antique mining equipment as part of living museum on site. Reclamation would occur in conjunction with reclamation of the Woodland plant site which is estimated to occur in 2051.

- Clarification of previously negotiated terms of the Teichert Muller Bridge dedication to include dedication of a trail easement connection from the south landing, east to the Schwarzgruber property. Dedication of the trail easement connection would occur following reclamation of the Woodland plant which is estimated to occur in 2051, at the same time as the bridge dedication.

- Modification to previously negotiated terms of Teichert Muller Trail Access B (see Figure 3-20) to allow unlimited public access upon dedication and into perpetuity. The change would be effective within one year of approval of the Shifler project.

Summary of Responsible Agency Approvals

The proposed project may require the following approvals/permits:

- Approval of the proposed Moore Canal relocation (YCFCWCD Board of Directors);
- Clean Water Act Section 404 Permit (U.S. Army Corps of Engineers);
- Clean Water Act Section 401 Water Quality Certification (Central Valley RWQCB);
- Waste Discharge Requirements (WDRs) for use of sediment fines from the Woodland Plant site for reclamation of the project site (Central Valley RWQCB);
- SMARA Compliance Review (California Department of Conservation, Division of Mine Reclamation);
- Gas Well Abandonment Permit (California Department of Conservation, Division of Oil, Gas, and Geothermal Resources); and
- Water Well Abandonment Permit (Yolo County Environmental Health Division).

Figure 3-20
Teichert Muller Trail Access B

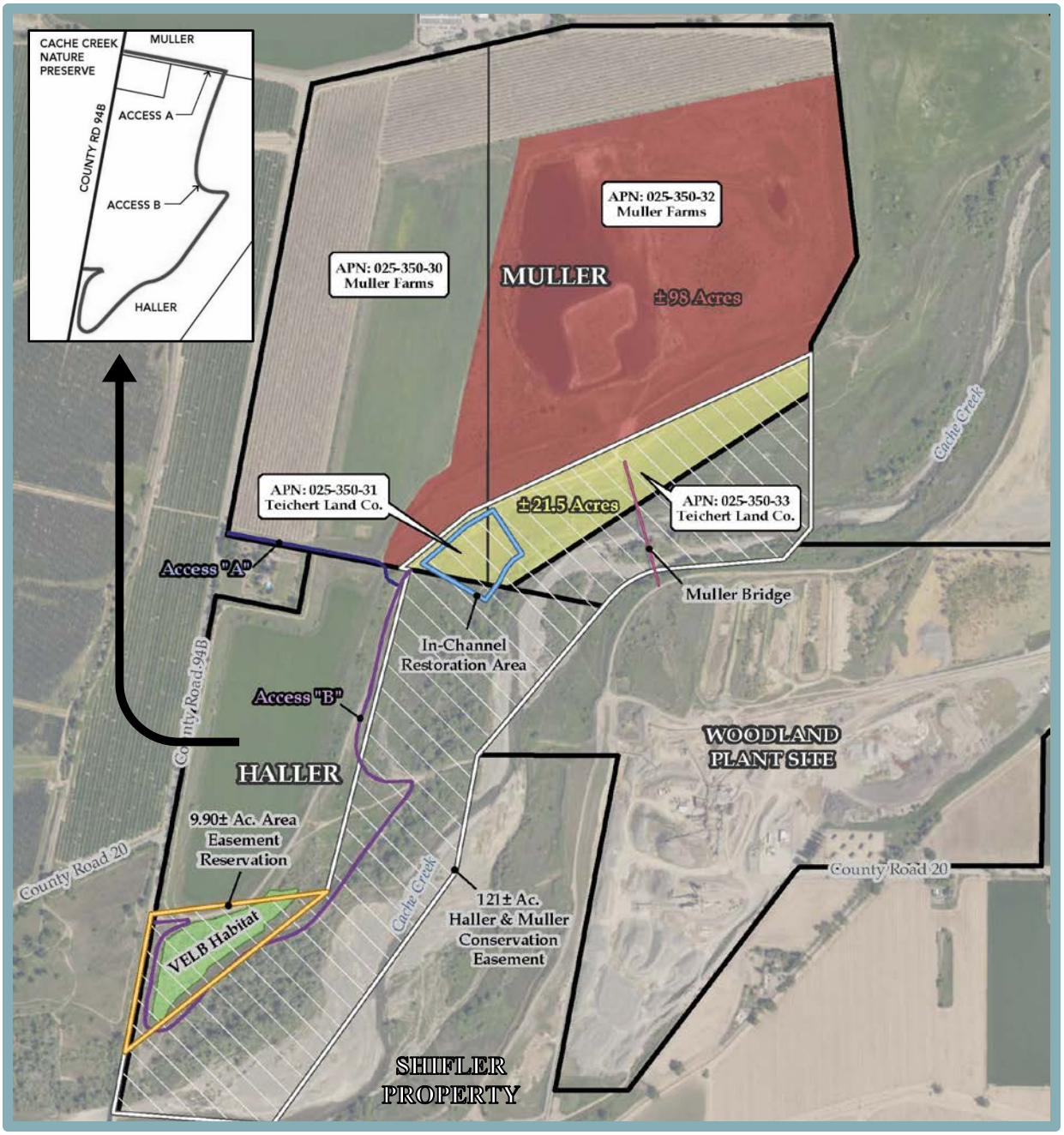


Figure 3-21
Proposed Mining Limits

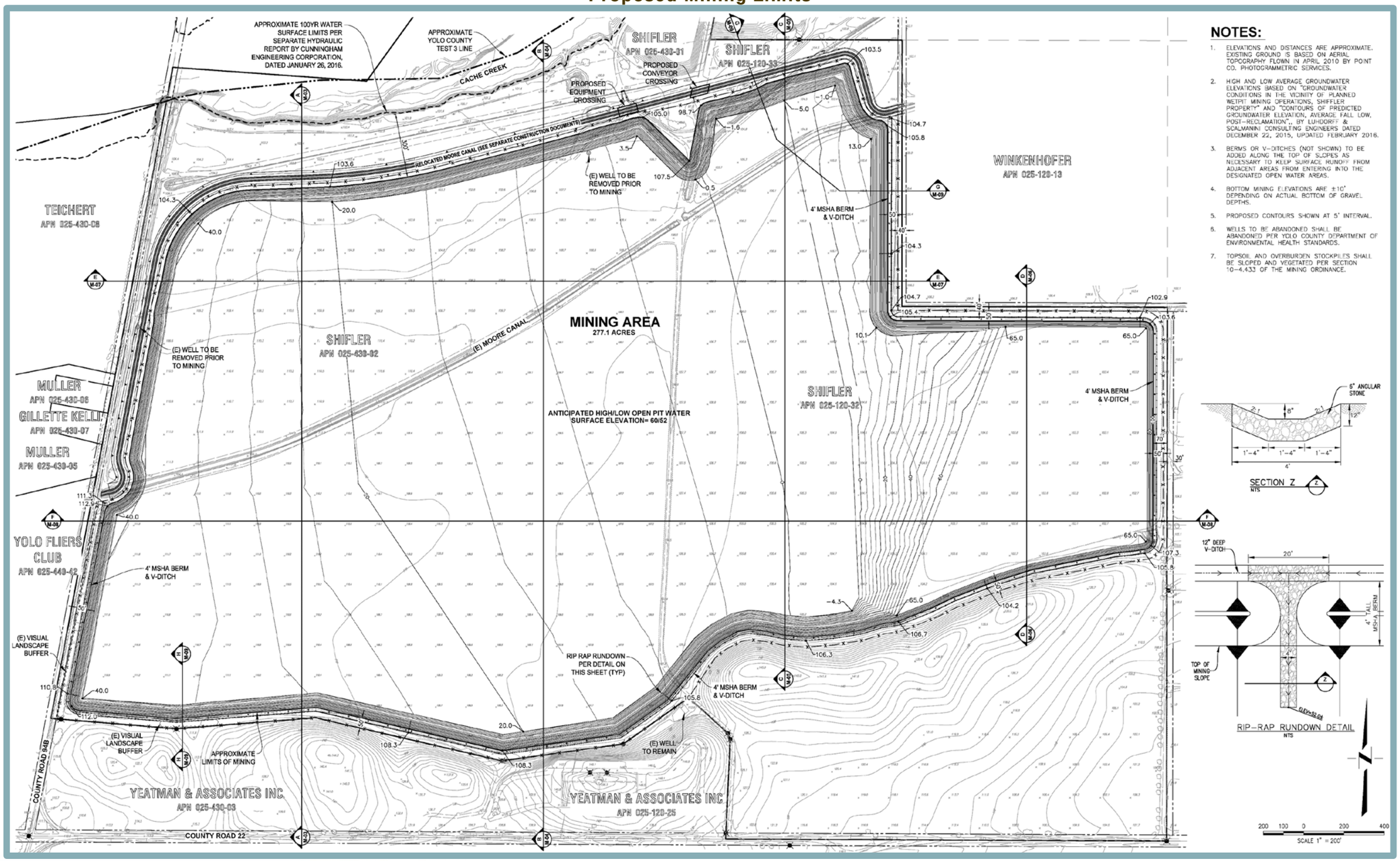
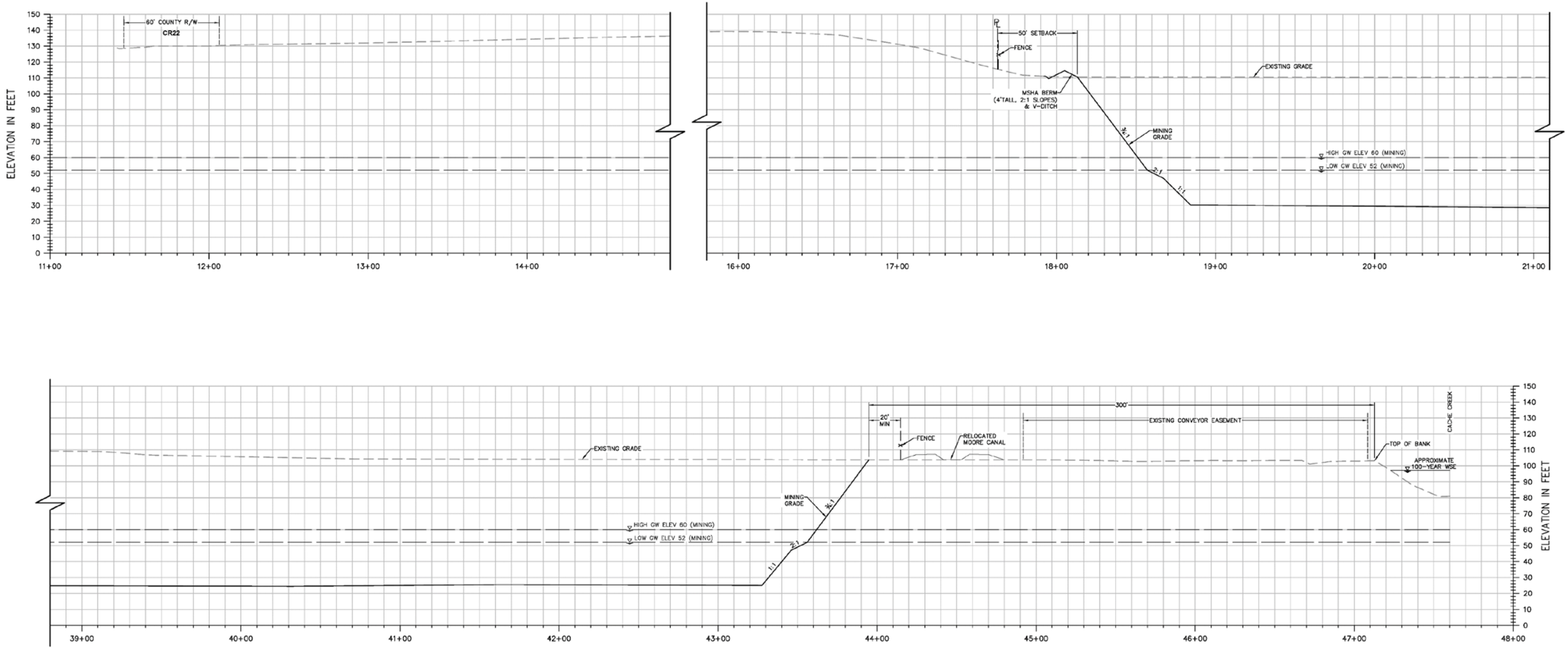


Figure 3-22
Proposed Mining Cross-Sections – Section A-A

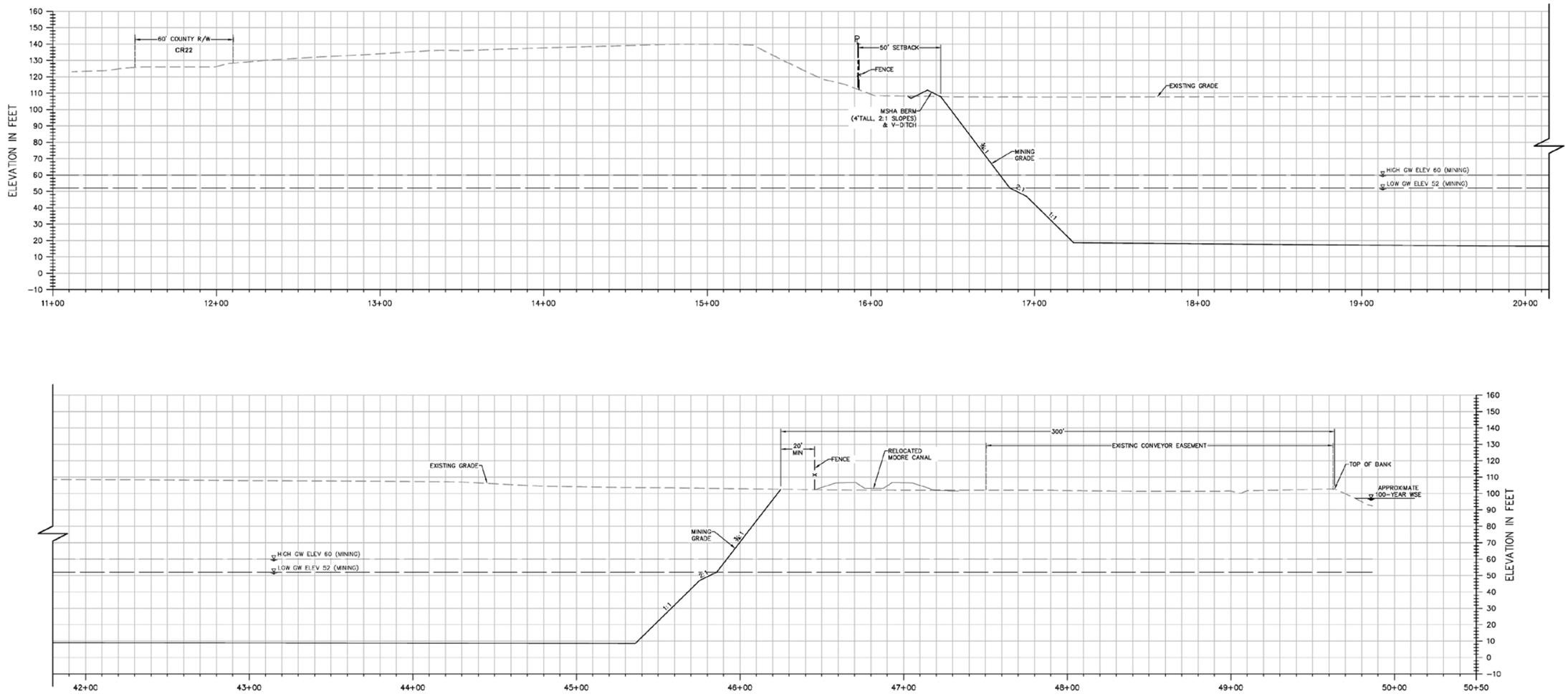


SECTION A-A
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
2. HIGH AND LOW AVERAGE GROUNDWATER ELEVATIONS BASED ON "GROUNDWATER CONDITIONS IN THE VICINITY OF PLANNED WETPIT MINING OPERATIONS, SHIFFLER PROPERTY" AND "CONTOURS OF PREDICTED GROUNDWATER ELEVATION, AVERAGE FALL LOW, POST-RECLAMATION", BOTH BY LUHDORFF & SCALMANINI CONSULTING ENGINEERS DATED DECEMBER 22, 2015, UPDATED FEBRUARY 2016.
3. BERMS OR V-DITCHES TO BE ADDED ALONG THE TOP OF SLOPES AS NECESSARY TO KEEP SURFACE RUNOFF FROM ADJACENT AREAS FROM ENTERING INTO THE DESIGNATED OPEN WATER AREAS.
4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-23
Proposed Mining Cross-Sections – Section B-B

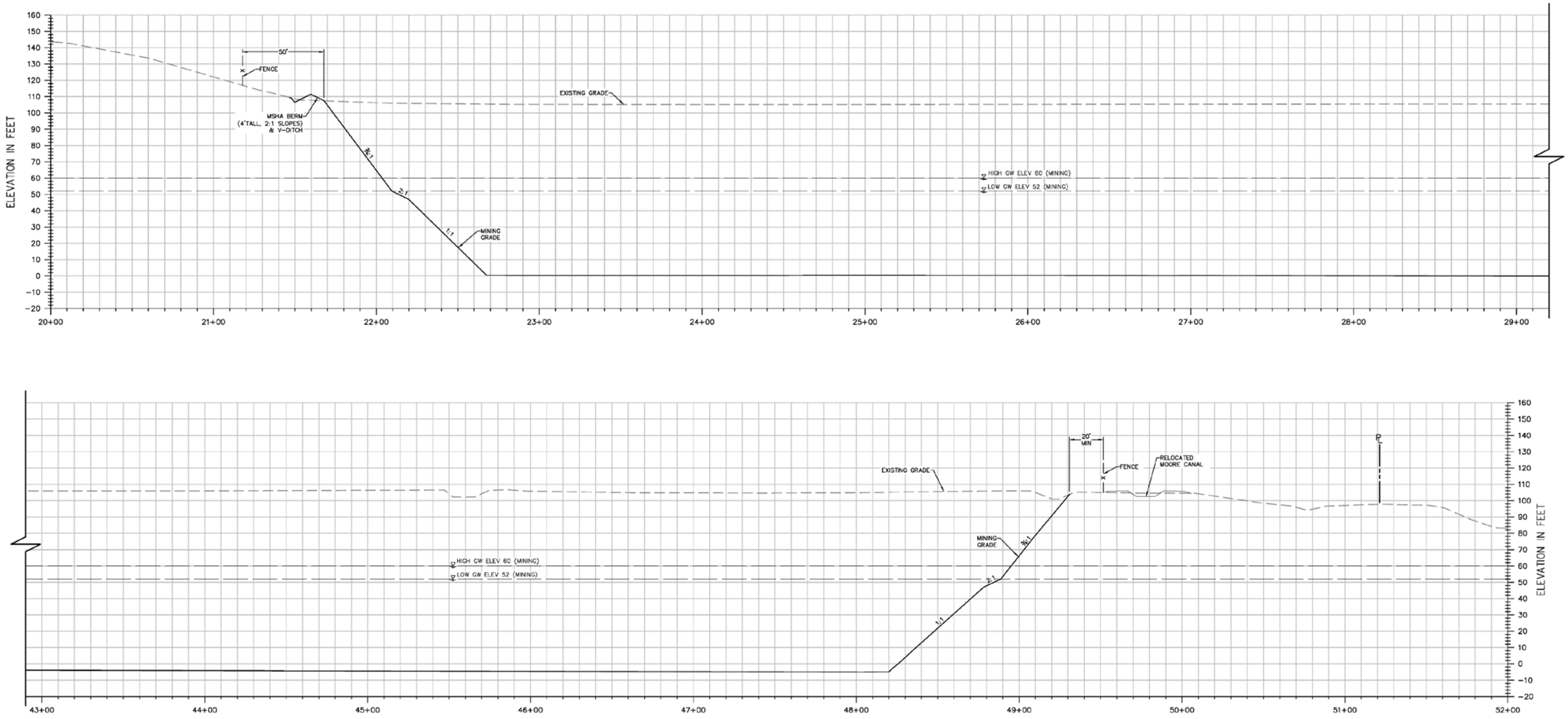


SECTION B-B
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-24
Proposed Mining Cross-Sections – Section C-C

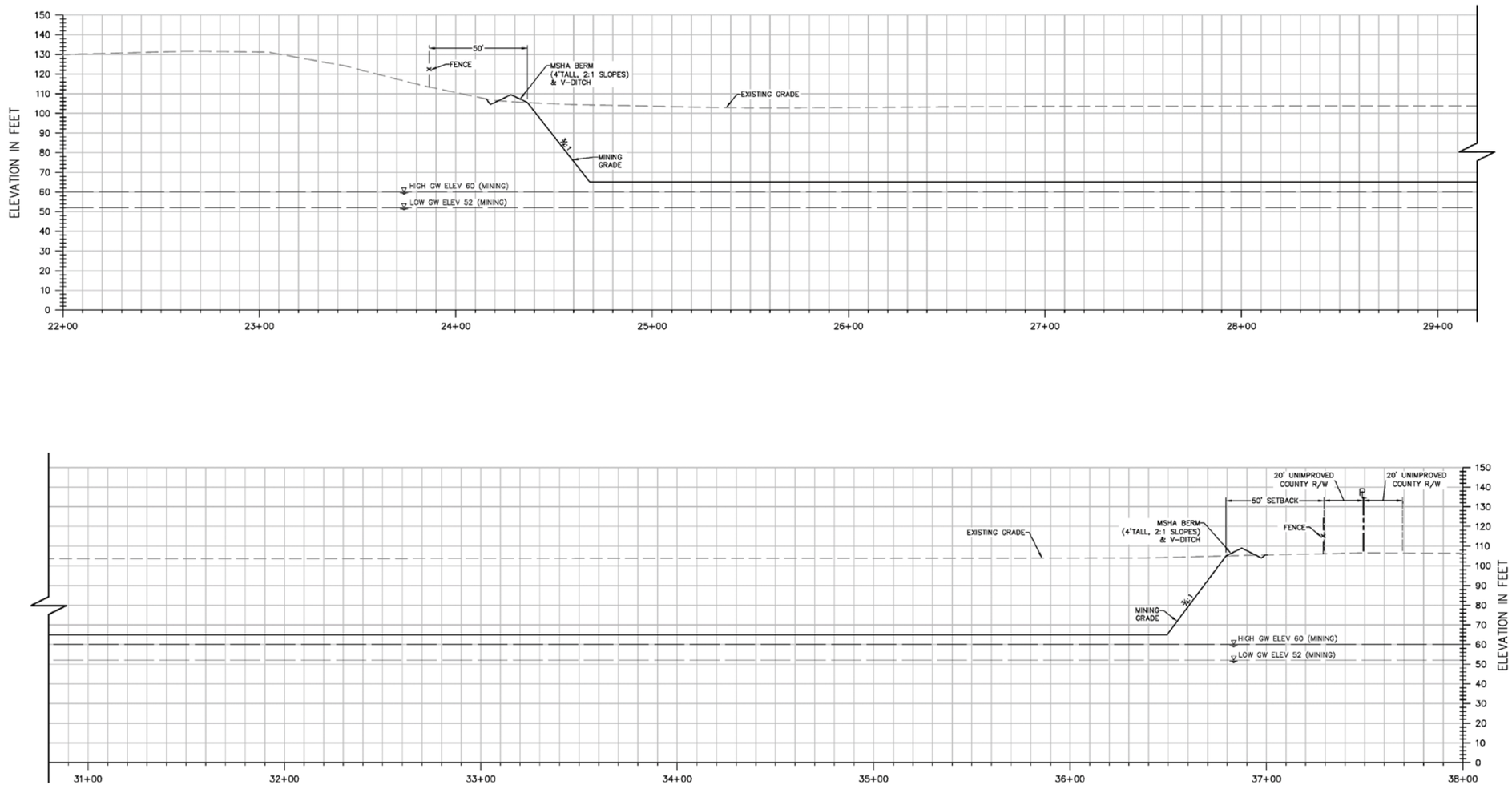


SECTION C-C
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V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
2. HIGH AND LOW AVERAGE GROUNDWATER ELEVATIONS BASED ON "GROUNDWATER CONDITIONS IN THE VICINITY OF PLANNED WETPIT MINING OPERATIONS, SHIFFLER PROPERTY" AND "CONTOURS OF PREDICTED GROUNDWATER ELEVATION, AVERAGE FALL LOW, POST-RECLAMATION", BOTH BY LUHDORFF & SCALMANINI CONSULTING ENGINEERS DATED DECEMBER 22, 2015, UPDATED FEBRUARY 2016.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-25
Proposed Mining Cross-Sections – Section D-D

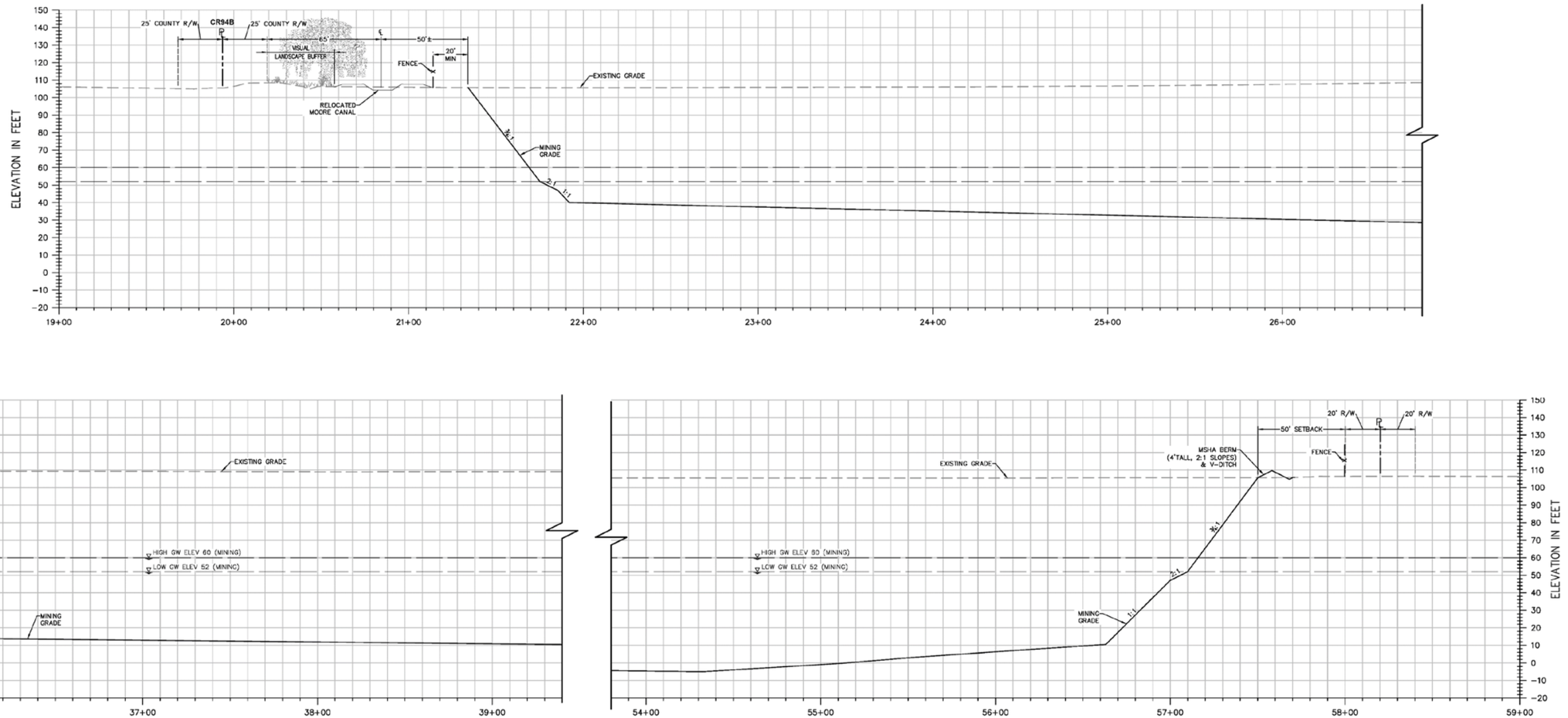


SECTION D-D
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V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-26
Proposed Mining Cross-Sections – Section E-E

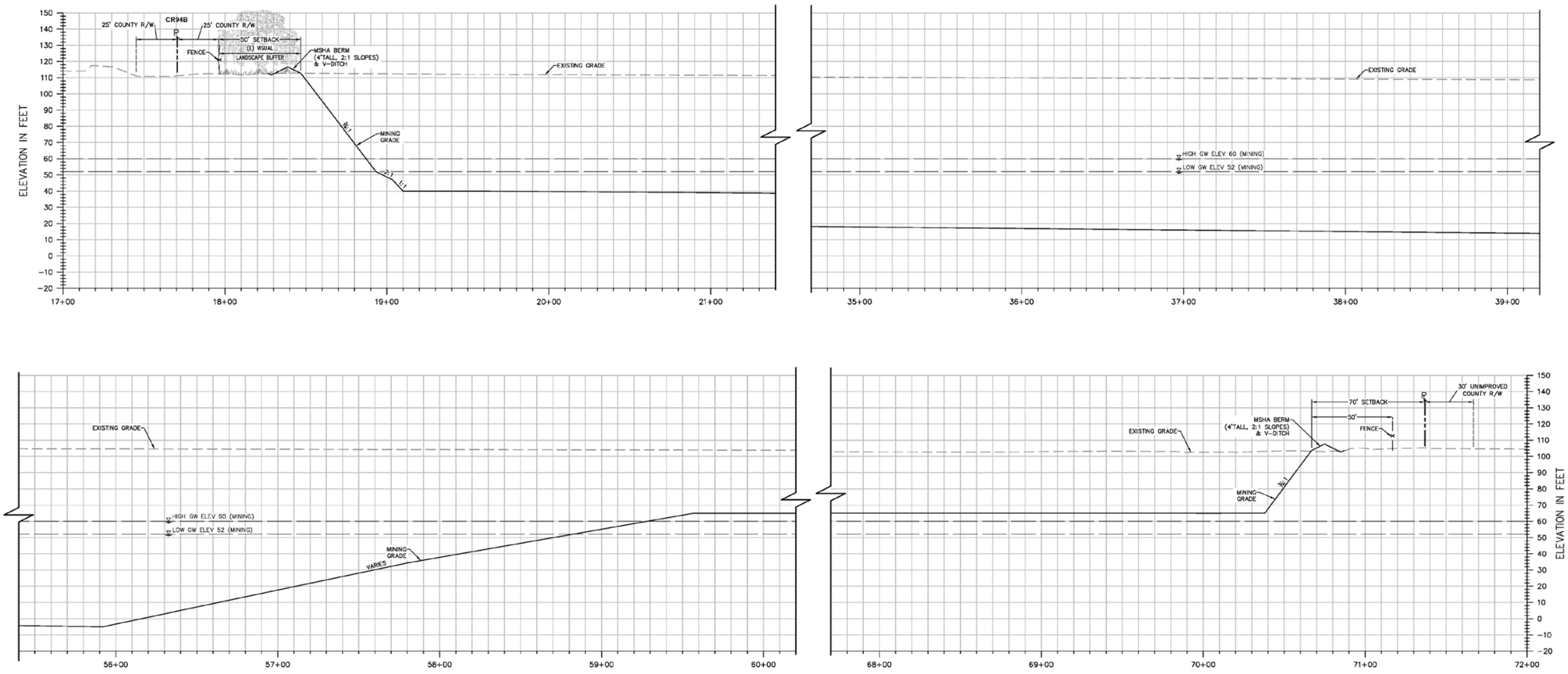


SECTION E-E
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-27
Proposed Mining Cross-Sections – Section F-F

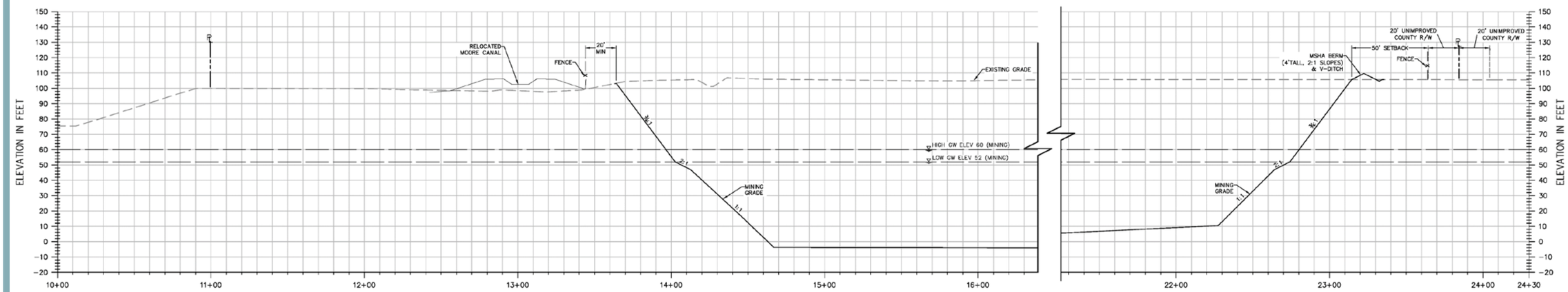


SECTION F-F
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V: 1"=30'

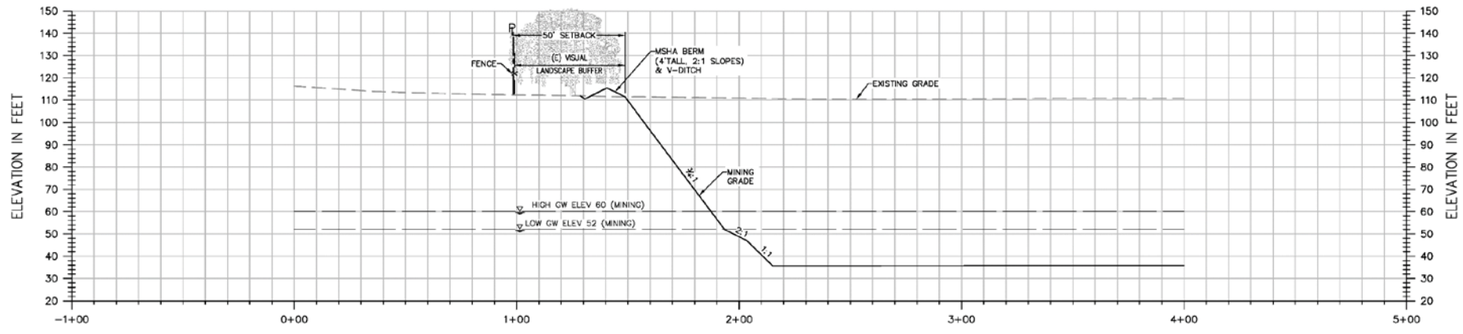
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1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-28
Proposed Mining Cross-Sections – Section G-G



SECTION G-G
H: 1"=30'
V: 1"=30'



SECTION H-H
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

Figure 3-29
Proposed Reclamation Elevations

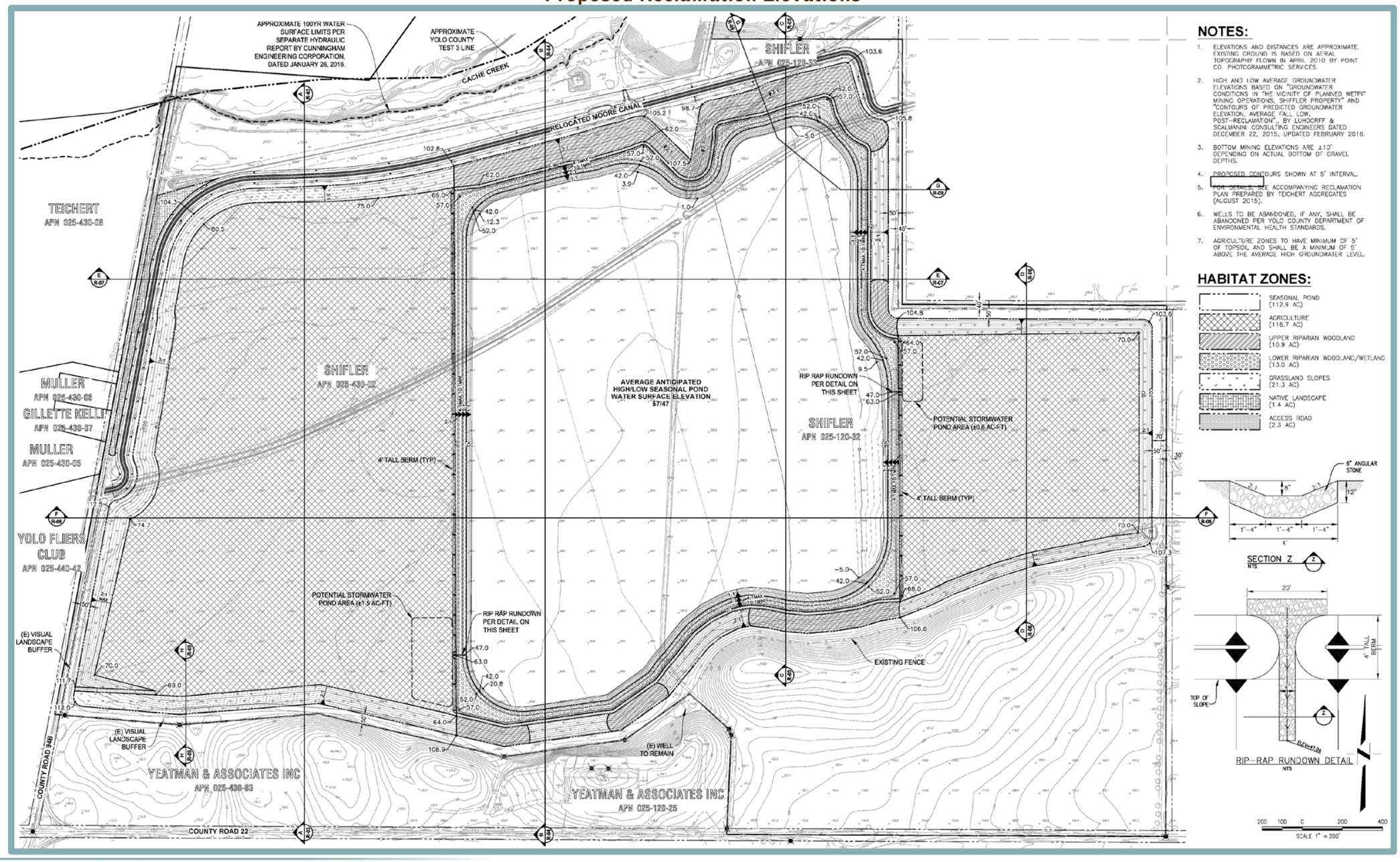
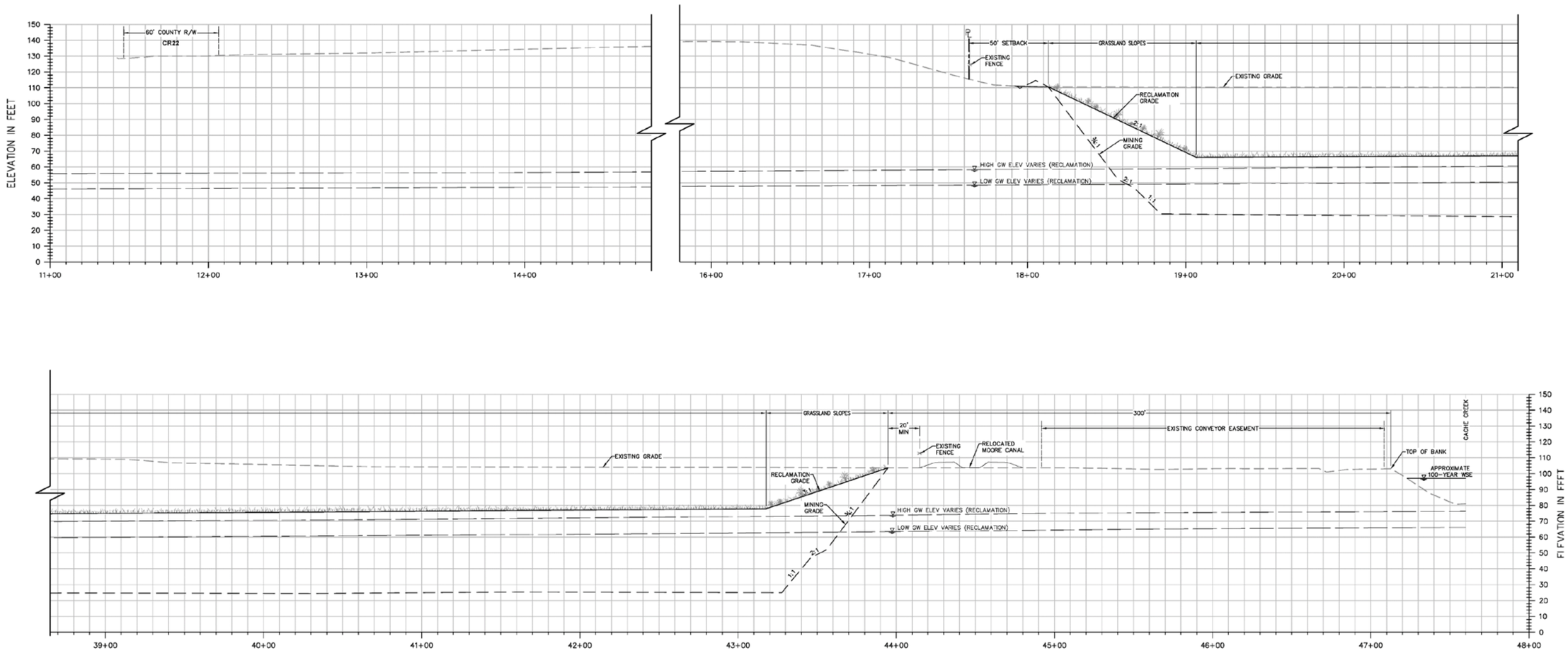


Figure 3-30
Proposed Reclamation Cross-Sections – Section A-A

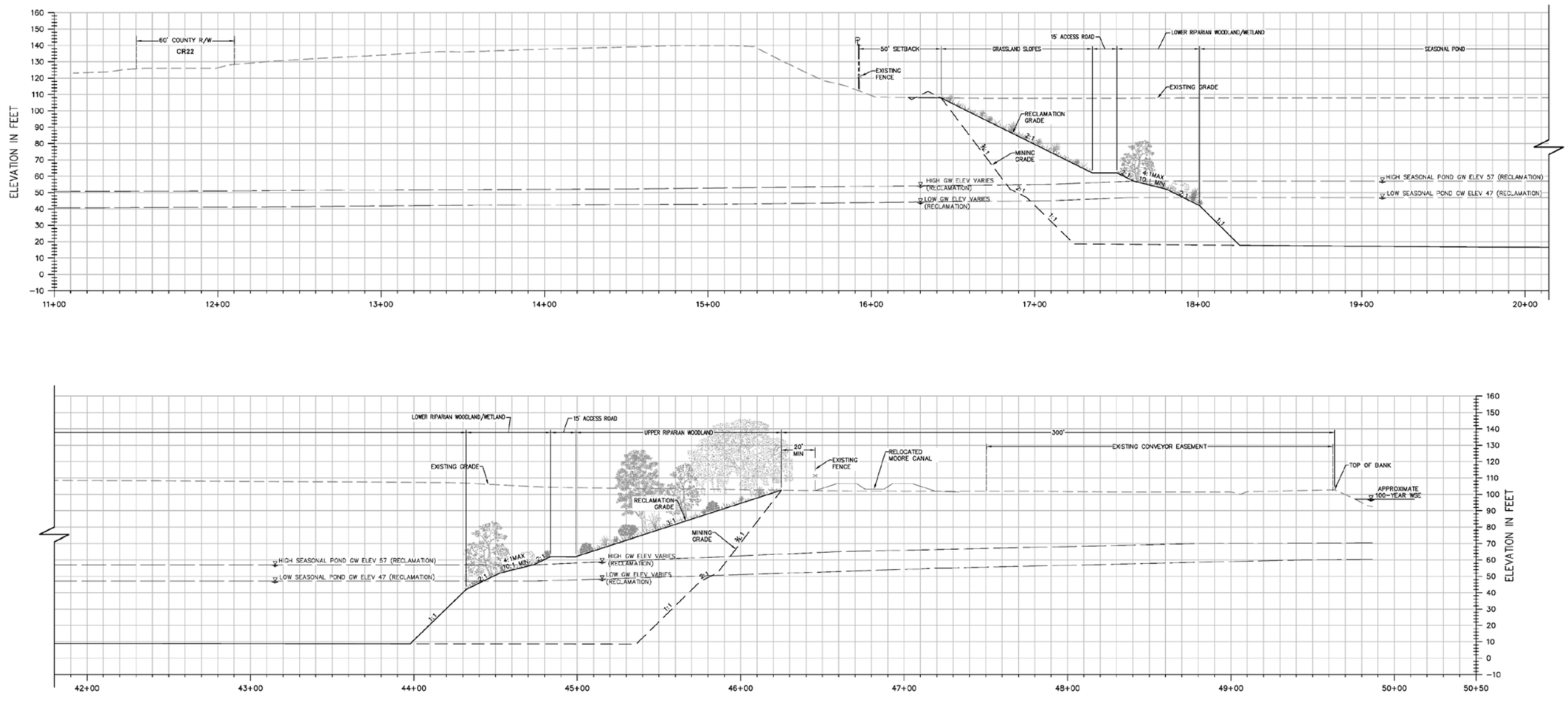


SECTION A-A
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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3. BERMS OR V-DITCHES TO BE ADDED ALONG THE TOP OF SLOPES AS NECESSARY TO KEEP SURFACE RUNOFF FROM ADJACENT AREAS FROM ENTERING INTO THE DESIGNATED OPEN WATER AREAS.
4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.
5. AGRICULTURE ZONES TO HAVE MINIMUM OF 5' OF TOPSOIL AND SHALL BE A MINIMUM OF 5' ABOVE THE AVERAGE HIGH GROUNDWATER LEVEL.

Figure 3-31
Proposed Reclamation Cross-Sections – Section B-B

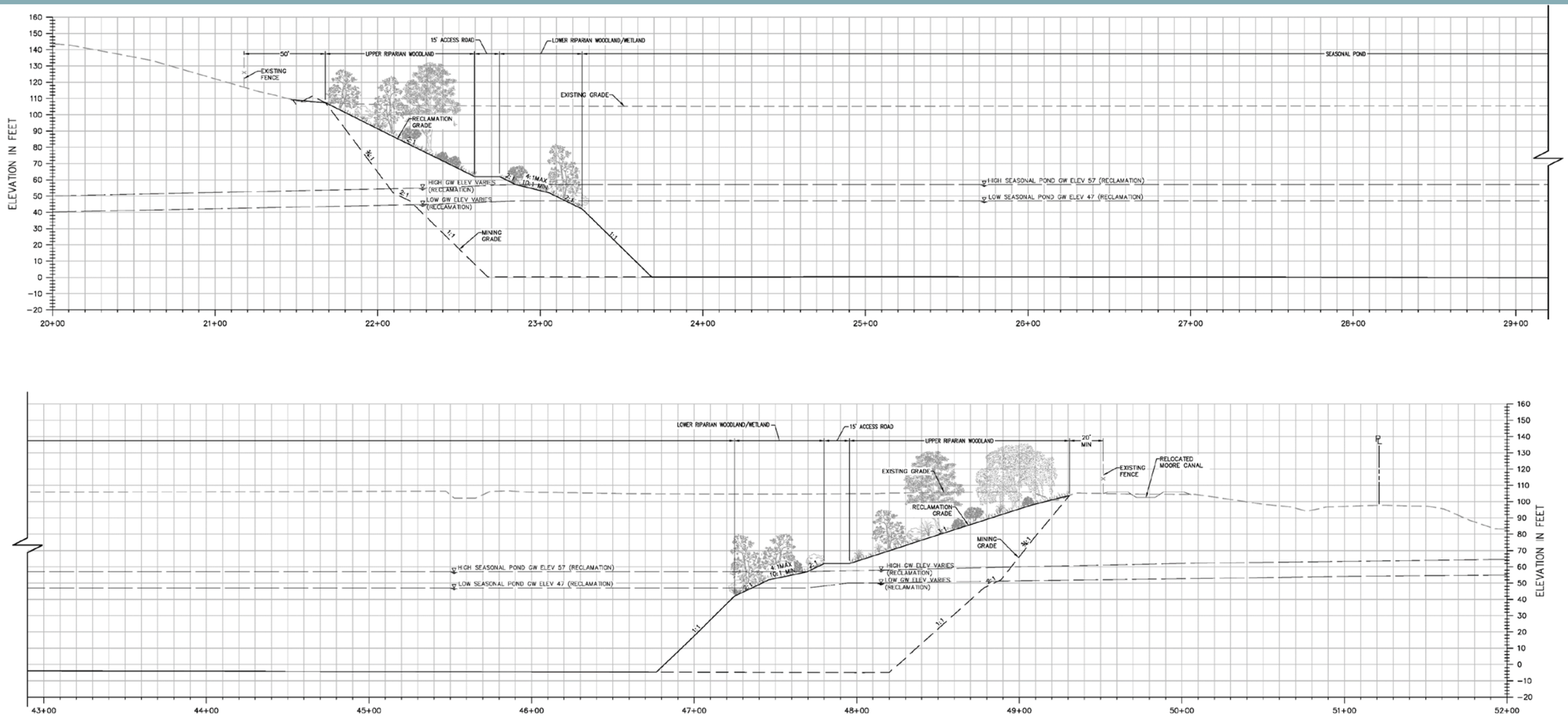


SECTION B-B
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
2. HIGH AND LOW AVERAGE GROUNDWATER ELEVATIONS BASED ON "GROUNDWATER CONDITIONS IN THE VICINITY OF PLANNED WCTPIT MINING OPERATIONS, SHIFFLER PROPERTY" AND "CONTOURS OF PREDICTED GROUNDWATER ELEVATION, AVERAGE FALL LOW, POST-RECLAMATION", BOTH BY LUHDORFF & SCALMANINI CONSULTING ENGINEERS DATED DECEMBER 22, 2015, UPDATED FEBRUARY 2016.
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4. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.
5. AGRICULTURE ZONES TO HAVE MINIMUM OF 5' OF TOPSOIL AND SHALL BE A MINIMUM OF 5' ABOVE THE AVERAGE HIGH GROUNDWATER LEVEL.

Figure 3-32
Proposed Reclamation Cross-Sections – Section C-C

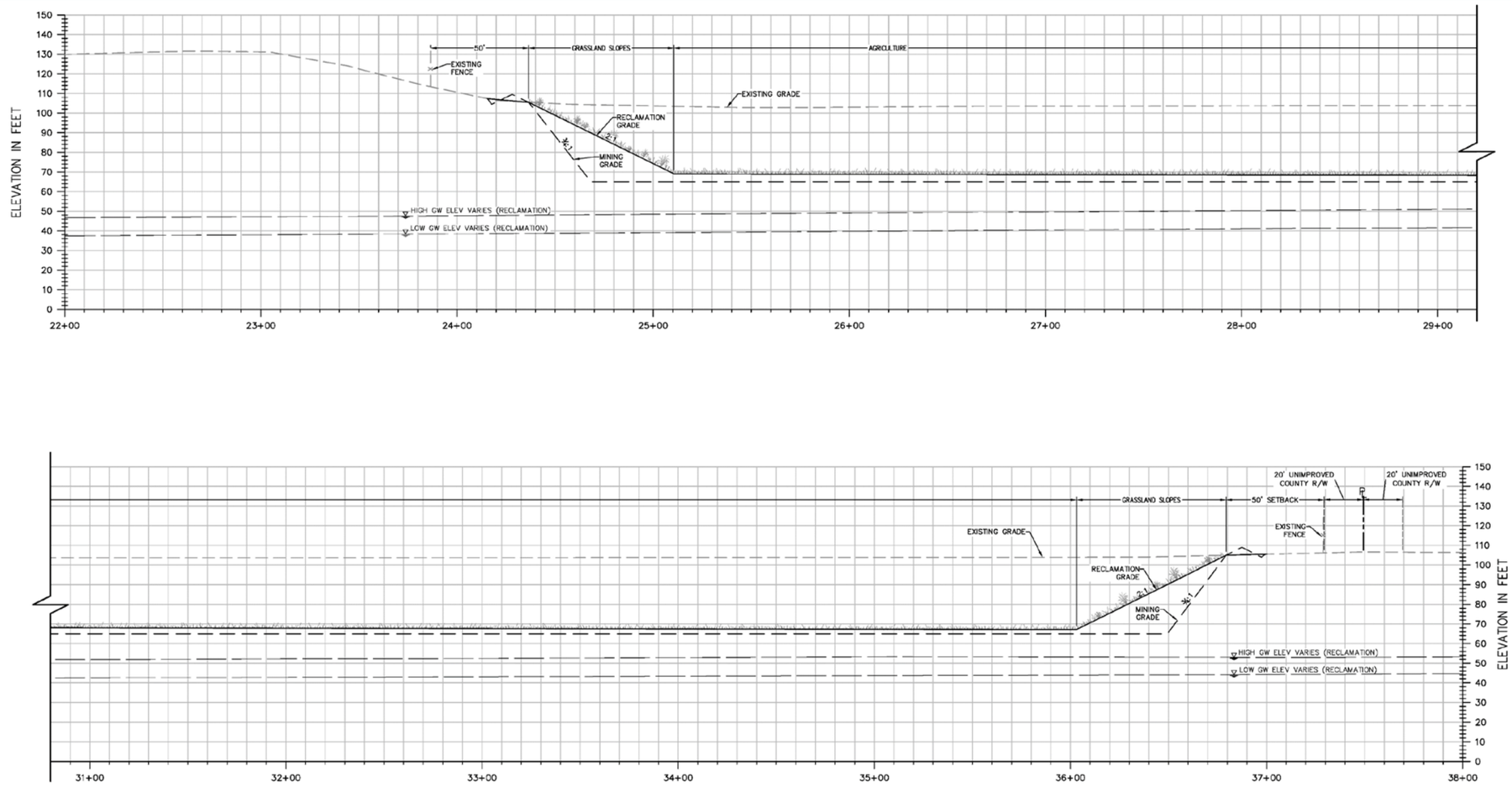


SECTION C-C
H: 1"=30'
V: 1"=30'

NOTES:

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Figure 3-33
Proposed Reclamation Cross-Sections – Section D-D

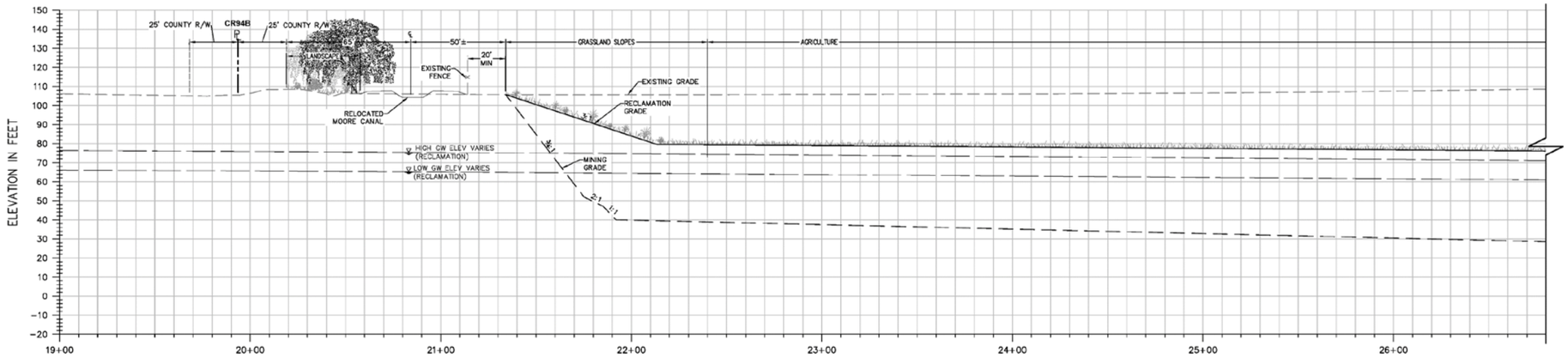


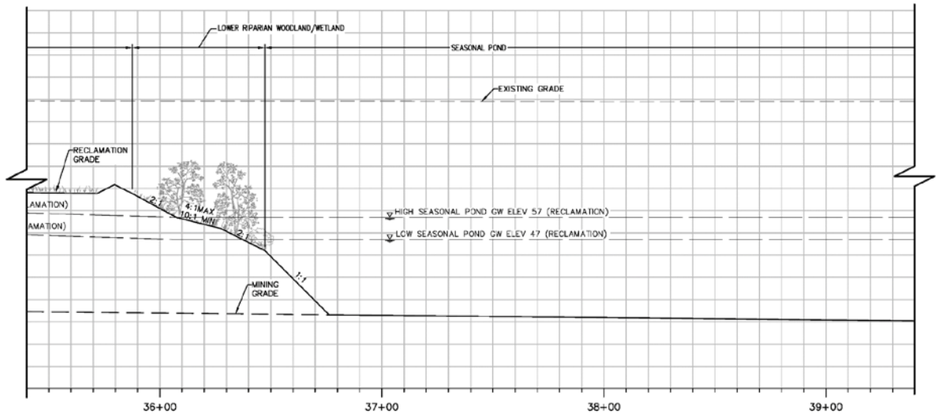
SECTION D-D
H: 1"=30'
V: 1"=30'

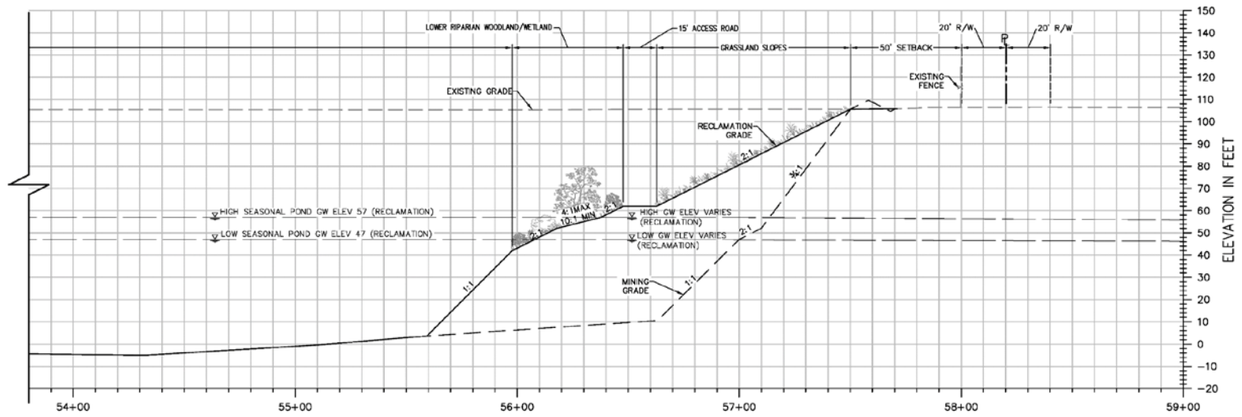
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Figure 3-34
Proposed Reclamation Cross-Sections – Section E-E







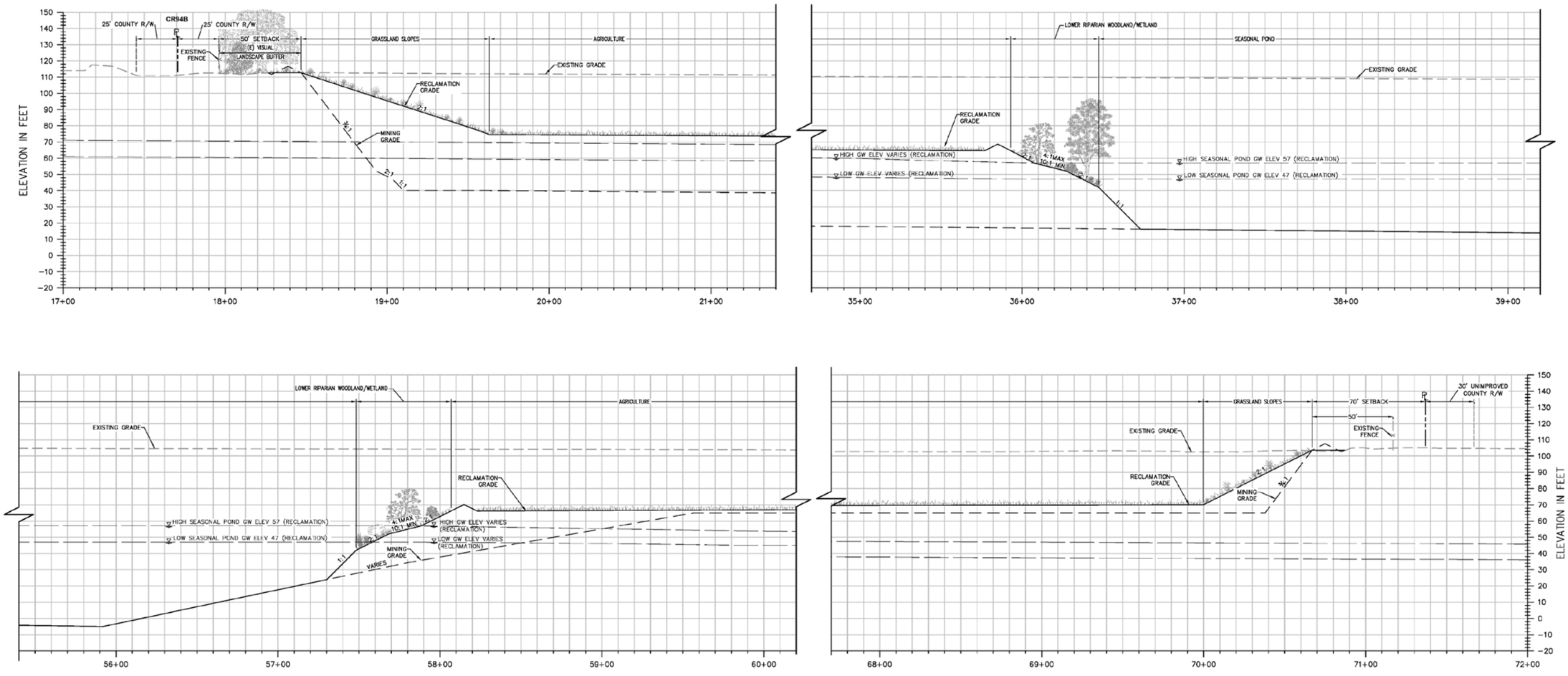
SECTION E-E
H: 1"=30'
V: 1"=30'

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN IN APRIL 2010 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
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30 15 0 30 60

Figure 3-35
Proposed Reclamation Cross-Sections – Section F-F

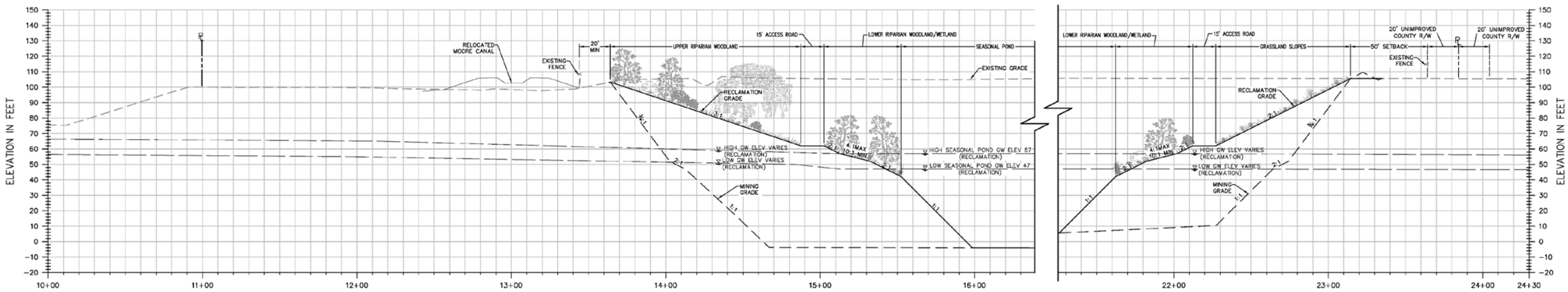


SECTION F-F
H: 1"=30'
V: 1"=30'

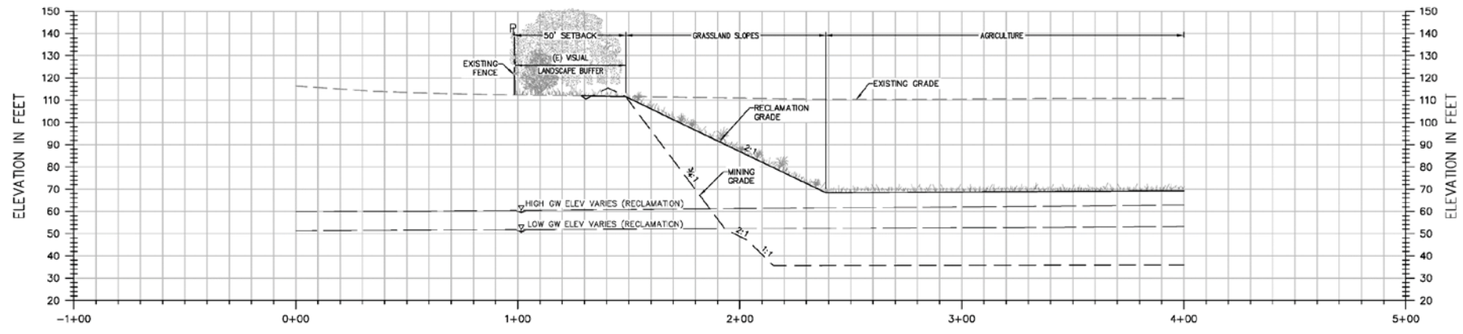
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Figure 3-36
Proposed Reclamation Cross-Sections – Section G-G



SECTION G-G
H: 1"=30'
V: 1"=30'



SECTION H-H
H: 1"=30'
V: 1"=30'

NOTES:

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4. Existing Environmental Setting, Impacts, and Mitigation

4.0 Introduction to the Analysis

4.0 INTRODUCTION TO THE ANALYSIS

4.0.1 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

The impact analysis technical chapters of the EIR analyze the potential impacts of implementation of the proposed project in a range of environmental issue areas. The format of each of the technical chapters is described below. The technical reports that substantiate this EIR are in the referenced appendices or available through Yolo County by request.

4.0.2 ENVIRONMENTAL ISSUES ADDRESSED IN THIS EIR

This EIR provides the analysis necessary to understand, disclose, and mitigate where feasible, the environmental impacts of the proposed project. The following environmental issues are addressed in the technical chapters included of this EIR. Other environmental issues areas required under CEQA are addressed in the Initial Study prepared for the proposed project (Appendix A):

- Aesthetics;
- Agricultural Resources;
- Air Quality, Greenhouse Gas Emissions, and Energy;
- Biological Resources;
- Cultural and Tribal Cultural Resources;
- Geology and Soils, Mineral Resources, and Paleontological Resources;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Noise;
- Public Services, Utilities, and Service Systems; and
- Transportation and Circulation.

4.0.3 PROJECT-SPECIFIC TECHNICAL REPORTS

The technical reports prepared for the proposed project that substantiate this EIR include the following:

- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey
- Biological Resource Assessment, Peer Review, and Bat Survey (Appendix E)
- Wetland Delineations (Appendix F)
- Cultural Resource Assessment and Yocha Dehe Wintun Nation Consultation (Appendix G)
- Slope Stability Evaluation, Geology and Dewatering Memoranda (Appendix H)
- USDA NRCS Custom Soil Resource Report
- Phase I and Limited Phase II Environmental Site Assessment (Appendix I)
- Cache Creek Hydraulics Study and Channel Stability Analysis (Appendix J)
- Groundwater Study and Supplemental Groundwater Memo (Appendix K)

- Environmental Noise Assessment (Appendix L)
- Transportation Impact Study and Vehicle Miles Travelled Impact Evaluation (Appendix M)
- Moore Canal Avoidance Alternative Tech Memos (Appendix O)
- Moore Canal Southern Alignment Alternative Tech Memos (Appendix Q)
- Cache Creek TAC Review of Teichert Mining and Reclamation Project Technical Memorandum (Appendix R)

A complete list of bibliographic information for all references and resources cited throughout the EIR is provided in Chapter 8. In addition, Chapter 7 lists all EIR and technical report authors that provided technical assistance in preparation and review of the EIR.

4.0.4 FORMAT OF ISSUE SECTIONS

Each technical chapter begins with an **introduction** describing the purpose of the chapter. The introduction is followed by a description of the project's **existing environmental setting** as the setting pertains to that particular issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion, which contains the **standards of significance**, followed by the **method of analysis** and **impacts found less than significant in Initial Study**. The analyses of **impacts and mitigation measures** include impact statements prefaced by a number in bold-faced type (for both project-level and cumulative analyses). An explanation of each impact and an analysis of the impact's significance follow each impact statement.

Each technical chapter of this EIR includes an analysis of the consistency of the proposed project with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to the specific environmental issue area being analyzed. Applicable documents analyzed for consistency include the Yolo County General Plan and the Cache Creek Area Plan, including the Off-Channel Surface Mining Ordinance and the Surface Mining Reclamation Ordinance.

4.0.5 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse physical change in the environment (Public Resources Code § 21068). The Guidelines implementing CEQA direct that this determination be based on scientific and factual data to the extent possible. The specific criteria for determining the significance of a particular impact are identified within the impact discussion in each chapter, and are consistent with significance criteria set forth in Appendix G of the CEQA Guidelines.

Three categories of impacts are used for the project-specific impacts within this EIR: less than significant, significant, and significant and unavoidable. The description of each determination is as follows:

Less than Significant. The impact would not cause significant adverse physical changes in the existing or projected future environment; therefore mitigation is not required. Or, while some impact may be associated with the project, it is not significant or is acceptable based on the applicable thresholds of significance.

Significant. Under CEQA, a significant impact is defined as a substantial, or potentially substantial, adverse physical change in the environment. CEQA Guidelines Section 15064 states

that the determination is to be made by the lead agency based on scientific and factual data, to the extent possible.

Significant and Unavoidable. An impact is considered significant and unavoidable when the result is a substantial effect on the environment for which mitigation has not been identified as feasible to reduce the impact to a less-than-significant level, or mitigation is identified but would not fully mitigate the impact to acceptable levels. Mitigation may be required to reduce the impact as much as possible, even if the impact would remain significant and unavoidable.

A cumulative discussion of the impacts of the proposed project in conjunction with other development in the region is included in Section 5.4 of Chapter 5, Cumulative Impacts and Other CEQA Sections, of this EIR. As noted therein, issues related to air quality, greenhouse gas emissions, and energy are, by nature, cumulative. Thus, the proposed project's cumulative impacts related to those environmental issue areas are addressed in Chapter 4.3, Air Quality, Greenhouse Gas Emissions, and Energy, of this EIR. Furthermore, cumulative impacts related to noise and traffic are provided in Chapters 4.10 and 4.12, respectively, as both impact analyses rely extensively on project-specific cumulative assumptions that are discussed in those chapters. Cumulative impacts are determined to be less than cumulatively considerable, cumulatively considerable, or significant and unavoidable. The description of each determination is as follows:

Less than Cumulatively Considerable. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency must identify facts and analysis supporting the conclusion.

Cumulatively Considerable. The project is cumulatively considerable if the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Significant and Unavoidable. Significant and unavoidable cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed project when added to other past, current, and future projects and cannot be alleviated to a less than cumulatively considerable level. Such impacts can result from individually minor but collectively significant actions that occur over time.

All mitigation measures pertinent to each individual impact follow directly after the statement of level of significance of the impact (see below). The effectiveness of identified mitigation measures in reducing impacts is also evaluated.

4.0.6 EXAMPLE IMPACT STATEMENT AND DISCUSSION

An example of the format of impact statements and mitigation measures in the technical chapters and in Section 5.3 of this EIR is shown below.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project under existing conditions, based on the identified standards of significance.

4.X-1 Statement of impact and pre-mitigation level of impact.

Discussion and analysis of impact for the proposed project.

A statement of the ***level of significance*** of impact prior to mitigation is included at the end of each impact discussion. If an impact is determined to be significant, mitigation is included in order to reduce the specific impact to the extent feasible.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is implemented.

4.x-1(a) *Identified mitigation measure.*

4.x-1(b) *Additional identified mitigation measure.*

Etc.

Cumulative Impacts and Mitigation Measures

The following discussion of cumulative impacts is based on implementation of the proposed project in combination with cumulative development within the applicable area or region.

4.X-2 Statement of cumulative impact and pre-mitigation level of impact.

Discussion of and analysis cumulative impacts for the proposed project.

A statement of the ***level of significance*** of cumulative impact prior to mitigation is included at the end of each impact discussion. If an impact is determined to be cumulatively considerable, mitigation is included in order to reduce the specific impact to the extent feasible.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is implemented.

4.x-2(a) *Identified mitigation measure.*

4.x-2(b) *Additional identified mitigation measure.*

Etc.

4.1 Aesthetics

4.1 AESTHETICS

4.1.1 INTRODUCTION

The Aesthetics chapter of the EIR describes the existing visual resources of the project site and vicinity. The CEQA Guidelines describe the concept of aesthetic resources in terms of scenic vistas, scenic resources (including trees, rock outcroppings, and historic buildings), scenic highways, visual character or quality of public views of the project site, and light and glare. Information for the chapter has been primarily drawn from the Cache Creek Area Plan (CCAP) Update EIR,[1] as well as the Yolo County General Plan[2] and associated EIR.[3]

In response to the NOP, the County received comments related to Aesthetics from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Aesthetic impacts due to the loss of agricultural land and open space (Resident);
- Visual impacts of the project site from Monument Hill Memorial Park cemetery (Resident); and
- Views of mining equipment and fencing (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require the comments be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following terms are used throughout this chapter and have important bearing upon properly evaluating aesthetics within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

A "viewshed" is all of the surface area visible from a particular location or sequence of locations (e.g., roadway or trail).

"Visual character" pertains to the order of patterns composing a landscape. The elements of these patterns are the form, line, color, and texture of the landscape's visual resources.

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1 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069*. December 2019.
2 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
3 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*.April 2009.

- **Form:** The unified mass or shape of an object that often has an edge or outline and can be defined by surrounding space. For example, a high-rise building would have a highly regular, rectangular form whereas a hill would have an organic, mounded form.
- **Line:** Perceived when there is a change in form, color, or texture and where the eye generally follows this pathway because of the visual contrast. For example, a city's high-rises can be seen silhouetted against the blue sky and be seen as a skyline, a river can have a curvilinear line as it passes through a landscape, or a hedgerow can create a line where it is seen rising up against a flat agricultural field.
- **Color:** The light reflecting off of an object at a particular wavelength that creates hue (green, indigo, purple, red, etc.) and value (light to dark hues).
- **Texture:** The perceived coarseness of a surface that is created by the light and shadow relationship over the surface of an object. For example, a rough surface texture (e.g., a rocky mountainside) would have many facets resulting in a number of areas in light and shadow and, often, with distinct separations between areas of light and shadow. Conversely, a smooth surface texture (e.g., a beach) would have fewer facets, larger surface areas in light or shadow, and gradual gradations between light and shadow.

"Distance zones" are based on the position of the viewer in relationship to the landscape. Views might be discussed in terms of foreground, middleground, and background views. Foreground views are those immediately presented to the viewer, and include objects at close range that could tend to dominate the view. Middleground views occupy the center of the viewshed and tend to include objects that are the center of attention if they are sufficiently large or visually different from adjacent visual features. Background views include distant objects and other objects that make up the horizon. Objects in the background fade to obscurity with increasing distance. In the context of the background, the skyline can be an important location because objects above this point are highlighted against the background of the sky.

"Scenic vista" is defined as an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing. This includes any such areas designated by a federal, State, or local agency.

"Scenic highway" is defined as any stretch of public roadway that is designated as a scenic corridor by a federal, State, or local agency.

"Visual resources" are the visible features that make up the landscape, including but not limited to cultural or human-made components such as buildings and other structures, linear elements (e.g,. ridgelines, landforms, roads), greenscapes such as agricultural crops, or natural resources such as waterways and forest/woodland.

"Visual Quality", as defined by the Federal Highway Administration (FHWA),[4] describes what viewers like and dislike about visual resources that compose the visual character of a particular scene. Different viewers may evaluate specific visual resources differently based on their interests in the types of visual resources comprising a particular landscape.

[4] Federal Highway Administration. *Guidelines for the Visual Impact Assessment of Highway Projects (Publication No. FHWA-HEP-15-029)*. January 2015. Although the FHWA guidelines were initially created to provide an analytical framework for identifying and assessing qualitative changes to the visual environment that could be introduced as part of a transportation project, this methodology has become an industry standard for evaluating visual impacts associated with local and state non-transportation projects as well.

4.1.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to visual resources.

Visual Character of Regional Environment

The visual character of the region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and ornamental landscaping.

The cultural environment of the region can be described in terms of buildings, structures, roads, or other built features. The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

Visual Character of Local Environment

The following information provides an overview of the existing visual character of the local environment, including the project site and its immediate vicinity.

The visual resources on the project site consist primarily of agriculture in row crops, and thus, the visual character of the site can generally be described as having a relatively uniform greenscape texture in the growing season, whereas, outside of the growing season the site is made up of disked fields marked by earth tones of the topsoils. More specifically, the central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

The visual resources of the immediate vicinity are similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The cultural environment of the project site consists of several agricultural-related features. For example, Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control & Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east, and provides a distinctive line pattern through the site. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In

addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site.

The cultural environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), rural residential, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential, cemetery (Monument Hill Memorial Park), and State Route 16 to the south; and farm dwellings to the east. The aggregate mining operations to the north consist of Teichert's Storz mining site, which is currently in the reclamation process, to the northwest and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. Conveyors, and other mining-related related infrastructure and equipment are common. The Teichert Woodland Plant has been in continuous operation for over 50 years and mining along Cache Creek has been taking place for over 100 years. Figure 4.1-2 through Figure 4.1-4 below provide representative views of the project site from the adjacent roadways.

Viewer Types

For the purposes of this analysis, individuals in the vicinity with views of the project site that may be affected by the proposed project are categorized as follows:

- *Motorists* along County Road 22 and County Road 94B have direct views as they pass the site. These include motorists commuting or touring, hauling trucks, as well as pedestrians and bicyclists along County Road 22 and County Road 94B, who have direct views for longer period of time as they pass the site. However, because neither road includes paved shoulders or sidewalks, bicycle and pedestrian traffic along the project frontages of these roads is limited.
- *Neighbors*[5] are considered those who temporarily or permanently occupy land adjacent or visible to the project site and can be defined as residential, commercial, industrial, agricultural, civic, and recreational neighbors. Residential neighbors having relatively unobstructed views of the project site include limited farm dwellings to the west and east and rural residential to the southwest/south. Views of the site from the Wild Wings subdivision to the west are obstructed by intervening structures and mature landscaping. Neighboring recreational uses include Yolo Fliers Golf/Country Club; however, heavy vegetation along the west side of County Road 94B screens golfers' and other guests' views of the project site. Civic uses include the Monument Hill Memorial Park cemetery and the West Valley Baptist Church; however, views of the project site from the church are screened by heavy landscaping along the north side of County Road 22. Views of the site from the neighboring airport are largely obstructed due to intervening mature vegetation.

Specifically, those having views of the project site include motorists along County Road 94B and County Road 22, and neighbors, consisting of farm dwellings to the west and east, rural residential to the south/southwest, and the Monument Hill Memorial Park cemetery to the south. Motorists have publicly available views of the site, whereas with the exception of Monument Hill Memorial Park, neighbors have private views.

[5] The term *neighbor* does not always mean that a person resides adjacent to the project site. Rather, it refers to people who may see it from their geographic location.

Private views are views seen from privately-owned land and are typically viewed by individual viewers, including views from private residences. Public views are views that are experienced by the collective public. CEQA (Pub. Resources Code, § 21000 et seq.) case law has established that only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720 [3 Cal. Rptr.2d 488] the court determined that "we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]: '[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.'"

This conclusion is consistent with the thresholds of significance established in Appendix G of the CEQA Guidelines. Therefore, it is appropriate to focus the aesthetic impact analysis on potential impacts to public views, rather than private views. This approach is also consistent with the approach utilized in the Yolo County General Plan EIR[6] and CCAP Update EIR[7], and the language added to Appendix G of the CEQA Guidelines in December 2018, regarding focusing the aesthetics analysis onto public views (see Appendix G, Section I, question 'c').

Existing Visual Quality of the Project Site

Visual quality is the experience of having pleasing visual perceptions. In other words, what do people like and dislike about the visual character of the area.[8] Different viewers may value visual resources in different ways and come to varying conclusions about visual quality. Generally, natural open views, unobstructed by cultural (i.e., human-made) structures/features are preferred. Table 4.1-1 below identifies three categories of visual quality: high, moderate, and low.

Table 4.1-1
Visual Quality Evaluation Table

High Quality	Moderate / Average Quality	Low Quality
• Highly memorable. • Elements combine in striking visual patterns. • Presence of distinct focal point(s). • Lack of man-made development does not disrupt the natural landscape. • Minimal to no encroachments to the landscape are visible.	• Somewhat memorable. • Elements form perceivable pattern(s). • Man-made development and the natural landscape are disturbed and encroach on the visual setting.	• Not vivid • Elements appear random with no perceivable pattern(s). • The landscape has encroaching elements that create an eyesore to viewers.

When viewing a scene's environment, viewers inherently evaluate the visual quality of the existing scene, determining if the composition is harmonious. Using the evaluation table, the visual quality of the overall project site is relatively moderate/average quality considering that the agricultural

6 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034* [pg. 753]. April 2009.
7 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069* [pg. 4.11]. December 2019.
8 Federal Highway Administration. *Guidelines for the Visual Impact Assessment of Highway Projects (Publication No. FHWA-HEP-15-029)* [pg. 5-11]. January 2015.

setting of the project site is somewhat memorable and its unity forms a perceivable pattern. Agricultural crops, while a result of human activity, are comprised of vegetation that can provide harmony with a uniform texture and color if relatively uninterrupted by above-ground farm structures, as is the case for the project site. Given that striking visual patterns and distinct focal points are absent from the project site, the visual quality of the site is not considered to be high, but rather moderate.

While, human-made development encroaches on the visual setting, these relatively minor encroachments do not pose an eyesore. Human-made elements on the project site consist of an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant. In addition, the Moore Canal is a concrete-lined water conveyance structure which bisects the central portion of the project from west to east. The Magnolia Canal is an unlined water conveyance structure which intersects the Moore Canal at the northeastern portion of the project site. The on-site canals are below grade and only the Moore Canal is visible from County Road 94B.

Generally, the project site does not contain any distinct visual characteristics that are unique from other agricultural lands within the County and the surrounding region. The overall visual quality of the project site is considered moderate/average quality.

Determination of Key Public Viewpoints

Key views are those public views that provide an image that captures the existing visual character and visual quality of the landscape unit that would be altered by the proposed project. In the case of the proposed project, public views would consist of views from County Road 22 and County Road 94B in the project vicinity, as well as from Monument Hill Memorial Park cemetery, which offers publicly accessible views of the project site. Figure 4.1-1 provides a location and direction of each of the photos provided in Figure 4.1-2 through Figure 4.1-5. Figure 4.1-2 through Figure 4.1-4 provide examples of public views of the site from County Road 94B and County Road 22. Figure 4.1-5 shows an existing view of the site from the publicly accessible Monument Hill Memorial Park.

Key Viewpoint # 1

Key Viewpoint #1 represents the view of the project site from County Road 94B, looking southeast. This publicly available view is seen while traveling along County Road 94B. Motorists experience views of low to moderate visual quality with foreground dominated by K-rail barriers, piping, fencing, power pole, gravel, pavement, etc., midground dominated by open vista of a row crop, and background dominate by distant trees and vegetation, structures and rook outlines, and open sky.

The foreground views are dominated by human-made elements, such as k-rail barriers, fencing, a utility pole with overhead lines, piping, etc., whereas the middleground views are dominated by the agricultural croplands. Background views consist of vegetation along County Road 22 and sloping topography associated with Monument Hill Memorial Park. The overall visual quality of this view of moderate/average quality.

Figure 4.1-1
Overview Map of Key Viewpoint Locations

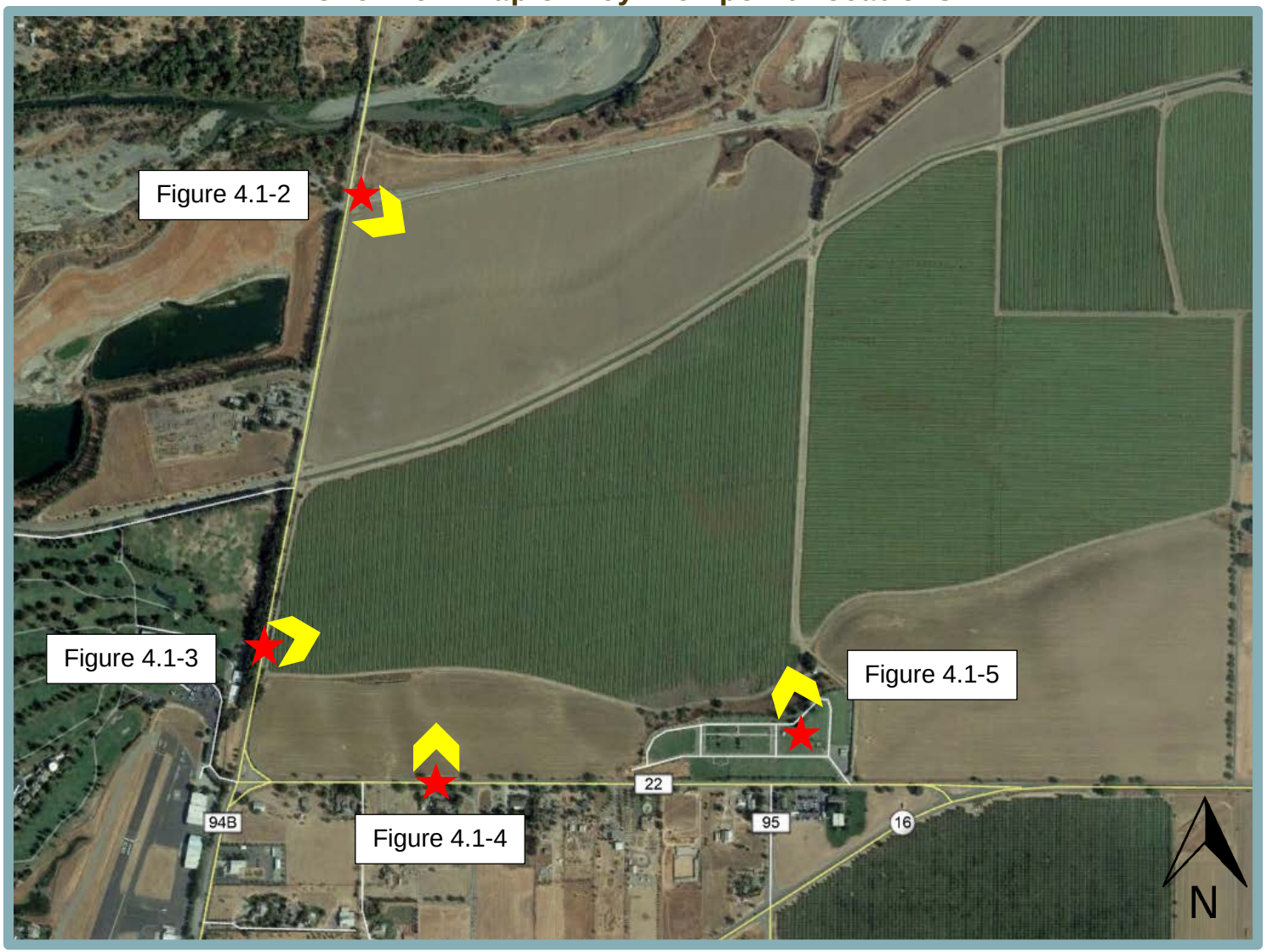


Figure 4.1-2
Existing View of Project Site from County Road 94B Looking Southeast (Key Viewpoint #1)



Figure 4.1-3
Existing View of Project Site from County Road 94B Looking Northeast (Key Viewpoint #2)



Figure 4.1-4
Existing View of Project Site from County Road 22 Looking North (Key Viewpoint #3)



Figure 4.1-5
Existing View of Project Site from Monument Hill Memorial Park Looking North (Key Viewpoint #4)



Key Viewpoint # 2

Key Viewpoint #2 represents the view of the project site from County Road 94B, looking northeast. This publicly available view is seen while traveling along County Road 94B. experience views of a uniform agricultural setting, with less disruptions by human-made elements. This view also has more perceivable patterns than viewpoint #1 given the presence of different types of vegetation (row crops vs. more grass-like vegetation). Foreground views consist of pavement, road shoulder, gravel, and non-native screening vegetation along County Road 94B, and middleground views are dominated by on-site row crops. Background views consist of mature vegetation beyond the project site boundaries, topographic relief and open sky. The overall visual quality of this view of moderate/average quality.

Key Viewpoint # 3

Key Viewpoint #3 represents the view looking north from County Road 22. This publicly available view is seen while traveling along County Road 22. The agricultural land in the foreground is not part of the project site. The project site is not readily visible from this viewpoint, given the lower elevation of the project site, compared to the agricultural lands in the foreground. experience views of a uniform agricultural setting, with few disruptions by human-made elements. While there are minimal encroachments, this view has few perceivable patterns given its uniformity, and thus is not particularly striking, nor memorable. Foreground views consist of pavement, road shoulder, and grassy vegetation. Middleground views are dominated by gently rolling vegetated topography, and background views consist of mature vegetation beyond the project site boundaries and open sky. The overall visual quality of this view of moderate/average quality.

Key Viewpoint # 4

Key Viewpoint #4 represents the view looking north from Monument Hill Memorial Park cemetery. This publicly available view is seen from visitors to the memorial park, which is accessible during all hours. Foreground views consist of grass, landscaping, and human-made encroachments, including paved areas, retaining walls, and grave sites. Middleground views are dominated by agricultural portions of the project site, whereas background views consist of mature vegetation beyond the project site boundaries and open sky. The overall visual quality of this view of moderate/average quality.

Light Pollution and Glare

Light pollution refers to unwanted light in the night sky, including glare, light trespass, sky glow, and over-lighting. Views of the night sky can be an important part of the natural environment, particularly in communities with extended viewsheds. Excessive light and glare can also be visually disruptive to humans and nocturnal animal species.

The project site is undeveloped and unlit landscape. The immediate vicinity is rural, and as such, relatively few sources of light and glare occur in the project vicinity. Existing sources of light and glare are primarily limited to headlights from vehicles traveling on County Road 22 and County Road 94B, and outdoor lighting on farm dwellings and rural residential areas. The Teichert Woodland Plant to the north also includes existing sources of light associated with mining operations.

4.1.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of aesthetics under the CEQA process.

Federal Regulations

There are no applicable federal laws or regulations pertaining to the aesthetic quality of the project area.

State Regulations

The following are applicable State regulations related to aesthetic resources.

Surface Mining and Reclamation Act

Project Consistency with Surface Mining Reclamation Act is discussed in Chapter 4.9, Land Use and Planning.

California Scenic Highway Program

The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 et seq. of the California Streets and Highways Code.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project at a local level.

Local Scenic Highways

Yolo County has no designated federal or State Scenic Highways. A portion of State Route 16 (from approximately the town of Capay at County Road 85, north to the County line) is identified by the California Department of Transportation (Caltrans) as “eligible” for designation as a State Scenic Highway but is not officially designated. Yolo County has, however, designated State Route 16 from the Colusa County line to Capay as a local scenic highway.

Yolo County General Plan

The relevant goals and policies from the County’s General Plan related to aesthetics are presented below:

Goal CC-1 Preservation of Rural Character. Ensure that the rural character of the County is protected and enhanced, including the unique and distinct character of the unincorporated communities.

Policy CC-1.2 Preserve and enhance the rural landscape as an important scenic feature.

Policy CC-1.3 Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.

Policy CC-1.4 Identify and preserve, where possible, landmarks and icons which contribute to the identity and character of the rural areas.

Policy CC-1.8 Screen visually obtrusive activities and facilities such as infrastructure and utility facilities, storage yards, outdoor parking and display areas, along highways, freeways, roads and trails.

Policy CC-1.10 Protect existing ridgelines and hillsides from visually incompatible development.

Policy CC-1.12 Preserve and enhance the scenic quality of the County's rural roadway system. Prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways.

Policy CC-1.13 The following routes are designated as local scenic roadways, as shown in Figure LU-3 (Scenic Highways):

- State Route 16 (Colusa County line to Capay)
- State Route 128 (Winters to Napa County line)
- County Roads 116 and 116B (Knights Landing to eastern terminus of County Road 16)
- County Roads 16 and 117 and Old River Road (County Road 107 to West Sacramento)
- South River Road (West Sacramento City Limits to Sacramento County line)

Goal CO-3 Mineral Resources. Protect mineral and natural gas resources to allow for their continued us in the economy.

Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Policy CO-3.2 Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.

Goal CC-4 Project Design. Require project design that incorporates "smart growth" planning principles and "green" building standards that reflect the County's commitment to sustainable development.

Policy CC-4.28 Provide appropriate buffers or barriers between incompatible residential and non-residential uses. The last-built use shall be responsible for design and construction (and/or other related costs) of the buffer/barrier.

Cache Creek Area Plan

The CCAP is comprised of the Off-Channel Mining Plan (OCMP) and the Cache Creek Resources Management Plan (CCRMP). The OCMP is a scientifically based aggregate resource management plan that allowed for off-channel mining adjacent to Cache Creek. The CCRMP is a scientifically based river management plan that eliminated in-channel commercial mining, established an "improvement program" for implementing on-going projects to improve channel stability, encouraged restoration along the creek banks pursuant to a carefully developed policy and regulatory framework, and established a framework for future recreation along the Creek. The project site is located outside of the CCRMP boundaries.

Off-Channel Mining Plan

The following goal from the Off-Channel Mining Plan (OCMP) are applicable to the proposed project:

Goal 2.2-2 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, watershed, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Off-Channel Surface Mining Ordinance

Section 10-4.404 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) provides the following requirements related to aesthetics:

> ### Section 10-4.404. Aesthetics
> The visibility of mining operations, facilities, and landform alterations from public areas, viewpoints, and nearby residences shall be minimized, based on an assessment of site-specific visual characteristics and viewing conditions. The use of berms, vegetative screens, seeding, special plant materials and contouring the sides and top surfaces of modified landforms or other measures, shall be incorporated in the individual mine and reclamation plans as appropriate.

Section 10-4.420 of the OCSMO provides the following requirements related to lighting:

> ### Section 10-4.420. Lighting
> All lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties.

Section 10-4.429 of the OCSMO provides the following requirements related to setbacks:

> ### Section 10-4.429. Setbacks
> All off-channel surface mining operations shall comply with the following setbacks:
> (a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented;
> (b) Soil stockpiles shall be located a minimum of five-hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented;
> (c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic

impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place.

Surface Mining Reclamation Ordinance

Section 10-5.502 of the Yolo County Surface Mining Reclamation Ordinance (SMRO) states the following regarding aesthetics:

> Sec. 10-5.502. Aesthetics.
> Means of improving the appearance of the landscape after mining has been completed shall be assessed based on site-specific visual characteristics, site lines, and view corridors. The use and placement of berms, vegetative screens, special plant materials, grading slopes, and contouring the sides and top surfaces of modified landforms to mimic surrounding landforms, or other measures, shall be incorporated into the mine reclamation plan as appropriate.

Section 10-5.521 of the SMRO states the following regarding permanent stockpiles:

> Sec. 10-5.521. Permanent Stockpiles.
> There shall be no permanent piles of mine waste and/or overburden. Berms established for visual screening and noise abatement shall be contoured to conform visually with the surrounding topography.

4.1.4 IMPACTS AND MITIGATION MEASURES

The section below describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to aesthetics. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. An aesthetic impact is considered significant if the proposed project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
- In a non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point);

- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to aesthetics.

Impacts Found Less-than-Significant in Initial Study

According to the California Scenic Highway Mapping System, the proposed project site is not located within the vicinity of an officially designated State Scenic Highway.[9] Thus, the proposed project would result in a less-than-significant impact related to the potential for the proposed project to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway. Additional analysis on this topic is included in this chapter to assess the broader issue of impacts to scenic resources generally and impacts to locally designated scenic highways.

Method of Analysis

The following analysis utilizes a methodology based upon the FHWA publication *Visual Impact Assessment for Highway Projects* (1988), and supplemented by the Federal Highway Administration. *Guidelines for the Visual Impact Assessment of Highway Projects* (January 2015), combined with the State CEQA Guidelines' Appendix G Checklist questions for Aesthetics. Together, these provide the key analytical framework and guide the visual impact assessment process for the proposed project. Although the FHWA guidelines were initially created to provide an analytical framework for identifying and assessing qualitative changes to the visual environment that could be introduced as part of a transportation project, this methodology has become an industry standard for evaluating visual impacts associated with local and state non-transportation projects as well. Generally, the process includes the following basic steps:

- Defining the project setting and viewshed.
- Assessing existing visual resources and character of the project site and immediate vicinity.
- Identify viewer types.
- Assess visual quality of the proposed site.
- Identify key viewpoints and assess visual character and quality of viewpoints.
- Assess the visual impacts of the proposed project as seen from these viewpoints.
- Proposing methods to mitigate adverse visual impacts, if necessary.

As part of the analysis, an evaluative framework that defines the visual setting in terms of key views is utilized. A key view is a point from which a select view is analyzed from the perspective of potential viewer groups.

The following analysis assesses the anticipated changes in visual character (e.g., descriptive, non-evaluative characteristics such as land use, topography, scale, form, and color) and visual quality, evaluating them with respect to anticipated viewer response.

[9] California Department of Transportation. *California Scenic Highway Mapping System*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed February 2019.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to aesthetic resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.1-1 Have a substantial adverse effect on a scenic vista. This impact would be *less-than-significant*.

The environment of the immediate vicinity is characterized primarily by agricultural lands. Agricultural activity in the project vicinity has been ongoing since at least the early 1900s. The segment of the Moore Canal that crosses the project site is part of an irrigation system that dates to 1856. The Yolo Fliers Club golf course, developed between 1920 and 1958, the Watts-Woodland airport, developed in 1919, and farm dwellings, developed in the 1950s, are located to the west/southwest. Rural residential uses, developed between 1913 and 1993, and the Monument Hill Memorial Park cemetery, are located to the south. Farm dwellings, developed in the 1970s, are located to the east.

Aggregate mining operations are also well established and have an extended history in the vicinity. The aggregate mining operations to the north consist of Teichert's Storz mining site, which is currently in the reclamation process, and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. Conveyors and their mining-related infrastructure and equipment are common in the area. The Teichert Woodland Plant has been in continuous operation for over 50 years. Mining has been occurring along Cache Creek for over 100 years.

The proposed project is identified as a "Future Proposed Mining" area within the CCAP (see Figure 3-4 of the CCAP Update FEIR). As such, mining associated with the proposed project, and its potential effects on scenic vistas was anticipated and evaluated in the CCAP Update FEIR. According to Impact AES-1 of the CCAP Update FEIR concerning impacts to scenic vistas:

> The 2030 Countywide General Plan identifies several scenic vistas of importance in Yolo County, including the County's rural character and landscape (Goal CC-1 and Policy CC-1.2), the night sky (Policy CC-1.3), and ridgelines and hillsides (Policy CC-1.10). The General Plan also specifies that obtrusive activities and facilities such as infrastructure and utility facilities, storage yards, outdoor parking and display areas should be visually screened along highways, freeways, roads and trails (Policy CC-1.8). Based on these General Plan policies, scenic vistas are interpreted to be the rural landscape in general (which occurs throughout the CCAP area), the night sky, and ridgelines and hillsides (e.g., the Coast Range foothills to the west and the Dunnigan Hills to the north) that can be viewed from the CCAP area.

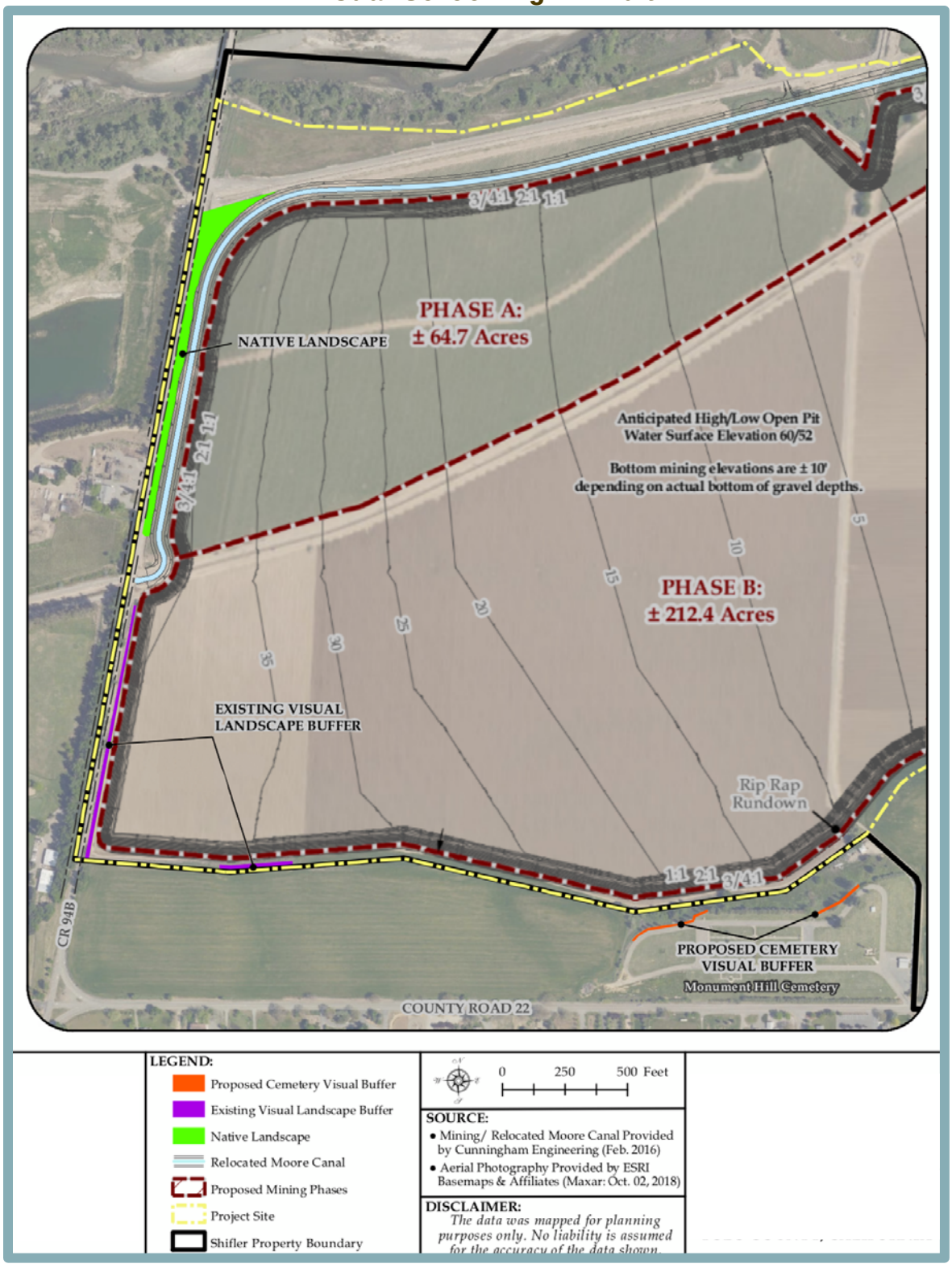
The CCAP Update FEIR notes that establishment of a new off-channel mining facility is the only activity that could occur under the CCAP that would have the potential to have a substantial adverse effect on views of the rural landscape, but also notes that several CCAP regulations in the Mining Ordinance address the potential for off-channel mining facilities to have adverse aesthetic effects in scenic vistas, including:

> Section 10-4.404. Aesthetics. Requires that the visibility of mining operations, facilities, and landform alterations from public and viewpoints and nearby residences be minimized, based on site-specific conditions by using berms, vegetative screens, seeding, and contouring the sides and top surfaces of modified landforms. Compliance with this regulation would ensure that adverse effects of active mining on rural landscape vistas would be minimized.
>
> Section 10-4.429. Setbacks. Requires that mining activities not occur within 2,000 feet of the community boundaries of Capay, Esparto, Madison, Woodland, and/or Yolo (or as close as 500 feet when mature vegetation screening would create a visual buffer). Compliance with this regulation would ensure that distant view of hillsides and ridgelines would not be obscured or damaged.
>
> Section 10·4.430. Site maintenance. Requires that during operations, the site must be kept free of debris and maintained in a neat and orderly manner so as not to create any hazardous or unsightly conditions; and that all overburden must be stockpiled and all stumps; brush, or other
> debris resulting from excavation and/or processing be properly disposed.
>
> Section 10-5.502. Aesthetics. Requires that mine reclamation plans include the use and placement of berms, vegetative screens, special plant materials, grading slopes, and contouring the sides and top surfaces of modified landforms to mimic surrounding landforms, or other measures into the mine reclamation plan as appropriate. Compliance with this regulation would ensure that adverse effects of post-mining landscape modifications on rural landscape vistas would be minimized.

According to the CCAP Update FEIR (pg. 4.1-9), compliance with these existing regulations would ensure that potential impacts related to off-channel CCAP activities are less than significant. The proposed project would be required to comply with the above-noted regulations. For example, the project includes installation of a landscape buffer along County Road 94B, at the northern section of the western perimeter, which would be planted with native tree and shrub species prior to commencement of mining activities (see Figure 4.1-6). The remaining portion of County Road 94B, along the western boundary of the project site is already heavily screened with landscaping, as shown in Figure 4.1-6. In addition, Teichert proposes to construct a 4-foot high berm around the mining area, which would help to screen above-ground operating equipment from view (see Figure 3-10 of the Project Description chapter). For additional detail regarding setback compliance, see Table 4.9-4 in Chapter 4.9, Land Use and Planning, of this EIR.

The views of the site from County Road 22 are already largely screened by intervening agricultural lands, gently rolling in topography, which blocks much of the views of the site. Scenic views of the site's agricultural setting, as seen from Monument Hill Memorial Park, are partially obstructed due to existing mature vegetation at the park. Please also refer to Impact 4.1-3 for additional discussion regarding views of the site from the park (see Key Viewpoint #4).

Figure 4.1-6
Visual Screening Exhibit



As mining is completed, reclamation will occur in compliance with proposed reclamation plans resulting in approximately 86 acres of agricultural land on the west, approximately 31 acres of agricultural land on the east, a 113-acre open water lake in the central portion of the proposed mining area, 24 acres of riparian habitat along the lake frontage, and 24 acres in grassy slopes and access roads. The lake and surrounding habitat would be dedicated to the County upon completion for future public recreation, public trails, open space, and protected habitat.

Consistent with the conclusion of the CCAP Update FEIR, which anticipated development of project site for future mining, compliance of the proposed project with existing above-noted regulations would ensure that the project would result in a ***less-than-significant*** impact to scenic vistas.

Mitigation Measure(s)
None required.

4.1-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway. This impact would be *less-than-significant*.

The project site is not within view of a State scenic highway or any of the scenic roadways identified in Policy CC-1.13 of the General Plan. Per the County's General Plan, State Route 16 is a locally designated scenic highway. However, the portion designated as a scenic corridor starts at the Colusa County line and ends at Capay, which is approximately 10 miles east of the project site.

With respect to scenic resources, the project site does not include historic buildings or rock outcroppings. The north portion of the site contains 52 trees, including 49 valley oaks and three coast live oaks. The majority of trees are located along the banks of the Magnolia Canal. The proposed project would include the removal of 46 of the 52 existing oak trees identified within the site vicinity. Yolo County does not have an established tree preservation ordinance or policy. However, given that the proposed project would include removal of native oak trees, the project would be required to comply with the applicable provisions of the Yolo County Oak Woodland Conservation and Enhancement Plan.

In general, the proposed project is in accord with the Yolo County Oak Woodland Conservation and Enhancement Plan; as a result of the proposed reclamation activities, approximately 10.9 acres of the site would be reclaimed as "upper riparian woodland". Per the proposed Reclamation Plan, the upper riparian woodland habitat would be planted with approximately 50 valley oak seedlings per acre, along with other native species.

Thus, the project would ultimately increase the acreage of oak woodland habitat on-site, consistent with Goals 7 and 8 of the Yolo County Oak Woodland Conservation and Enhancement Plan.

Based on the above considerations, and consistent with the conclusion of the CCAP Update FEIR (p. 4.1-10), the proposed project would have a ***less-than-significant*** impact with respect to substantially damaging scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.

Mitigation Measure(s)
None required.

4.1-3 In a non-urbanized area, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point). This impact would be *less-than-significant*.

As previously discussed, the project site is identified as a "Future Proposed Mining" area within the CCAP Update (see Figure 3-4 of the CCAP Update FEIR). As a result, the changes in visual character or quality of the public views of the site as a result of off-channel mining have been anticipated in the CCAP Update FEIR. According to the CCAP Update FEIR, the OCMP and supporting Mining Ordinance include policies and ordinances intended to minimize potential adverse effects on views and vistas from new off-channel mining projects. These are discussed in Impact 4.1-1 and include Setbacks (Section 10-4.429), Site Maintenance (Section 10-4.430) and Aesthetics (Section 10-5.502). The CCAP Update FEIR goes on to note (p. 4.1-12):

> The Mining Ordinance regulations listed above will help limit adverse visual effects during active mining on existing views and vistas. Even so, mining operations will be visible, to some degree, from various public viewpoints. As required by State law and Mining Ordinance Section 10-4.505, new proposed mining operations that could be located in the "Future Proposed Mining" areas shown on Figure 3-4 would be subject to CEQA review. In conjunction with the required environmental review of individual projects permitted under the OCMP, the visibility of mining operations, facilities and landform alterations from public viewpoints would be assessed based on site specific visual characteristics and viewing conditions. The use of berms, vegetative screens, seeding, special plant materials and contouring the sides and top surfaces of modified landforms, or other measures, may be incorporated into the individual mine and reclamation plans, as appropriate.

This section assesses the visibility of mining operations, facilities, and landform alterations from the key public viewpoints identified in this chapter, based on site-specific visual characteristics and viewing conditions. It is noted that this project does not propose any changes to the Woodland Plant. However, once excavation and processing operations have ceased at the Esparto Site, the Esparto Plant equipment would be relocated to the Woodland Site to replace the older Woodland Plant equipment. In addition, one additional crusher and two additional screens would likely be required to accommodate the increase in plant capacity from 1.2 million tons per year to 2.2 million tons per year. Additional materials stockpiles may also be located at the Woodland Plant during on-site mining operations. However, these features

would not be visible from the key viewpoints identified in this chapter; therefore, they are not discussed further.

Key Viewpoint #1

Key Viewpoint #1 represents the view of the project site from County Road 94B, looking southeast. This publicly available view is seen from motorists along County Road 94B. Motorists experience views of a uniform agricultural setting, generally lacking striking visual patterns, and disrupted in part by human-made elements, such as utility poles, roadway gates, and concrete barriers. The overall visual quality of this view of moderate/average quality.

As shown in Figure 4.1-7, the project includes planting of a landscape buffer along the east side of County Road 94B, at the project's northwestern boundary, which would serve to screen on-site mining operations from motorists' view. Further south along County Road 94B, existing screen vegetation is already present. Thus, the majority of County Road 94B, along the project's western boundary, would have a landscape buffer, capable of screening on-site mining operations from view of motorists. This landscape buffer allows setbacks from excavation areas to be reduced to a minimum of 50 feet, which is what is proposed for the project (OCSMO, Section 10-4.429; see also Figure 4.1-7). According to the OCSMO (Section 10-4.429), where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view.

In addition, the project includes installation of a four-foot high earthen berm around the on-site mining area, which would further screen mining operations from view; and a 300-foot portion of the berm along the western boundary of the site would be eight feet high, as required in the Noise Chapter. The project does not include installation of any permanent above-ground structures that would be visible from this, or any key public viewpoint. The overburden stockpiles near the western portion of the site would be below grade, within the mining pit area, and not visible to motorists (see Figure 3-10 of the Project Description chapter).

It is also important to consider the long-term reclamation of the project site. Mining operations would not be conducted in perpetuity, but rather, the site would be reclaimed to other uses, establishing harmony with surrounding uses. Under the proposed phasing plan, mining activities within the project site would be phased generally from north to south (see Figure 3-14 of the Project Description chapter). Agricultural reclamation of the western portion of the project site would occur concurrently with mining activities within the eastern portion of the project site. Mining would occur in two phases: Phase A (64.7 acres) and Phase B (212.4 acres). Reclamation would occur in three phases: Phase A (98.1 acres), Phase B (142.2 acres), Phase C (36.8 acres). Approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. Slopes associated with mining operations would also be reclaimed to grassland. A total of four reclaimed habitat communities are proposed which include grassland slopes, lake, upper riparian woodland, and lower riparian woodland.

As a result of the above considerations, the moderate/average quality of this view would not be substantially degraded by the proposed project. The viewer type at this key viewpoint consists of motorists, who would only have passing views of the site.

Key Viewpoint #2

Key Viewpoint #2 represents the view of the project site from County Road 94B, looking northeast. This publicly available view is seen from motorists along County Road 94B. Motorists experience views of a uniform agricultural setting, with less disruptions by human-made elements. This view also has more perceivable patterns than viewpoint #1 given the presence of different types of vegetation (row crops vs. more grass-like vegetation). The overall visual quality of this view of moderate/average quality.

For reasons similar to Key Viewpoint #1, on-site mining operations would be largely screened from view. The existing visual landscape buffer along the east side of County Road 94B would serve as a substantial screen for on-site mining operations, though there are some gaps in the existing vegetation. These gaps would receive additional screening by the four-foot high earthen berm that would be created along the site's western boundary.

The project does not include installation of any permanent above-ground buildings that would be visible from this, or any key public viewpoint. The overburden stockpiles near the western portion of the site would be below grade, within the mining pit area, and not visible to motorists (see Figure 3-10 of the Project Description chapter).

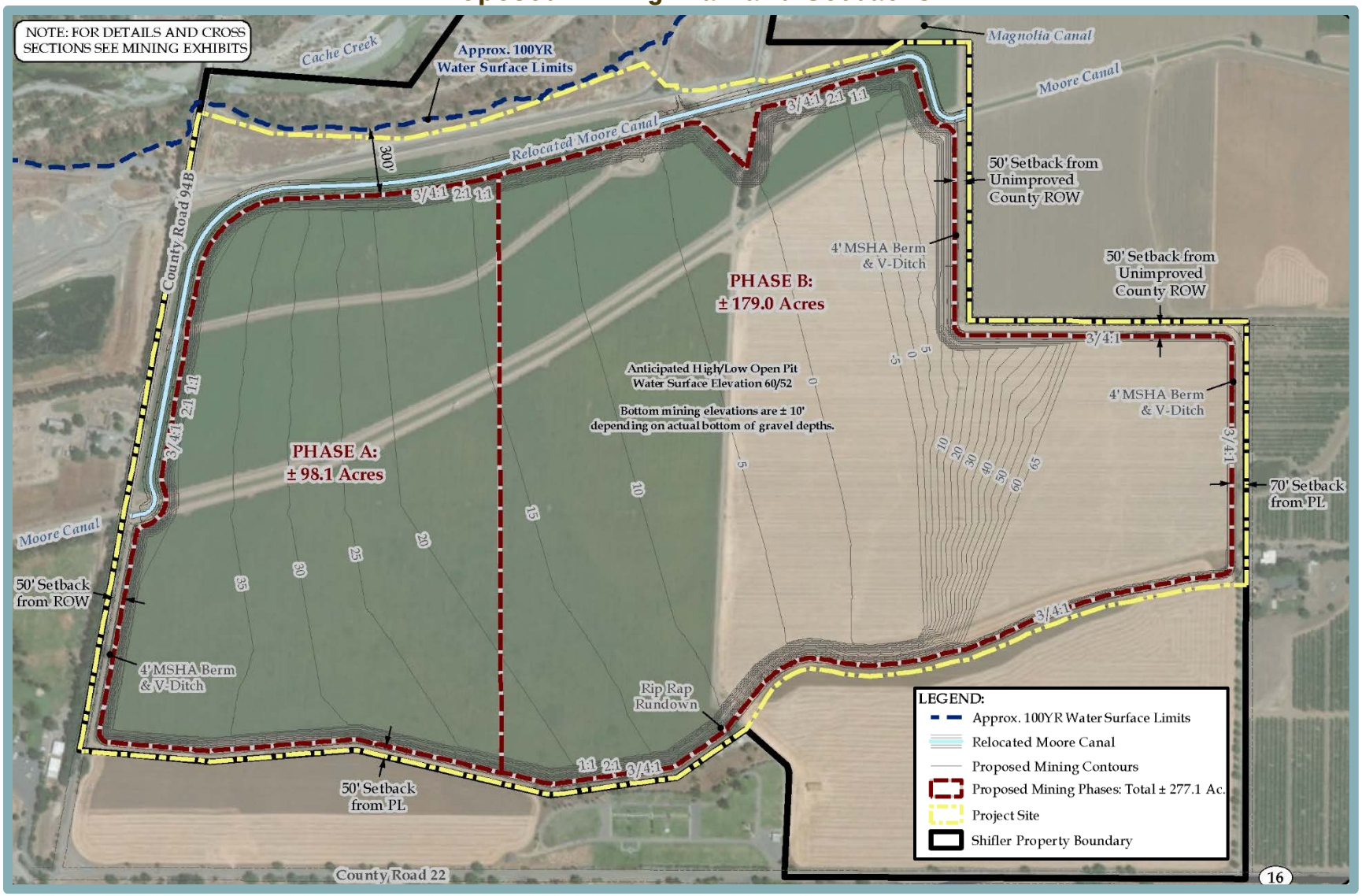
As a result, the moderate/average quality of this view would not be substantially degraded by the proposed project. The viewer type at this key viewpoint consists of motorists, who would only have passing views of the site.

Key Viewpoint #3

Key Viewpoint #3 represents the view looking north from County Road 22. This publicly available view is seen from motorists along County Road 22. The agricultural land in the foreground is not part of the project site. The project site is not readily visible from this viewpoint, given the lower elevation of the project site, compared to the agricultural lands in the foreground. Motorists experience views of a uniform agricultural setting, with few disruptions by human-made elements. While there are minimal encroachments, this view has few perceivable patterns given its uniformity, and thus is not particularly striking, nor memorable. The overall visual quality of this view of moderate/average quality.

On-site mining operations would not be visible due to the intervening, gently rolling topography between the project site and County Road 22. The southern portion of the project site would also include a four-foot high earthen berm. The project does not include installation of any permanent above-ground structures that would be visible from this, or any key public viewpoint.

Figure 4.1-7
Proposed Mining Plan and Setbacks



As a result, the moderate/average quality of this view would not be substantially degraded by the proposed project. The viewer type at this key viewpoint consists of motorists, who would only have passing views of the site.

Key Viewpoint #4

Key Viewpoint #4 represents the view looking north from Monument Hill Memorial Park cemetery. This publicly available view is seen from visitors to the memorial park, who are allowed access during all hours. Foreground views consist of grass, landscaping, and human-made encroachments, including paved areas, retaining walls, and grave sites. Middleground views are dominated by agricultural portions of the project site, whereas background views consist of mature vegetation and open sky beyond the project site boundaries. The overall visual quality of this view of moderate/average quality.

Mining operations would be visible from this viewpoint, through gaps in existing vegetation. Excavation areas would occur within 50 feet of the Memorial Park property line. Although a four-foot high berm would be created along the southern boundary of the project site, due to the fact that the Memorial Park is elevated above the project site, the proposed berm would not screen the mining operations. In order to fully screen the view of the project site from this key viewpoint, additional landscape plantings would be necessary. However, due to the elevated nature of the Memorial Park's topography, the landscape plantings would need to be on the Memorial Park property, rather than the project site. Teichert is currently in negotiations with the cemetery property owner regarding the desire to include landscape plantings along the cemetery property's northern boundary prior to commencement of mining activities on the project site. While such plantings would help screen the mining operations at the project site that would occur in the near- to mid-term, the plantings would not be necessary to screen the long-term reclaimed uses at the project site.

Long-term views of the site from this key viewpoint, after reclamation, would consist of agricultural uses and a lake. Thus, the harmony that would be established from this viewpoint in the long-term would be one of striking visual patterns.

While guests of the Memorial Park would be able to see project mining operations through gaps in existing vegetation, and for those frequent guests, a noticeable change in visual character from an agricultural setting to a mining operation would be apparent, guests do not stay at the Memorial Park for extended periods. In addition, the visual quality of this key viewpoint was determined to be moderate/average quality, and not high quality due to the lack of striking visual patterns and distinct focal points.

As a result of the above-noted factors, the moderate/average quality of this view would not be substantially degraded by the proposed project.

Conclusion

The majority of public viewpoints of the project site are available only along County Road 94B and County Road 22. People traveling on these roads have only passing views of the project site, and views of mining operations would be substantially screened by existing and proposed landscape buffers and on-site earthen berms. The

views of the project site from the Monument Hill Memorial Park are partial, through gaps in existing vegetation, and while the visual character or the site would be altered from an intact agricultural setting to surface mining, such alteration would be temporary, as long-term reclaimed uses would consist of agricultural lands and a lake. In addition, based on the visual analysis performed in this chapter, the key viewpoints were determined to have moderate/average visual quality. The project would be required to comply with all applicable aesthetics regulations identified in the OCSMO, as discussed above. As mining is completed, reclamation will occur in compliance with proposed reclamation plans resulting in approximately 86 acres of agricultural land on the west, approximately 31 acres of agricultural land on the east, a 113-acre open water lake in the central portion of the proposed mining area, 24 acres of riparian habitat along the lake frontage, and 24 acres in grassy slopes and access roads. The lake and surrounding habitat will be dedicated to the County upon completion for future public recreation, public trails, open space, and protected habitat. Therefore, consistent with the CCAP Update EIR, the project would have a ***less-than-significant*** impact related to substantially degrading the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point).

Mitigation Measure(s)

None required.

4.1-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. The impact would be *less than significant*.

Existing sources of light in the project area include vehicles traveling on County Road 22 and County Road 94B, the nearby residences, and the Teichert Woodland Plant. Development of the proposed project would introduce additional sources of light and glare to the project area that would be similar to those emanating from other mining sites in the area that have been reclaimed. Sources of lighting from the proposed project would be limited to headlights from trucks travelling to and from the site, and potentially, lighting associated with nighttime mining activities.

Mining operations would be consistent with the existing hours of operation for the Woodland Plant and the Schwarzgruber mining site. Hours of operation would typically be limited to the hours of 6:00 AM to 6:00 PM, Monday through Saturday per conditions of the Mining Permit. For the months of August, September, and October, the hours of operation may be extended to 10:00 PM (Monday through Friday). While extended hours would be allowed, the applicant has indicated that nighttime operations would be unlikely. Typically, nighttime operations, when needed, only occur for processing and load out at the plant site, not at the mining site. Nevertheless, should nighttime mining be required, the mining equipment does have lighting that is directed downwards toward the active work area. In addition, there may be some safety lighting associated with the conveyor, which would primarily be located at transfer points and as the conveyor approaches the plant site. Consistent with Section 10-4.420 of the OCSMO, all lighting will be arranged and controlled so as to limit light illumination of

adjacent properties or public rights-of-way. No stationary lighting would be installed on the mining site due to the unanticipated need for nighttime mining.

In addition, during occasional nighttime operations, when vehicles are moving around on-site, headlights would be largely screened from view by landscape buffers and berms around the mining site.

Based on the above, the project could introduce additional sources of light and glare from aggregate mining operations and other improvements. Compliance with Section 10-4.420 would ensure that lighting would be arranged in a way that would minimize the illumination of public rights-of-way or adjacent properties. Compliance with OCSMO standards mentioned above would reduce impacts related to light illumination on the project site. Thus, anticipated lighting from the proposed project would not adversely affect day or nighttime views in the area, and would result in a ***less-than-significant*** impact, consistent with the conclusion in the CCAP Update FEIR (p. 4.1-9).

Mitigation Measure(s)

None required.

4.1-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to aesthetics. This impact would be *less than significant*.

Table 4.1-2 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to aesthetics.

As shown in the table below, the proposed project is anticipated to be would generally consistent with applicable standards related to aesthetic resources. Thus, a ***less-than-significant impact*** would occur.

Mitigation Measure(s)

None required.

Table 4.1-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy CC-1.2 Preserve and enhance the rural landscape as an important scenic feature.	As an allowed use within the Agricultural zone, in areas that contain aggregate deposits covered by the CCAP, this use has been determined by the County to be compatible with the rural landscape. Aggregate mining is an interim use that allows for excavation of important construction materials, followed by reclamation to open space, agricultural, and habitat uses.

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Table 4.1-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	The Reclamation Plan (Figure 3-15 of the Project Description chapter) proposes a performance standard for productivity of reclaimed agricultural land of equal to or better than existing productivity. Therefore, the project would be consistent with this policy.
Policy CC-1.3 Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.	Please see Impact 4.1-4. Mining operations would primarily occur during the day, and though unlikely, the possibility exists for limited nighttime mining operations to occur. Daytime mining would not affect the night sky. Pursuant to Section 10-4.420 of the Mining Ordinance, lighting must be arranged and controlled in a manner to limit light spillover. The project would be consistent with this policy.
Policy CC-1.4 Identify and preserve, where possible, landmarks and icons which contribute to the identity and character of the rural areas.	Distinguished landmarks or icons do not currently exist on the project site. Therefore, the proposed project would not conflict with this policy.
Policy CC-1.8 Screen visually obtrusive activities and facilities such as infrastructure and utility facilities, storage yards, outdoor parking and display areas, along highways, freeways, roads and trails.	Please see Impact 4.1-3. The project would be consistent with all applicable setbacks and screening requirements. The proposed project would include landscape berms along the site boundaries to screen the new mining operations. As part of the proposed project, the northern section of the western perimeter would be planted with native trees and scrubs prior to commencement of mining activities. In addition, as mining operations proceed, excavation activity recedes from sight based on depth of mining. Therefore, the project would be consistent with this policy.
Policy CC-1.10 Protect existing ridgelines and hillsides from visually incompatible development.	Existing elevations within the site range from 98 to 112 feet above mean sea level. As such, the project site does not contain any notable ridgelines or hillsides. Distant views of the Coast Ranges beyond the project site would persist from publicly accessible viewpoints, such as roadways, with implementation of the project. Consequently, the project would be consistent with this policy.
Policy CC-1.12 Preserve and enhance the scenic quality of the County's rural roadway system. Prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways.	The project includes landscaping along the site boundaries to screen mining operations. State-designated scenic highways are not located within the project vicinity and would not be impacted by the proposed project. Per the County's General Plan, State Route 16 is a locally designated scenic highway. However, the portion designated as a scenic corridor starts at the Colusa County line and ends at Capay, which is approximately 10 miles

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Table 4.1-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	east of the project site. Therefore, the project would be consistent with this policy.
Policy CC-1.13 The following routes are designated as local scenic roadways, as shown in Figure LU-3 (Scenic Highways): • State Route 16 (Colusa County line to Capay) • State Route 128 (Winters to Napa County line) • County Roads 116 and 116B (Knights Landing to eastern terminus of County Road 16) • County Roads 16 and 117 and Old River Road (County Road 107 to West Sacramento) • South River Road (West Sacramento City Limits to Sacramento County line)	Per the County's General Plan, State Route 16 is a locally designated scenic highway. However, the portion designated as a scenic corridor starts at the Colusa County line and ends at Capay, which is approximately 10 miles east of the project site. Considering the distance between the project site and the nearest local scenic roadway, the project would not have the potential to result in impacts related to views from designated local scenic roadways. Moreover, the project would not interfere with the County's designation of roadways as local scenic roadways. The project would be consistent with this policy.
Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.	The CCAP and associated implementing ordinances balance the identified social values. The proposed project is consistent with the CCAP and complies with both the Mining Ordinance and the Reclamation Ordinance. This EIR analyzes potential environmental impacts associated with the project, including impacts to water, wildlife, agriculture, aesthetics, and other environmental factors. Where applicable, mitigation is provided to minimize impacts to the maximum extent feasible. Therefore, the project would be consistent with this policy.
Policy CO-3.2 Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.	See discussion for Policy CC-4.28. The proposed project is consistent with the CCAP and complies with both the Mining Ordinance and the Reclamation Ordinance. This EIR analyzes potential environmental impacts associated with the project, including impacts to water, wildlife, agriculture, aesthetics, and other environmental factors. Where applicable, mitigation is provided to minimize impacts to the maximum extent feasible. Therefore, the project would be consistent with this policy.
Policy CC-4.28 Provide appropriate buffers or barriers between incompatible residential and non-residential uses. The last-built use shall be responsible for design and construction (and/or other related costs) of the buffer/barrier.	Please see Impact 4.1-3. The rural residential to the south of the project site would be visually buffered from the project site by existing landscaping along County Road 22 as well as intervening, gently rolling topography between County Road 22 and the southern boundary of the project site. In addition, a four-foot high earthen

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Table 4.1-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	berm would be created around the mining excavation boundary. Therefore, the project would be consistent with this policy.
Off-Channel Mining Plan	
Goal 2.2-2 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, watershed, wildlife, agriculture, aesthetics, flood control, and other environmental factors.	See Policy CO-3.1 above.
Off-Channel Surface Mining Ordinance	
Section 10-4.404 The visibility of mining operations, facilities, and landform alterations from public areas, viewpoints, and nearby residences shall be minimized, based on an assessment of site-specific visual characteristics and viewing conditions. The use of berms, vegetative screens, seeding, special plant materials and contouring the sides and top surfaces of modified landforms, or other measures, shall be incorporated into the individual mine and reclamation plans as appropriate.	Please see Impact 4.1-3. The proposed project would include berms, vegetative screens, and other measures to minimize the visibility of mining operations. Therefore, the proposed project would be consistent with this regulation.
Section 10-4.420 All lighting shall be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties.	Please see Impact 4.1-4. Mining operations would primarily occur during the day time. For the months of August through October, operation hours may be extended, though the need to do so is unlikely. The project would include berms and landscape features to block views of operations and limit illumination of public rights of way or adjacent properties. In addition, any equipment lighting would be directed to the active work area, consistent with this standard. Therefore, the proposed project would be consistent with this regulation.
Section 10-4.429 (c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would	Please see Impact 4.1-3. Section 10-4.249 establishes required setbacks from various adjoining land uses. The project would be consistent with this regulation.

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Table 4.1-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place.	
Surface Mining Reclamation Ordinance	
Section 10-5.502 Means of improving the appearance of the landscape after mining has been completed shall be assessed based on site-specific visual characteristics, site lines, and view corridors. The use and placement of berms, vegetative screens, special plant materials, grading slopes, and contouring the sides and top surfaces of modified landforms to mimic surrounding landforms, or other measures, shall be incorporated into the mine reclamation plan as appropriate.	Please see Impact 4.1-3. Under the proposed phasing plan, mining activities within the project site would be phased generally from north to south (see Figure 3-14 of the Project Description chapter). Agricultural reclamation of the western portion of the project site would occur concurrently with mining activities within the eastern portion of the project site. Mining would occur in two phases: Phase A (64.7 acres) and Phase B (212.4 acres). Reclamation would occur in three phases: Phase A (98.1 acres), Phase B (142.2 acres), Phase C (36.8 acres). Approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. Slopes associated with mining operations would also be reclaimed to grassland. A total of four reclaimed habitat communities are proposed which include grassland slopes, lake, upper riparian woodland, and lower riparian woodland. The project would be consistent with this regulation.
Section 10-5.521 There shall be no permanent piles of mine waste and/or overburden. Berms established for visual screening and noise abatement shall be contoured to conform visually with the surrounding topography.	Consistent with this standard, no permanent stockpiles are proposed for the reclamation plan. The project would be consistent with this regulation.

4.2 Agricultural Resources

4.2 AGRICULTURAL RESOURCES

4.2.1 INTRODUCTION

The Agricultural Resources chapter of the EIR summarizes existing agricultural resources within the boundaries of the proposed project, including identification of any Prime/Unique Farmland or Farmland of Statewide Importance within the project boundaries. If Prime/Unique Farmland or Farmland of Statewide Importance is determined to be on-site, the analysis will address the conversion of said lands to mining uses. In addition, any conflicts with existing zoning for agricultural use are identified. Based on the analysis included in the Initial Study prepared for the proposed project (Appendix A), no impact related to forest resources were identified. Accordingly, further analysis of forest resources is not included in this EIR.

Documents referenced to prepare this chapter include the Yolo County General Plan,[1] and associated EIR,[2] the EIR for the Cache Creek Area Plan (CCAP),[3] a Custom Soil Resource Report[4] prepared for the project by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), and the Yolo County Important Farmland Map.[5]

In response to the NOP, the County received comments related to Agricultural Resources from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- The conversion of prime farmland to non-agricultural uses (California Department of Conservation – Division of Land Resource Protection);
- Reclamation of the site back to farmland (Resident);
- Potential impacts related to conflicts with agricultural zoning or the Williamson Act (California Department of Conservation – Division of Land Resource Protection);
- The percentage of agricultural land relative to total mining acreage of the site (Resident);
- Compliance with State reclamation regulations (Resident);
- Health of topsoil post-reclamation (Resident);
- Agricultural conservation easements regarding the removal of prime farmland (Resident); and
- Incremental impacts leading to cumulative impacts on agricultural land (California Department of Conservation – Division of Land Resource Protection).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not

1 Yolo County. *2030 Countywide General Plan.* November 2009.
2 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*. April 2009.
3 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.
4 U.S. Department of Agriculture, Natural Resources Conservation Service. *Custom Soil Resource Report for Yolo County, California. Shifler Mining and Reclamation Project.* June 12, 2019.
5 California Department of Conservation. *Yolo County Important Farmland 2016.* July 2017.

to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, the comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following terms are used throughout this section and have important bearing upon properly evaluating agricultural resources within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

Farmland Classifications

The USDA NRCS uses two systems to determine a soil's agricultural productivity: the Land Capability Classification System and the Storie Index Rating System. The "prime" soil classification of both systems indicates the presence of few to no soil limitations, which, if present, would require the application of management techniques (e.g., drainage, leveling, special fertilizing practices) to enhance production. The Farmland Mapping and Monitoring Program (FMMP), part of the Division of Land Resource Protection, California Department of Conservation (DOC), uses the information from the NRCS to create maps illustrating the types of farmland in the area.

Land Capability Classification System

The Land Capability Classification System takes into consideration soil limitations, the risk of damage when soils are used, and the way in which soils respond to treatment. Capability classes range from Class I soils, which have few limitations for agriculture, to Class VIII soils, which are unsuitable for agriculture. Generally, as the rating of the capability classification system increases, yields and profits are more difficult to obtain. A general description of soil classification as defined by the NRCS is provided in Table 4.2-1.

Storie Index Rating System

The Storie Index Rating system ranks soil characteristics according to their suitability for agriculture from Grade 1 soils (80 to 100 rating) which have few or no limitations for agricultural production, to Grade 6 soils (less than 10 rating) which are not suitable for agriculture. Under the Storie Index Rating system, soils deemed less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or entirely removed. The six grades, ranges in index rating, and definition of the grades, as defined by the NRCS, are provided below in Table 4.2-2.

Farmland Mapping and Monitoring Program

The FMMP was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the USDA. The intent of the USDA was to produce agriculture maps based on soil quality and land use across the nation. As part of the nationwide agricultural land use mapping effort, the USDA developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability for agricultural production; suitability included both the physical and chemical characteristics of soils and the actual land use. Important Farmland maps are derived from the USDA soil survey maps using the LIM criteria.

Table 4.2-1
Land Capability Classification

Class	Definition
I	Soils have slight limitations that restrict their use.
II	Soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
III	Soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
IV	Soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to aesthetic purposes.

Note: Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, IIe. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.
Source: USDA NRCS, Soil Survey of Yolo County, 1972.

Table 4.2-2
Storie Index Rating System

Grade	Index Rating	Definition
1 – Excellent	80 through 100	Soils are well suited to intensive use for growing irrigated crops that are climatically suited to the region.
2 – Good	60 through 79	Soils are good agricultural soils, although they may not be so desirable as Grade 1 because of moderately coarse, coarse, or gravelly surface soil texture; somewhat less permeable subsoil; lower plant available water holding capacity, fair fertility; less well drained conditions, or slight to moderate flood hazards, all acting separately or in combination.
3 – Fair	40 through 59	Soils are only fairly well suited to general agriculture use and are limited in their use because of moderate slopes; moderate soils depths; less permeable subsoil; fine, moderately fine or gravelly surface soil textures; poor drainage; moderate flood hazards; or fair to poor fertility levels, all acting alone or in combination.
4 – Poor	20 through 39	Soils are poorly suited. They are severely limited in their agricultural potential because of shallow soil depths; less permeable subsoil; steeper slope; or more clayey or gravelly surface soil texture than Grade 3 soils, as well as poor drainage; greater flood hazards; hummocky micro-relief; salinity; or poor fertility levels, all acting alone or in combination.
5 – Very Poor	10 through 19	Soils are very poorly suited for agriculture, are seldom cultivated and are more commonly used for range, pasture, or woodland.
6 – Non-Agriculture	Less and 10	Soils are not suited for agriculture at all due to very severe to extreme physical limitations, or because of urbanization.

Source: USDA NRCS, Soil Survey of Yolo County, 1972.

Since 1980, the State of California has assisted the USDA with completing the mapping in the State. The FMMP was created within the California DOC to carry on the mapping activity on a continuing basis, and with a greater level of detail. The California DOC applied a greater level of detail by modifying the LIM criteria for use in California. The LIM criteria in California utilize the Land Capability Classification and Storie Index Rating systems, but also consider physical conditions such as dependable water supply for agricultural production, soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth.

The California DOC classifies lands into seven agriculture-related categories: Prime Farmland, Farmland of Statewide Importance (Statewide Farmland), Unique Farmland, Farmland of Local Importance (Local Farmland), Grazing Land, Urban and Built-up Land (Urban Land), and Other Land. The first four types listed above are collectively designated by the State as Important Farmlands. Important Farmland maps for California are compiled using the modified LIM criteria and current land use information. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into surrounding classifications.

Each of the seven land types are summarized below, based on California DOC's *A Guide to the Farmland Mapping and Monitoring Program*.[6]

Prime Farmland: Prime Farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. The land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles (a cycle is equivalent to two years) prior to the mapping date.

Statewide Farmland: Farmland of Statewide Importance is land similar to Prime Farmland, but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

Unique Farmland: Unique Farmland is land of lesser quality soils used for the production of the State's leading agricultural crops. The land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two update cycles prior to the mapping date.

Local Farmland: Farmland of Local Importance is land of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee. Yolo County local farmland includes lands which do not qualify as Prime, Statewide, or Unique designation, but are currently irrigated crops or pasture or non-irrigated crops; lands that would meet the Prime or Statewide designation and have been improved for irrigation, but

[6] California Department of Conservation, Division of Land Resource Protection. *A Guide to the Farmland Mapping and Monitoring Program*. 2004.

are now idle; and lands that currently support confined livestock, poultry operations and aquaculture.

Grazing Land: Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock. The minimum mapping unit for this category is 40 acres.

Urban Land: Urban and Built-up Land is occupied with structures with a building density of at least one unit to one-half acre. Uses may include but are not limited to, residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit, if they are part of a surrounding urban area.

Other Land: Other Land is land that is not included in any other mapping categories. The following uses are generally included: rural development, brush timber, government land, strip mines, borrow pits, and a variety of other rural land uses.

Williamson Act Contracts

Under the provisions of the Williamson Act (California Land Conservation Act 1965, Section 51200), landowners contract with the County to maintain agricultural or open space use of their lands in return for reduced property tax assessment. The contract is self-renewing and the landowner may notify the County at any time of intent to withdraw the land from its preserve status.

Under a Williamson Act contract, the landowner and the County agree that the land will be maintained in agricultural production for a period of not less than 10 years. The 10-year period renews every year unless a Notice of Non-Renewal is filed by either the landowner or the County. Nine years after a Notice of Non-Renewal is filed, the contract expires.

Withdrawal involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses. Consequently, land under a Williamson Act Contract can be in either renewal status or non-renewal status. Lands with a non-renewal status indicate the farmer has withdrawn from the Williamson Act Contract and is waiting for a period of tax adjustment for the land to reach its full market value.

4.2.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to agricultural resources.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than

agricultural crops, is primarily limited to grasslands, ornamental landscaping, and scattered native vegetation.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

According to the County's General Plan, 92 percent of the land surface of Yolo County is off-limits to residential, commercial, and industrial development uses that are not consistent with the agricultural designation. Rather, these lands are currently set aside for farming, grazing, and open space. Over 85 percent of County land is used for agriculture and 67 percent of the unincorporated area of the County is protected under Williamson Act contracts to provide further long-term protection of these lands.

Over 63 percent of total County farmland is on Class I, II, and selected Class III soils; 11 percent is on other Class III and Class IV soils; and 26 percent is on Class VI and VII soils. Most of the unincorporated County consists of Class I and II soils, with areas of poorer quality soils in the Dunnigan Hills, along the Colusa Basin Drain, and the Yolo Bypass and in the western foothills.

The majority of the County's farmland is Prime Farmland, particularly in flat areas. Most of the County's cities and unincorporated communities are surrounded by Prime Farmland. The western foothills are predominantly classified as Grazing Land.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also

includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), rural residential, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The aggregate mining operations to the north consist of Teichert's Storz mining site to the northwest and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

The following sections provide an overview of the local existing soils and agricultural activity, as well as Williamson Act contracts and important farmland designations associated with the project site.

Local Soils

According to the Custom Soil Resource Report prepared for the project by the NRCS, the project site consists of the following soils:

- Brentwood silty clay loam, zero to two percent slopes (BrA);
- Loamy alluvial land (Lm);
- Riverwash (Rh);
- Sehorn-Balcom complex, two to 15 percent slopes (SmD);
- Sehorn-Balcom complex, 30 to 50 percent slopes, eroded (SmF2); and
- Yolo silt loam, zero to two percent slopes, MLRA 17 (Ya).

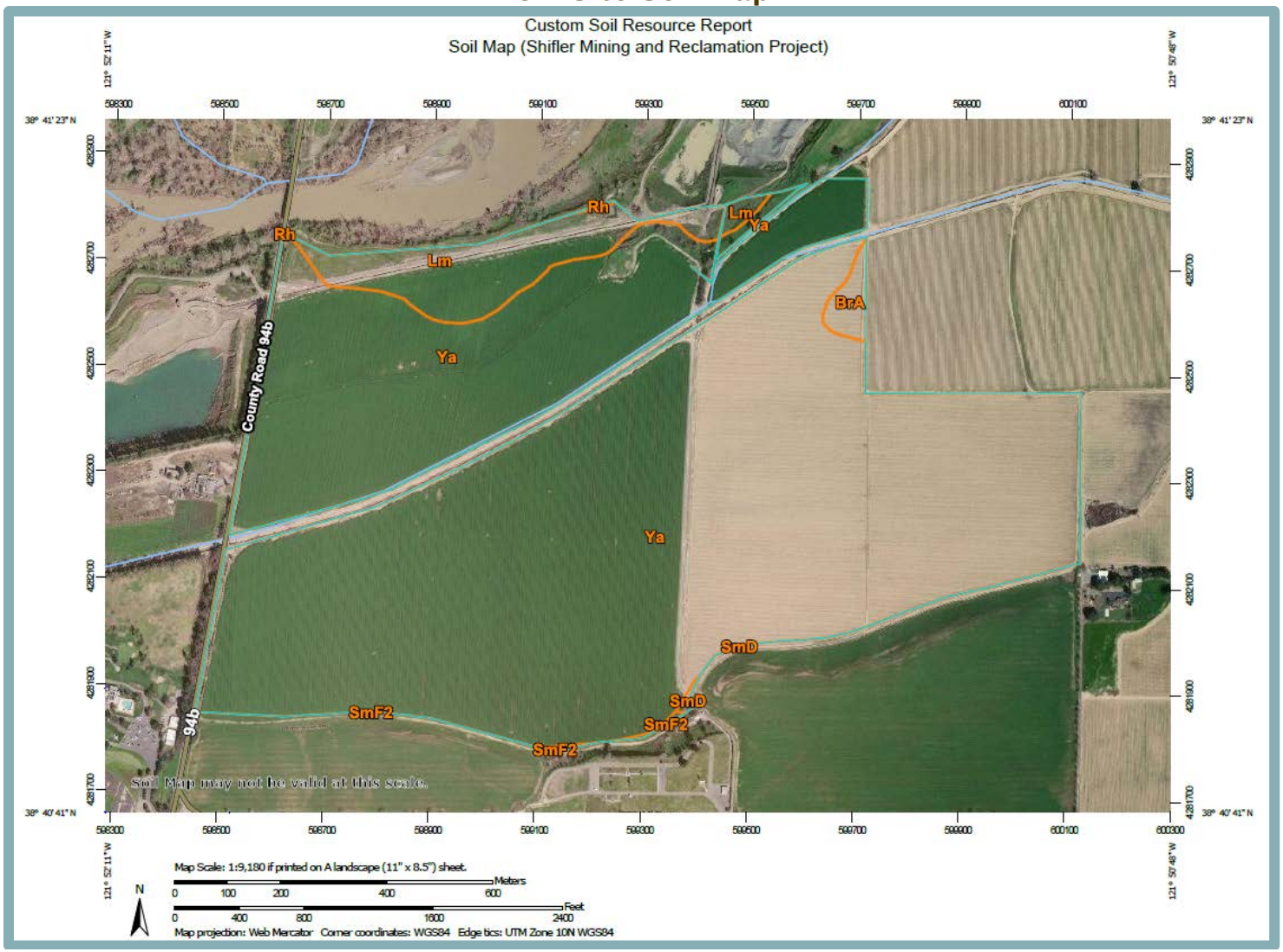
The soils are summarized below in Table 4.2-3 and shown in Figure 4.2-1. The land capability classification, Storie index, and grade for each on-site soil type is shown in Table 4.2-3. As also shown in Table 4.2-3, based on the on-site soil characteristics, the NRCS provides the associated farmland classification for each soil type. According to the NRCS, the soils BrA and Ya meet the criteria for Prime Farmland, if irrigated, and soil SmD meets the criteria for Farmland of Statewide Importance.

Table 4.2-3
On-Site Land Capability Classification and Storie Index Rating

Soil Name and Map Symbol	Land Capability Classification	Storie Index	Grade	NRCS Farmland Classification
Brentwood silty clay loam (BrA)	I	90	1	Prime Farmland if irrigated
Loamy alluvial land (Lm)	IV	95	1	Not Prime Farmland
Riverwash (Rh)	N/A	N/A	N/A	Not Prime Farmland
Sehorn-Balcom complex (SmD)	III	34	4	Farmland of Statewide Importance
Sehorn-Balcom complex (SmF2)	N/A	21	4	Not Prime Farmland
Yolo silt loam (Ya)	I	85	1	Prime Farmland if irrigated

Notes:
N/A = Not Available ***Source: USDA NRCS, 2019.***

Figure 4.2-1
On-Site Soil Map



Source: USDA NRCS, 2019.

Soil Descriptions

The six different soil types found on-site are described in detail below.

- *Brentwood silty clay loam, zero to two percent slopes (BrA)* is located in Alluvial fans. Permeability on the Brentwood silty clay loam is moderately slow. Runoff is very slow, and the erosion hazard is none to slight. The available water holding capacity is 11.0 – 13.0 inches. The effective rooting depth is more than 60 inches. Natural fertility is high. The Brentwood silty clay loam soil is primarily used for irrigated almonds, walnuts, sugar beets, tomatoes, alfalfa, and dryland barley.

- *Loamy alluvial land (Lm)* is formed in mixed, stratified alluvium recently deposited adjacent to streams. The Loamy alluvial land soils are nearly level and excessively drained. Permeability of Loamy alluvial land is rapid and surface runoff is very slow. The erosion hazard is very low and water holding capacity is 2.0 to 4.0 inches. Rooting depth is 24 to 40 inches. Natural fertility is moderately high. Loamy alluvial land is primarily used for dryland pasture, alfalfa, tomatoes, and almonds.

- *Riverwash (Rh)* is found in stream channels and is subject to overflow. Permeability of Riverwash is very rapid and surface runoff is very slow when the land is not flooded. Water carrying capacity is variable. The effective rooting depth is variable. Fertility is very low. The land type is mainly used as a source of sand and gravel.

- *Sehorn-Balcom complex, zero to 15 percent slopes (SmD)* is located on dissected uplands. Permeability of the Sehorn-Balcom complex is slow in the Sehorn soil and moderately slow in the Balcom soils. Surface runoff is slow to medium, and the erosion hazard is slight to moderate for both soils. The available water holding capacity is 6.0 to 10.0 inches for the Sehorn soil and 4.0 to 6.0 inches for the Balcom soil. The effective rooting depth is 36 to 60 inches. Natural fertility is high. These soils are primarily used for dryfarmed barley and pasture.

- *Sehorn-Balcom complex, 30 to 50 percent slopes, eroded (SmF2)* is located on dissected uplands. The Sehorn-Balcom complex is well drained to somewhat excessively drained. Permeability is slow in the Sehorn soil and moderately slow in the Balcom soil. Surface runoff is rapid, and the erosion hazard is high for both soils. The available water holding capacity is 6.0 to 8.0 inches for the Sehorn soil and 4.0 to 6.0 inches for the Balcom soil. The effective rooting depth is 24 to 40 inches. Natural Fertility is moderate to high. These soils are primarily used as rangeland.

- *Yolo silt loam, zero to two percent slopes, MLRA 17 (Ya)* is located on alluvial fans. The yolo silt loam soils are moderately permeable. Surface runoff is very slow, and the erosion hazard is none to slight. The available water holding capacity is 9.0 to 11.0 inches. The effective rooting depth is more than 60 inches. Natural fertility is high. The Yolo silt loam soils is primarily used for almonds, walnuts, con, sugar beets, tomatoes, alfalfa, and melons.

Local Agricultural Activity

The primary crops grown within the vicinity of the project site are row crops. Currently, the project site is farmed for row and field crops, such as tomatoes, safflower, and wheat. In 2017, the four

highest earning crops in the County were almonds, tomatoes, wine grapes, and walnuts, respectively.[7]

Williamson Act Contracts

Two of the parcels in the project site (APNs 025-120-032 and 025-430-002) were previously subject to a Williamson Act contract. A notice of non-renewal was recorded in January 2007 and the contract expired at the end of January 2016. Currently, no portion of the project site is subject to a Williamson Act contract.

Important Farmlands Inventory

Based on Figure 4.2-2, the California DOC has designated 267.50 acres of the 319.30-acre project site as Prime Farmland, 0.50 acres as Farmland of Statewide Importance, 8.25 acres of Unique Farmland, 5.85 acres of Farmland of Local Importance, and 30.20 acres of Other Land. A summary of the FMMP designations on the project site is provided in Table 4.2-4.

Table 4.2-4
FMMP Designation Summary

Designation	Acres
Prime Farmland	267.50
Farmland of Statewide Importance	0.50
Unique Farmland	8.25
Farmland of Local Importance	5.85
Other Land	30.20
Canal footprint (FMMP designations do not apply)	7.00
TOTAL	**319.30**

Notes:
- The approximately seven acres underlying the existing on-site canals cannot be farmed. This seven-acre area includes the dirt buffer along both sides of the canal.
- Other Land is land that is not included in any other mapping categories. The following uses are generally included: rural development, brush timber, government land, strip mines, borrow pits, and a variety of other rural land uses.

4.2.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of agricultural resources under the CEQA process.

Federal Regulations

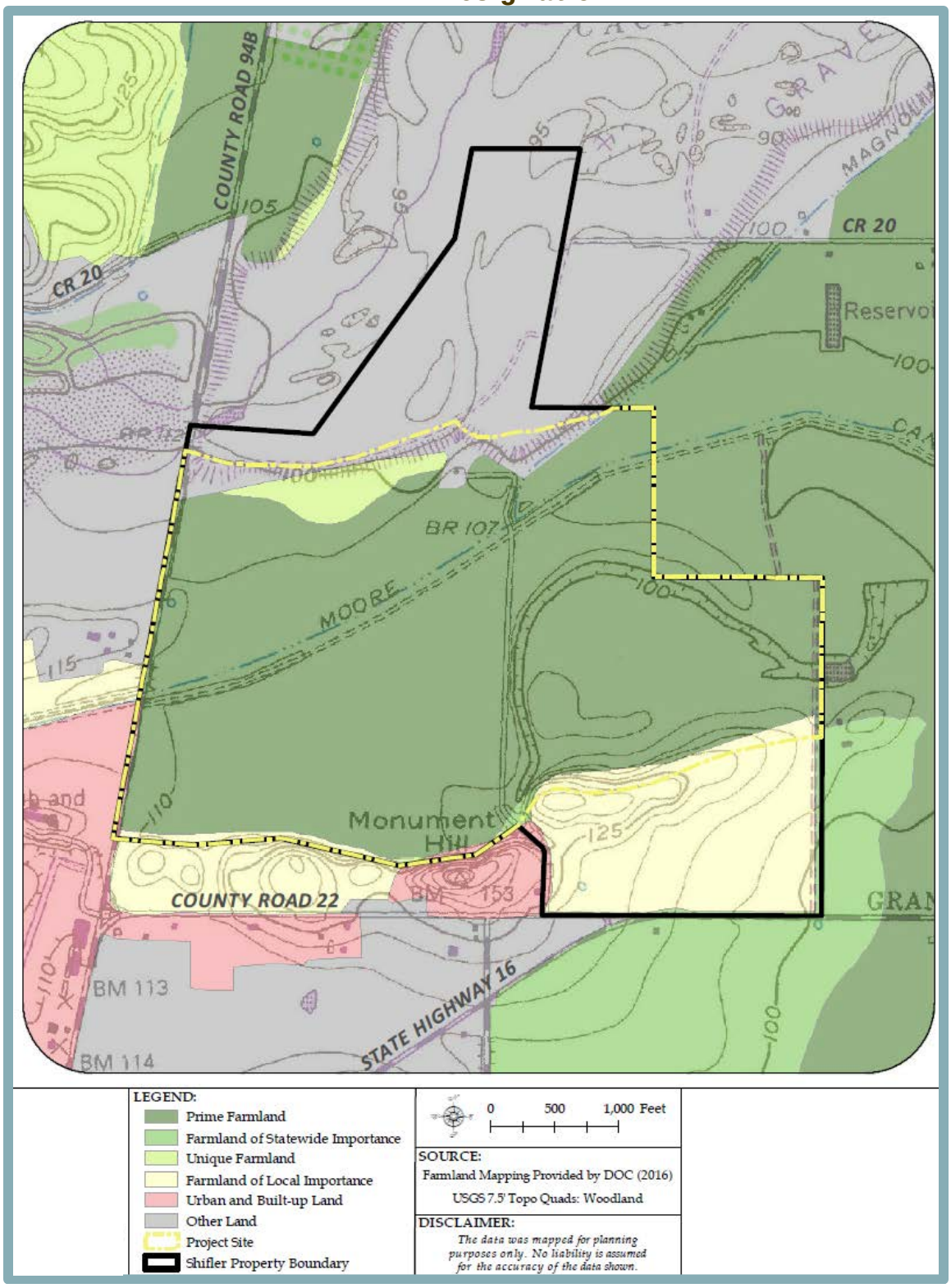
Federal regulations applicable to agricultural resources within the project area do not exist.

State Regulations

The following are the State regulations relevant to agricultural resources.

[7] Yolo County Department of Agriculture and Weights and Measures. *Yolo County 2017 Agricultural Crop Report.* October 2018.

Figure 4.2-2
FMMP Designation



Source: California Department of Conservation, Yolo County Important Farmland 2016, July 2017.

California Land Conservation Act of 1965 (Williamson Act)

Under the provisions of the Williamson Act (California Land Conservation Act 1965, Section 51200), landowners contract with the County to maintain agricultural or open space use of their lands in return for reduced property tax assessment. The contract is self-renewing and the landowner may notify the County at any time of intent to withdraw the land from its preserve status.

Withdrawal involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses. Consequently, land under a Williamson Act Contract can be in either renewal status or non-renewal status. Lands with a non-renewal status indicate the farmer has withdrawn from the Williamson Act Contract and is waiting for a period of tax adjustment for the land to reach its full market value. As noted previously the project site is not under a Williamson Act contract.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The relevant goals and policies from the County's General Plan related to agricultural resources are presented below.

Goal LU-1 Range and Balance of Land Uses. Maintain an appropriate range and balance of land uses to maintain the variety of activities necessary for a diverse, healthy and sustainable society.

Policy LU-1.1 [excerpt] Assign the following range of land use designations throughout the County, as presented in detail in Table LU-4 (Land Use Designations):

Open Space (OS) includes public open space lands, major natural water bodies, agricultural buffer areas, and habitat. The primary land use is characterized by "passive" and/or very low-intensity management, as distinguished from AG or PR land use designations, which involve more intense management of the land. Detention basins are allowed as an ancillary use when designed with naturalized features and native landscaping, compatible with the open space primary use.

Agriculture (AG) includes the full range of cultivated agriculture, such as row crops, orchards, vineyards, dryland farming, livestock grazing, forest products, horticulture, floriculture, apiaries, confined animal facilities and equestrian facilities. It also includes agricultural industrial uses (e.g. agricultural research, processing and storage; supply; service; crop dusting; agricultural chemical and equipment sales; surface mining; etc.) as well as agricultural commercial uses (e.g. road side stands, "Yolo Stores," wineries, farm-based tourism (e.g. u-pick, dude ranches, lodging), horseshows,

rodeos, crop-based seasonal events, ancillary restaurants and/or stores) serving rural areas. Agriculture also includes farmworker housing, surface mining, and incidental habitat.

Residential Rural (RR) includes large lot rural homes with primarily detached single-family units, although attached and/or detached second units or duplexes are allowed. Density range: 1du/5ac to <1 du/ac.

Public and Quasi-Public (PQ) includes public/governmental offices, places of worship, schools, libraries, and other community and/or civic uses. Also includes public airports, including related visitor services, and infrastructure including wastewater treatment facilities, municipal wells, landfills, and stormwater detention basins. May include agricultural buffer areas.

Agricultural District Overlay (ADO) applies to designated agricultural districts. Land uses consistent with the base designation and the district specifications are allowed.

Mineral Resource Overlay (MRO) applies to State designated mineral resource zones (MRZ-2) containing critical geological deposits needed for economic use, as well as existing mining operations.

Goal LU-2 Agricultural Preservation. Preserve farm land and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy.

Policy LU-2.4 Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of the city SOIs.

Goal AG-1 Preservation of Agriculture. Preserve and defend agriculture as fundamental to the identify of Yolo County.

Policy AG-1.4 Prohibit land use activities that are not compatible within agriculturally designated areas.

Policy AG-1.6 Continue to mitigate at a ratio of no less than 1:1 the conversion of farm land and/or the conversion of land designated or zoned for agriculture, to other uses.

Goal CO-3 Mineral Resources. Protect mineral and natural gas resources to allow for their continued use in the economy.

Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Action CO-A47 Ensure that mined areas are reclaimed to a usable condition that is readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities.

Goal ED-1 Economic Diversity. Diversity the local economy to provide substantial and sustainable long-term growth that will benefit businesses, residents, and local government.

Policy ED-1.2 Support the continued operation of existing aggregate mining activities within the county as well as new aggregate mining in appropriate areas, to meet the long-range construction needs of the region.

Policy ED-1.8 Retain and encourage growth in important economic export sectors, including mining, natural gas, tourism and manufacturing.

Off-Channel Mining Plan

The County's Off-Channel Mining Plan (OCMP) contains the following objectives and actions within the Agricultural Resources Element relevant to the project.

Goal 2.2-2 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, watershed, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Goal 2.2-5 Ensure that mined areas are reclaimed to a usable condition which are readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities.

Objective 5.3-1 Encourage the preservation of prime and important farmland along Cache Creek, while giving consideration to other compatible beneficial uses, such as groundwater storage and recharge facilities, surface mining operations, riparian habitat, and public recreation. Reclamation of agricultural lands to other uses; however, is discouraged wherever agricultural reclamation is feasible.

Objective 5.3-2 Ensure the use of appropriate agricultural management practices in reclaiming mined areas to productive farmland.

Action 5.4-1 Maintain the existing A-N (Agricultural Intensive) or A-X (Agricultural Extensive) base zoning within the off-channel planning area, except where it serves as a holding area for growth within the community spheres of Capay, Madison, Esparto, and Yolo, so as to preserve the agricultural character of the region.

Action 5.4-3 Provide for the protection of farmland within the planning area, including mined and reclaimed farmland, through the use of agricultural preserves and/or conservation easements. *(Each approved mining permit under the CCAP contains a condition of approval that states: "Upon the completion of reclamation within each phase of the project, the operator shall enroll each reclaimed parcel in Williamson Act contracts, and provide long-term easements or an equivalent (e.g., deed restrictions) to protect open space and agriculture.")*

Action 5.4-4 Ensure that all proposed surface mining operations that include reclamation to agricultural uses comply with the requirements of the Land Conservation (Williamson) Act and the State Mining and Geology Board Reclamation Regulations.

Action 5.4-6 Encourage off-channel excavation operations to access additional aggregate reserves through the use of wet pits, in order to minimize the amount of agricultural land disturbed by mining.

Action 5.4-7 Ensure maximum public benefit from reclaimed uses by establishing the following priority to be used to assess the adequacy of the proposed reclamation plans:

1. Reclamation to viable agricultural uses
2. Reclamation to native habitat
3. Reclamation to public recreation/open space uses
4. Reclamation to other uses

Action 6.4-3 Mitigate for short-term and long-term loss of agricultural land and habitat pursuant to applicable County requirements and CEQA. Comply with the Yolo HCP/NCCP for species covered by that Plan. For non-covered species for which impacts may occur, ensure compliance with appropriate measures in site-specific biological assessments required under the OCMP and CCRMP, in compliance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations, plans and programs, as appropriate.

Off-Channel Surface Mining Ordinance

Section 10-4.103 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) provides the following requirements related to balancing of economic wellbeing and societal values:

> Section 10-4.103. Purposes. [excerpt]
> The purposes of this chapter are as follows:
> (a) The extraction of sand and gravel is essential to the continued economic wellbeing of the state and to the needs of society. Although the County encourages the production of

sand and gravel, consideration must also be balanced by other societal values, including but not limited to recreation, water resources, wildlife, agriculture, and aesthetics;

Section 10-4.220. Prime Agricultural Land.

"Prime agricultural land" shall mean all land which meets the definition of prime agricultural land set forth in Section 51201 of the Government Code of the State as administered by the County in the administration of its agricultural preserve program.

Section 10-4.220 of the OCSMO provides the following requirements related to wildlife habitat:

Section 10-4.440. Wildlife Habitat.

Avoid disturbance to important wildlife habitat features such as bird nesting trees, colonial breeding locations, elderberry host plants for Valley Elderberry Longhorn Beetle, and mature riparian forest and oak woodland habitat. This shall include sensitive siting of haul roads, trails, and recreational facilities away from these features. Suitable habitat for special-status species shall be protected and enhanced, or replaced as a part of mitigation plans prepared by a qualified biologist where necessary, and through compliance with the Yolo HCP/NCCP for special-status species covered by that Plan. Mining and reclamation activities shall be performed in accordance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations to protect bird nests when in active use.

Native-planted hedgerows and/or other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.

Section 10-4.701 of the OCSMO provides the following requirements related to annual reporting:

Section 10-4.701. Annual Reports: Contents.

Every surface mining operator shall submit an annual report of surface mining operations no later than November 1 of each year, describing the activities of the previous twelve (12) months. Annual reports shall no longer be required, once final reclamation has been completed and financial assurances have been released. Operators shall submit one hard copy and one electronic copy to the County. Such reports shall contain the following information:

(a) A site plan submitted in the form prescribed by the Director, including all property proposed to be included in the reclamation plan, drawn to a scale of one-inch equals one-hundred feet (1" = 100'), or other scale acceptable to the Director for larger holdings, and showing the following information:
    (1) Property boundaries and the boundaries of permitted mining areas, including the depiction of separate mining phases;
    (2) The existing contours;
    (3) Contours which show the areas and depth of mining which have occurred since the previous annual report;
    (4) Identification of any significant changes in the topography, such as bank failures, levee breaches, extensive erosion, etc. which have occurred since the previous annual report;
    (5) Identification of erosion control structures, levees, berms, stockpiles, haul roads, settling ponds, habitat avoidance areas, and processing facilities;
    (6) The extent of areas reclaimed since the previous annual report;
    (7) The extent of any borrow areas, where topsoil and overburden are excavated for use in the reclamation of mined lands; and

(8) Updated graphic depictions of the control cross-sections approved in the surface mining permit application.

The site plan shall include a certificate from a licensed land surveyor or registered civil engineer certifying that the site plan and cross-sections were prepared by or under the direct supervision of the surveyor or engineer;

(b) A statement of the total amount of minerals produced since the date of the initial permit approval and since the date of the preceding annual report. Such information shall be consistent with the data submitted to the Department, as required in Section 2207 et seq. of Chapter 2 of Division 2 of the Public Resources Code of California. Production information shall be considered confidential under Section 10-4.901 of this chapter. Such reports shall be submitted as a declaration under penalty of perjury;

(c) A statement of the total amount of concrete and asphalt materials recycled since the date of the preceding annual report, and a statement of the total amount of aggregate removed from Cache Creek as a result of channel maintenance and reshaping activities in accordance with the CCRMP;

(d) A report prepared by a qualified hydrologist describing the data obtained from the on-site groundwater monitoring program, prepared in accordance with Section 10-4.417. The report shall recommend appropriate remedial measures if contamination in exceedance of established thresholds is indicated;

(e) A report describing the previous year's crop yields on any land in the process of being reclaimed to agriculture in accordance with the approved reclamation plan. The report shall include a soil analysis and appropriate remedial measures prepared by a qualified agronomist if crop yields do not meet the production standards set forth in the approved reclamation plan;

(f) A report prepared by a qualified biologist describing the density, coverage, and species-richness of any on-site areas that are being revegetated with plants other than agricultural crops in accordance with the approved reclamation plan. The report shall compare the observed data with the performance standards set forth in the approved reclamation plan and shall recommend remedial measures if the previous year's revegetation efforts have not been successful;

(g) A report prepared by a Registered Geologist, a Licensed Geotechnical Engineer, or a Registered Civil Engineer describing the remedial measures necessary to remediate any slope failures, levee breaches, or other topographical problems referred to in the site plan above;

(h) A report describing the extent of mining carried out over the previous year and the conformance of the operation with the approved reclamation timetable and/or phasing plan. Said report shall also describe the proposed extent of operations to be carried out over the following year;

(i) A report describing the compliance of the surface mining operation with the approved conditions of approval;

(j) A table, matrix, or report identifying all adopted CEQA mitigation measures by number and text, and describing compliance with these measures, pursuant to the Mitigation Monitoring Program adopted for the project; and

(k) A statement describing the status of any permits or approval issued by other agencies of jurisdiction; and

(l) A report describing the compliance with the applicable terms of the approved Development Agreement.

Other County Codes

In 2015, the County prepared an ordinance (Section 8-2.404 of the Yolo County Code) revising the existing Agricultural Conservation and Mitigation Program. Revisions to the program: (a) allow development projects below 20 acres in size to pay an “in-lieu” fee (the previous threshold was

five acres); (b) establish a 3:1 ratio for conversion of prime farmland to non-agricultural uses and 2:1 mitigation ratio for projects that convert other farmland to non-agricultural uses; (c) require all agricultural mitigation to occur within two miles of a city or certain unincorporated towns; (d) allow adjustments to the mitigation ratio based on conservation easement location (potential ratio decrease) and, potentially, project residential density (potential ratio increase); and (e) eliminate the current requirement that conservation easements acquired as mitigation be located within two to four miles of the project site. Mining activities under the CCAP were exempted from these expanded mitigation requirements.

Surface Mining Reclamation Ordinance

Section 10-5.103 of the Surface Mining Reclamation Ordinance (SMRO) provides the following requirements related to reclamation of mining sites:

Section 10-5.103. Purposes.

The purposes of this chapter are as follows:

(a) The reclamation of mined lands is necessary to prevent or minimize the adverse effects of mining on the environment and to protect the public health and safety;

(b) The reclamation of mined lands shall provide for the protection and subsequent beneficial use of mined lands. However, mining takes place in diverse areas, with significantly different geologic, topographic, climatic, biological, and social conditions, so that the methods and operations of reclamation plans may vary accordingly to provide for the most beneficial reclamation of mined lands;

(c) In order to provide for reclamation plans that are specifically adapted to the requirements of particular mined lands; and to ensure that mined land is reclaimed to end uses such as agriculture, habitat, groundwater recharge, flood control, and channel stabilization in a consistent manner to maximize their overall management; this chapter imposes performance standards by which reclamation methods and operations shall be measured;

(d) The continued protection of agriculture and open-space uses is essential. As such, all off-channel, prime agricultural land and/or off-channel lands zoned Agricultural Preserve (A-P) and within a Williamson Act contract at the time that mining commences shall be reclaimed to an agriculturally productive state equal to or greater than that which existed before mining commenced. Prime agricultural land that is within the A-P Zone and is not within a Williamson Act contract shall be reclaimed to those uses which are declared by the County to be compatible with agricultural activities. Such uses include, but are not limited to, the following:

  (1) Agriculture and range land;
  (2) Groundwater storage and recharge areas;
  (3) Native fish, wildlife, invertebrate, and plant habitat;
  (4) Watercourses and flood control basins; and,
  (5) Recreational or open space lands.

(e) Non-prime agricultural land shall be similarly reclaimed to one of the alternate uses described above; and

(f) Reclamation plans shall be designed to integrate with the long-term goals of encouraging agriculture and recreation while protecting, habitat, recreation, and protecting the riparian corridor. Provisions shall be made to continue monitoring and maintenance activities after reclamation is completed, where appropriate, in order to ensure that reclaimed uses remain compatible with and enhance local resource management.

Section 10-5.221 of the SMRO provides the following requirements related to Prime Farmland:

> **Section 10-5.221. Prime Agricultural Land.**
> "Prime agricultural land" shall mean all land which meets the definition of prime agricultural land set forth in Section 51201 of the Government Code of the State as administered by the County in the administration of its agricultural preserve program.

Section 10-5.509 of the SMRO provides the following requirements related to fence row habitat:

> **Section 10-5.509. Fence Row Habitat.**
> Where fence row or field margin habitat previously existed, reestablish similar habitat as part of reclamation to agricultural use to replace and improve the wildlife habitat value of agricultural lands, allowing for the reestablishment of scattered native trees, shrubs, and ground covers along the margins of reclaimed fields. Reestablished habitat can be located in areas other than where it occurred originally. Restoration plans shall specify ultimate fence row or field margin locations, identify planting densities for trees and shrubs, and include provisions for monitoring and maintenance to ensure establishment. Restoration plans should be reviewed and approved by the TAC.

Section 10-5.512 of the SMRO provides the following requirements related to field releveling of reclaimed agricultural land:

> **Section 10-5.512. Field Releveling.**
> The operator shall retain a Licensed Land Surveyor or Registered Civil Engineer to resurvey any areas reclaimed to agricultural usage after the first two (2) crop seasons have been completed. Any areas where settling has occurred shall be releveled to the field grade specified in the approved reclamation plan.

Section 10-5.516 of the SMRO provides the following requirements related to ground surface elevation for reclaimed agricultural fields:

> **Section 10-5.516. Lowered Elevations for Reclaimed Agricultural Fields.**
> The final distance between lowered surfaces reclaimed to agriculture and the average high groundwater shall not be less than five (5) feet. The average high groundwater level shall be established for each proposed mining area. The degree of groundwater level fluctuation varies with location throughout the basin and within relatively small areas (proposed mining sites). The determination of the average high groundwater level shall be conducted by a Registered Civil Engineer or Certified Hydrogeologist and shall be based on wet season water level elevation data collected at the proposed site or adjacent areas with similar hydrogeological conditions. Water level records prior to 1977 shall not be used since they would reflect conditions prior to the installation of the Indian Valley Dam. The dam caused a significant change in hydrology of the basin and data collected before its installation shall not be used in estimating current average high groundwater levels. The wells shall be adequately distributed throughout the proposed mining site to reflect spatial variation in groundwater levels and fluctuations.

Section 10-5.520.2 of the SMRO provides the following requirements related to agricultural easements:

> ## Section 10-5.520.2 Permanent Easements.
> Upon completion of reclamation within each phase of the project, for land that will not be dedicated or deeded to the County, the operator shall enroll each parcel reclaimed to agriculture in Williamson Act contract, or other equivalent long-term easement or deed restriction satisfactory to the County, for the purpose of protecting the agricultural use of the reclaimed land in perpetuity.

Section 10-5.522 of the SMRO provides the following requirements related to phasing plans:

> ## Section 10-5.522. Phasing Plans.
> All proposed mining and reclamation plans shall present a phasing plan for mining and reclamation activities. The phasing plan shall be structured to minimize the area of disturbed agricultural lands during each mining phase, and encourage the early completion of the reclamation of agricultural land.

Section 10-5.523 of the SMRO provides the following requirements related to planting plans:

> ## Section 10-5.523. Planting Plans.
> Site-specific planting plans shall be developed by a qualified biologist for proposed habitat reclamation projects. Restoration components of reclamation plans shall include provisions to enhance habitat for special-status species, where feasible.
>
> Native-planted hedgerows and other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.

Section 10-5.525 of the SMRO provides the following requirements related to Farmland conversion:

> ## Section 10-5.525. Farmland Conversion.
> All mining permit applications shall identify the location and acreage of prime farmlands, unique farmland, and farmland of statewide significance, as shown on the State Farmland Mapping and Monitoring Program (FMMP) which, as a result of reclamation, would be permanently converted to non-agricultural uses. For each acre of farmland in these categories that would be converted to non-agricultural use, the reclamation plan shall present provisions to offset the conversion of these lands, at a ratio consistent with Section 8-2.404 (Agricultural Conservation and Mitigation Program) of the County Code. This mitigation requirement may be satisfied using a variety of flexible options identified below so long as the total acreage of benefit is found to be equivalent to the applicable ratio and acreage required under Section 8-2.404 of the County Code, by type and amount of farmland being impacted, and so long as a minimum ratio of 1:1 of permanently protected agriculture land of equivalent or better quality/capability is achieved.
>
> (a) Implementation of improvements, identified by a qualified soil scientist, to the agricultural capability of non-prime lands within the project site or outside the project site but within the OCMP area, that convert non-prime to prime agricultural conditions. These improvements can include permanent improvement of soil capability through soil amendments, reduction of soil limitations (such as excessive

levels of toxins), or improvements in drainage for areas limited by flooding or low permeability soils.

(b) Placement of permanent conservation easements on land of equal or better quality/capability. The operator shall be encouraged to target property "at risk" of conversion to non-agricultural uses in selecting areas for permanent protection. Prior to approval of the conservation easement, the operator shall consult with the County and/or an appropriate non-profit agency to determine the relative risk of conversion, to which the proposed property might otherwise be subject. A minimum ratio of 1:1 is required in this category

(c) Dedication of land, funding, or equivalent improvements, consistent with the County's net gains goals, above and beyond the net gains benefits otherwise required under the CCAP program.

(d) Dedication of land, funding, or equivalent improvements, consistent with the Parkway Plan, above and beyond net gains benefits otherwise required under the CCAP program.

Section 10-5.531 of the SMRO provides the following requirements related to soil ripping of reclaimed agricultural areas:

> **Section 10-5.531. Soil Ripping.**
> Where areas are to be reclaimed to agricultural usage, all A and B horizon soil shall be ripped to a depth of three (3) feet after every two (2) foot layer of soil is laid down, in order to minimize compaction.

Section 10-5.532 of the SMRO provides the following requirements related to use of overburden and fine sediments for reclamation:

> **Section 10-5.532. Use of Overburden and Fine Sediments in Reclamation.**
> Sediment fines associated with processed in-channel aggregate deposits (excavated as a result of maintenance activities performed in compliance with the CCIP) may be used in the backfill or reclamation of off-channel permanent lakes, for in-channel reshaping or habitat restoration, and/or as a soil amendment in agricultural fields provided the operator can demonstrate that no detrimental sediment toxicity exists (consistent with the state's Stream Pollution Trends Monitoring Program protocols) and fine-grained soil (<63 micron) do not exceed 0.4 mg/kg total mercury.
>
> The operator shall use overburden and processing fines whenever possible to support reclamation activities for pit lakes. If topsoil (A-horizon soil), formerly in agricultural production, is proposed for use within a pit lake or its drainage area, the operator must sample the soils prior to placement and analyze them for pesticides and herbicides (EPA Methods 8141B and 8151A, or equivalent) as well as for total mercury (EPA Method 7471B, or equivalent). The operator shall collect and analyze samples in accordance with EPA Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846 (as updated). Topsoil that contains pesticides or herbicides above the Maximum Contaminant Levels for primary drinking water (California Code of Regulations), or that contains fine-grained soils exceeding on average 0.4 mg/kg total mercury shall not be placed in areas that drain to the pit lakes.
>
> Land reclaimed to a subsequent use that includes planting of vegetation (e.g., agriculture, habitat) shall be provided an adequate soil profile (i.e., depth and texture of soil) to ensure successful reclamation. At the discretion of the Director and at the operator's sole expense, the proposed reclamation plan for the project may be peer reviewed by an appropriate

expert/professional, and recommendations, if any, shall be incorporated into the project as conditions of approval.

4.2.4 IMPACTS AND MITIGATION MEASURES

The discussion below describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to agricultural resources. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. An agricultural resources impact is considered significant if the proposed project would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance ("Farmland"), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g]);
- Result in the loss of forest land or conversion of forest land to non-forest use;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use; or
- Cause a significant environmental impact due to a conflict with any applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to agricultural resources.

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) determined that implementation of the proposed project would result in no impact or a less-than-significant impact related to conflicts with existing agricultural zoning, Williamson Act Contracts, and forestry resources. Therefore, the following impacts are not discussed further in this EIR:

- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g]); or
- Result in the loss of forest land or conversion of forest land to non-forest use.

Method of Analysis

Evaluation of potential impacts of the proposed project on agricultural resources was based on the proposed project's potential changes to the existing local agricultural resources environment in comparison to the standards of significance listed above.

Soil data from the USDA NRCS was used to characterize the amount of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance within the project site boundaries. The proposed area of disturbance associated with the proposed project was overlaid with the known on-site agricultural resources to determine the overall impact to agricultural land that would occur during the proposed mining activities. Of the agricultural land impacted during mining activities, a portion would be reclaimed back to agricultural uses following reclamation of the project site. To calculate the permanent net loss of agricultural land occurring as a result of the proposed project, the reclaimed agricultural land was subtracted from the total agricultural land impacted by the proposed mining activities.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to agricultural resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

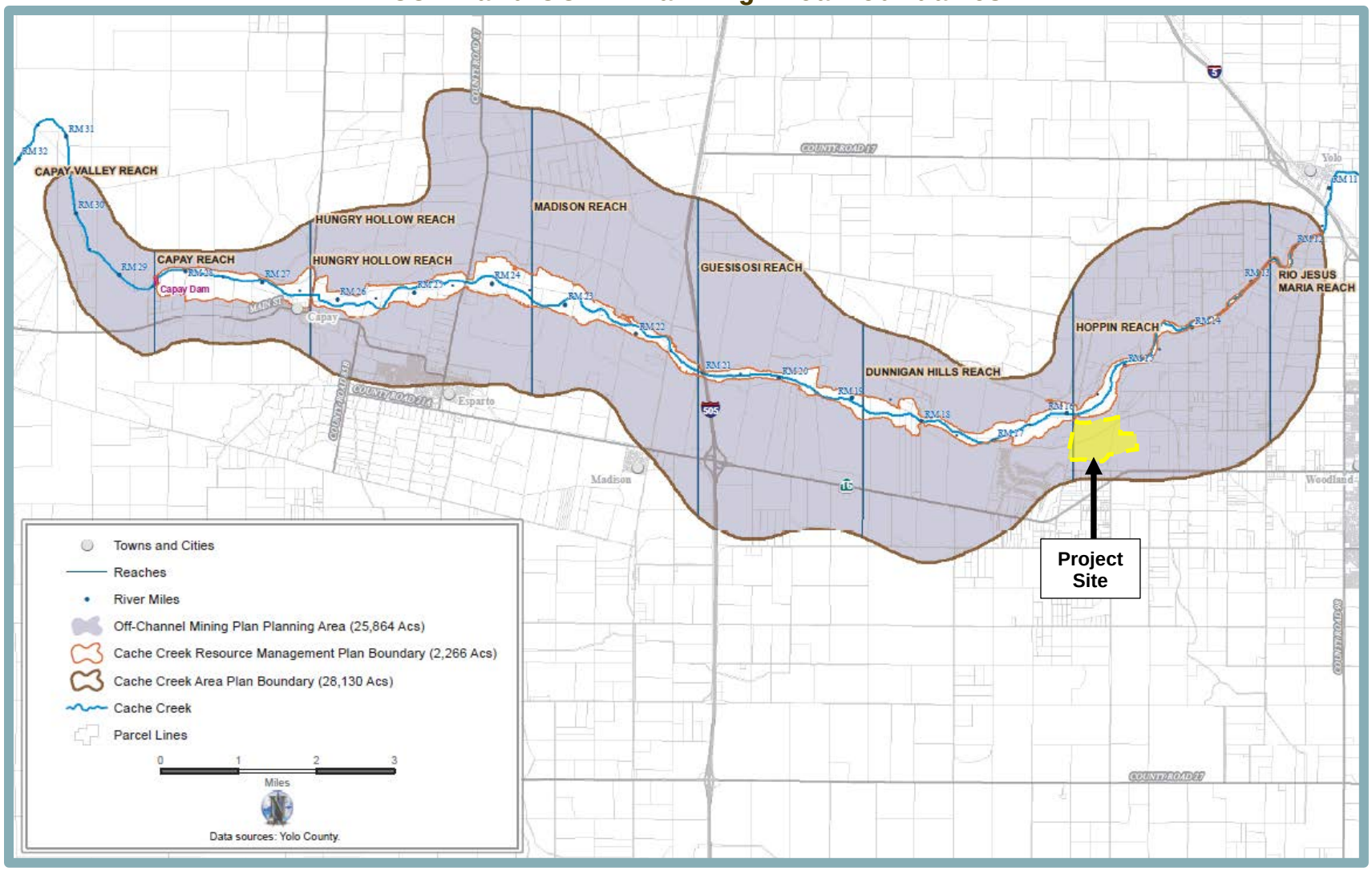
4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. The impact would be *significant*.

While much of the site is currently used for agriculture, the site falls within the boundaries of the CCAP and within the Planning Area for the OCMP (see Figure 4.2-3). Approximately 107 acres of the site is designated by the California State Mining and Geology Board as MRZ-2, reflecting the existence of known significant mineral deposits or a high likelihood for the presence of mineral deposits. The remaining approximately 212 acres of the project site is designated MRZ-3, indicating an area of known reserves of unknown significance (see Figure 4.2-4). The applicant as submitted an application to the DOC in July 2020 to change the MRZ-3 State designation of the site to MRZ-2 to reflect the existence of known significant aggregate reserves over the entire project site. The property is identified for Future Proposed Mining on Figure 5 of the CCAP. As such, proposed mining at the property is consistent with the CCAP and mining operations are an anticipated use.

Approximately 107 acres of the 319-acre project site is located within the County's Mineral Resource Overlay (MRO) designation. The County's MRO applies to existing mining operations and State designated MRZ-2 areas. The project proposes redesignation of the remainder of project site to add the MRO in order to reflect the existence of known aggregate deposits, as well as a rezone of the entire project site to add the Sand and Gravel Overlay (SG-O) to allow for mining to occur. Approval of mining at the site, while anticipated, would nevertheless result in the conversion of Farmland.

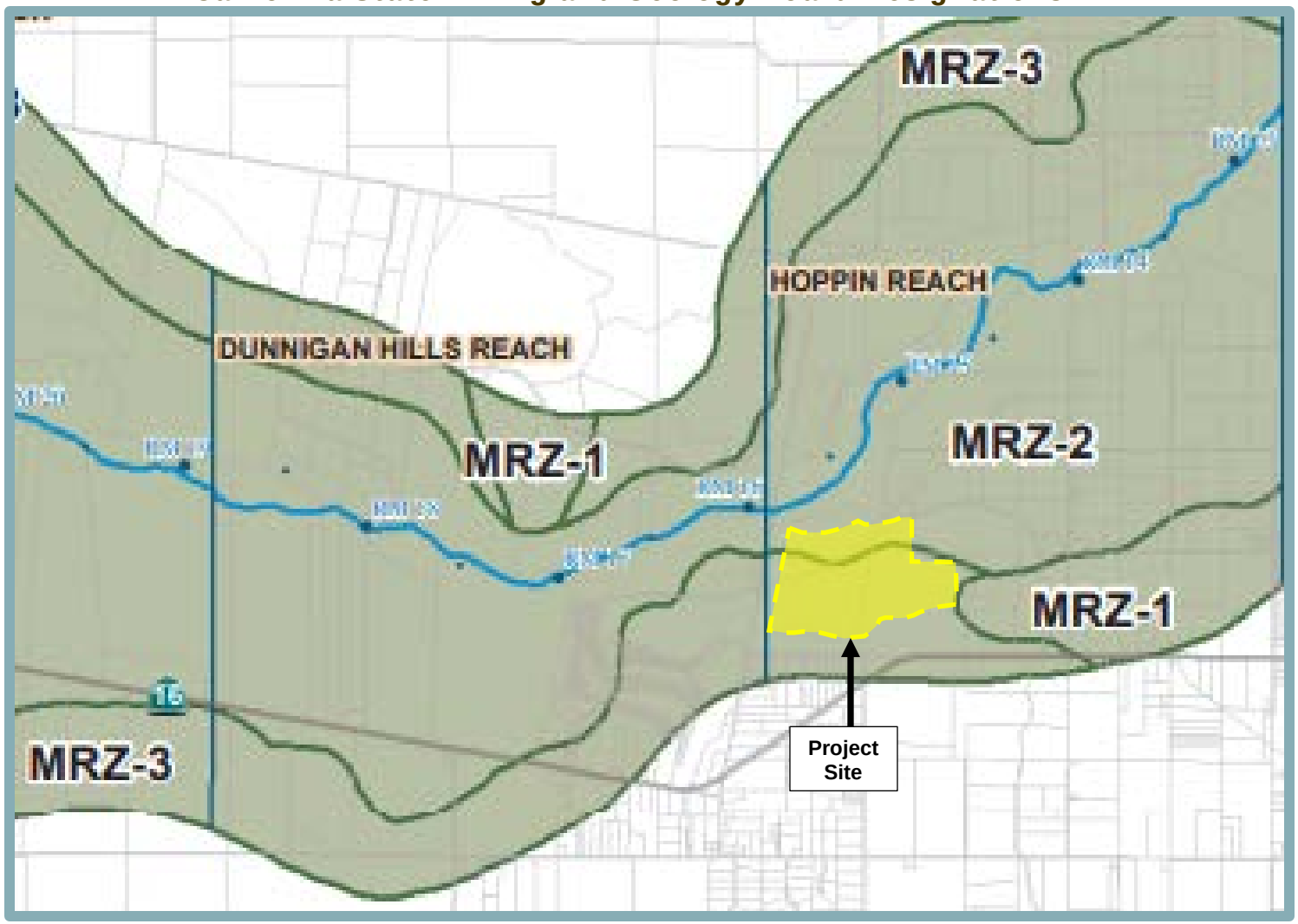
Per Section 10-5.522 of the SMRO, all proposed mining and reclamation plans must include a phasing plan. The purpose of the phasing plan is to minimize the area of disturbed agricultural lands during each mining phase and to encourage early reclamation as mining progresses through the phases.

Figure 4.2-3
CCAP and OCMP Planning Area Boundaries



Source: OCMP, 2019.

Figure 4.2-4
California State Mining and Geology Board Designations



Source: OCMP, 2019.

Under the proposed phasing, the first phase of mining (Phase A) would occur on the western side of the site and would include 64.7 acres. The second phase of mining (Phase B) would occur within the remaining 212.4 acres. Reclamation would occur in three phases: Phase A (98.1 acres), Phase B (142.2 acres), Phase C (36.8 acres). An example of the proposed mining and reclamation phasing is presented below in Table 4.2-5 (also included as Table 3-4 of Project Description). The phasing approach would allow reclamation of the western portion of the site to occur to agriculture, while mining of the eastern portion of the site continues. Reclamation would occur in three phases, as shown in Figure 4.2-5. The phasing of mining operations and reclamation, including restoration of 116.7 acres to Prime Farmland, would minimize impacts to existing agricultural land by allowing agriculture to continue to occur on-site as long as feasible.

Table 4.2-5
Mining and Reclamation Phasing Example

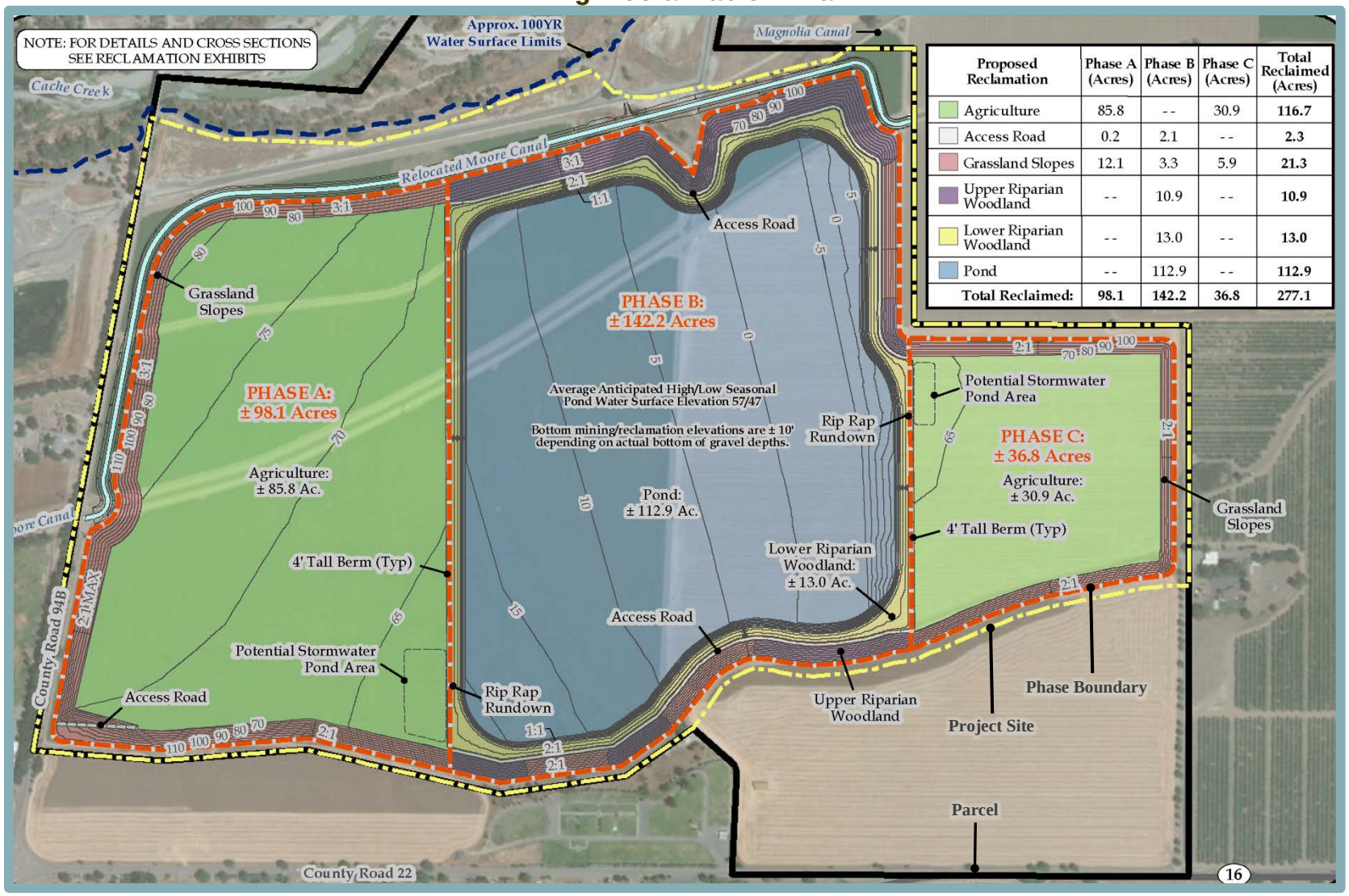
Years	Mining Activity	Reclamation Activity	Farming Activity
1 to 10	Mining in Phase A	Begin Reclamation in Phase A	Farming in Phase B until disturbance and in Phase C
11 to 20	Mining in Phase B	Continue Reclamation in Phase A, Start Reclamation in Phase B	Continue Farming in Phase B until disturbance
21 to 30	Mining in Phase B	Complete Reclamation in Phase A, Continue Reclamation in Phase B, Begin Reclamation in Phase C	Begin Farming in reclaimed Phase A
2 years Post Mining	None	Complete Reclamation in Phase B and Phase C	Continue Farming in reclaimed Phase A and Begin Farming in reclaimed Phase C

As shown in Figure 4.2-2 and summarized in Table 4.2-4, over the course of mining, the proposed project would result in impacts to the following Farmland categories:

- 267.50 acres of Prime Farmland;
- 0.50 acres of Farmland of Statewide Importance;
- 8.25 acres of Unique Farmland; and
- 5.85 acres of Farmland of Local Importance.

In order to mitigate for the permanent loss of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, the proposed project must adhere to Section 10-5.525 of the SMRO, which establishes requirements to compensate for the permanent loss of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance that are equivalent to the countywide requirements identified in Section 8-2.404 of the County Code, but modified to reflect the unique requirements and outcomes of the CCAP.

Figure 4.2-5
Mining Reclamation Plan



Proposed Reclamation	Phase A (Acres)	Phase B (Acres)	Phase C (Acres)	Total Reclaimed (Acres)
Agriculture	85.8	--	30.9	**116.7**
Access Road	0.2	2.1	--	**2.3**
Grassland Slopes	12.1	3.3	5.9	**21.3**
Upper Riparian Woodland	--	10.9	--	**10.9**
Lower Riparian Woodland	--	13.0	--	**13.0**
Pond	--	112.9	--	**112.9**
Total Reclaimed:	**98.1**	**142.2**	**36.8**	**277.1**

The SMRO requirement generally applies the same 3:1 and 2:1 mitigation ratio requirements from Section 8-2.404 that apply elsewhere throughout the County, but allows new mining applications to demonstrate equivalency (down to a minimum 1:1 base mitigation ratio) based on several options that are identified in Section 10-5.525 (Farmland Conversion). These options include improvements to farmland quality, permanent easements, dedication of additional net gain lands beyond those already required under the CCAP program, and/or other benefits consistent with the Cache Creek Parkway that would not otherwise already be achieved through agreements and obligations that are already a component of the program. The intent behind the concept of equivalency is not to focus solely on an equal number of acres, but to focus instead on comparability in terms of public value/benefit. Meaning a smaller but more beneficial "net gain" that goes beyond the additional public benefits the CCAP already requires could be accepted by the County as equivalent to the additional agricultural mitigation otherwise required under Section 8-2.404. Essentially, this change recognizes the benefits of the CCAP that are unique to the program and allows the operator and the County to factor those benefits into the agricultural mitigation calculation.

The applicant proposes to offset the permanent loss of Prime Farmland by purchasing agricultural conservation easements on existing Prime Farmland in Yolo County. This would satisfy the minimum required mitigation for the Prime Farmland category, provided it meets the requirements specified in Section 10-5.525 and includes the required improvements. Permanent impacts to other identified farmland categories, including the 5.85 acres of impacts to Farmland of Local Importance, would not trigger separate mitigation requirements from those set forth within Mitigation Measure 4.2-1 below.

An NOP comment was received related to reclamation of the project site to farmland and the health of the topsoil post-reclamation. According to SMARA Performance Standards for Prime Agricultural Land Reclamation (§3707), reclamation shall be deemed complete when productive capability of the affected land is equivalent to or exceeds, for two consecutive crop years, that of the pre-mining condition or similar crop production in the area. In addition, pursuant to Section 10-5.532 of the SMRO, land reclaimed to a subsequent use that includes planting of vegetation (e.g., agriculture, habitat) shall be provided an adequate soil profile (i.e., depth and texture of soil) to ensure successful reclamation. Section 10-5.532 of the SMRO also notes that overburden and processing fines may be used to support reclamation activities provided that the operator can demonstrate that detrimental sediment toxicity does not exist. Compliance with the applicable regulations would ensure that the post-reclamation soils would be of good health, supporting earthworm populations and microbial health, such that the soils can support equivalent agriculture production.

In summary, impacts related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses would be ***significant.***

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact but not to a less-than-significant level. Due to the net loss of Farmland, the impact would remain *significant and unavoidable*:

4.2-1 *The applicant shall complete the following, subject to approval by the County. Item a) shall be completed in accordance with the approved reclamation plan and conditions of approval. Items b) and c) shall be completed prior to the commencement of mining activity on any Prime Farmlands, Unique Farmlands, or Farmland of Statewide Importance:*

a) Reclaim 116.7 acres of Prime Farmland onsite, equivalent in quality and capacity to existing Prime Farmland permanently converted as a result of the project.

b) Establish a permanent agricultural conservation easement on 452.4 acres (267.50 disturbed acres – 116.7 reclaimed acres, at a 3:1 ratio) of equivalent or better (in quality and capability) Prime Farmland compliant with the requirements in County Code Sections 8-2.404(d) and Section 8-2.404(e), (f) and (g). The total acreage placed in permanent easement may be reduced to a minimum of 150.8 acres (267.50 disturbed acres – 116.7 reclaimed acres at a 1:1 ratio) in accordance with Sections 8-2404(d) or 10-5.525(a), (b), (c), or (d), provided the total acreage is determined to be equivalent to the applicable ratio and acreage required under Section 8-2.404. The proposal and the substantiation in support of finding equivalency shall be provided in writing by the applicant, for review by staff and acceptance by the Board of Supervisors. The County may in its discretion approve phasing of the required easement so long as mitigation is satisfied prior to or coincident with impacts to Prime Farmland.

c) Establish a permanent agricultural conservation easement on 17.5 acres (0.5 acres + 8.25 acres, at a 2:1 ratio) of equivalent or (in quality and capability) better Farmland of Statewide Importance and Unique Farmland compliant with the requirements in County Code Sections 8-2.404(d) and 8-2.404(e), (f), and (g). The total acreage placed in permanent easement may be reduced to a minimum of 8.75 acres (0.50 acres + 8.25 acres, at a 1:1 ratio) in accordance with Sections 8-2.404(d) or 10-5.525(a), (b), (c), or (d), provided the total acreage is determined to be equivalent to the applicable ratio and acreage required under Section 8-2.404. The proposal and the substantiation in support of finding equivalency shall be provided in writing by the applicant, for review by staff and acceptance by the Board of Supervisors. The County may in its discretion approve phasing of the required easement so long as mitigation is satisfied prior to or coincident with impacts to Farmland of Statewide Importance and Unique Farmland.

4.2-2 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. The impact would be *less than significant*.

As discussed in detail under Impact 4.2-1 above, the proposed project would result in the net loss of Farmland to non-agricultural use. Other than what has been discussed above, the proposed project does not involve other changes in the existing environment which could result in further conversion of Farmland to non-agricultural use beyond what is already addressed above. With respect to the properties proposed for dedication, future recreation, trails, and public open space uses and activities would not occur on lands currently used for or proposed to be reclaimed to agricultural use. Therefore, a ***less-than-significant*** impact would occur related to involving other changes in the existing environment that could result in the conversion of Farmland to non-agricultural use.

Mitigation Measure(s)
None required.

4.2-3 Cause a significant environmental impact due to a conflict with any applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to agricultural resources. The impact would be *less than significant*.

Table 4.2-6 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to agricultural resources.

As shown in the table below, the proposed project is anticipated to be generally consistent with applicable standards related to agricultural resources. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy LU-1.1 [excerpt] Assign the following range of land use designations throughout the County, as presented in detail in Table LU-4 (Land Use Designations): **Open Space (OS)** includes public open space lands, major natural water bodies, agricultural buffer areas, and habitat. The primary land use is	The Yolo County General Plan designates the site as Agriculture (AG), with approximately 107 acres within the northern portion of the project site also designated MRO. The proposed project includes a General Plan Amendment to extend the MRO designation over an additional 212 acres to cover the remaining area of the project site. Therefore, the project would be consistent with this policy.

(Continued on next page)

Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
characterized by "passive" and/or very low-intensity management, as distinguished from AG or PR land use designations, which involve more intense management of the land. Detention basins are allowed as an ancillary use when designed with naturalized features and native landscaping, compatible with the open space primary use. **Agriculture (AG)** includes the full range of cultivated agriculture, such as row crops, orchards, vineyards, dryland farming, livestock grazing, forest products, horticulture, floriculture, apiaries, confined animal facilities and equestrian facilities. It also includes agricultural industrial uses (e.g. agricultural research, processing and storage; supply; service; crop dusting; agricultural chemical and equipment sales; surface mining; etc.) as well as agricultural commercial uses (e.g. road side stands, "Yolo Stores," wineries, farm-based tourism (e.g. u-pick, dude ranches, lodging), horseshows, rodeos, crop-based seasonal events, ancillary restaurants and/or stores) serving rural areas. Agriculture also includes farmworker housing, surface mining, and incidental habitat. **Residential Rural (RR)** includes large lot rural homes with primarily detached single-family units, although attached and/or detached second units or duplexes are allowed. Density range: 1du/5ac to <1 du/ac. **Public and Quasi-Public (PQ)** includes public/governmental offices, places of worship, schools, libraries, and other community and/or civic uses. Also includes public airports, including related visitor services, and infrastructure including wastewater treatment facilities, municipal wells, landfills, and stormwater detention basins. May include agricultural buffer areas. **Agricultural District Overlay (ADO)** applies to designated agricultural districts. Land uses consistent with the base designation and the district specifications are allowed. **Mineral Resource Overlay (MRO)** applies to State designated mineral resource zones (MRZ-2) containing critical geological deposits needed for economic use, as well as existing mining operations.	

(Continued on next page)

Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Policy LU-2.4 Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of the city soils.	Please see Impact 4.2-1. Mitigation Measure 4.2-1 would ensure that converted Prime Farmland would be reclaimed to agricultural land or mitigated at required ratios. Therefore, the proposed project would be consistent with this policy.
Policy AG-1.4 Prohibit land use activities that are not compatible within agriculturally designated areas.	The Agricultural land use designation allows for surface mining. Therefore, the proposed project would be consistent with this policy.
Policy AG-1.6 Continue to mitigate at a ratio of no less than 1:1 the conversion of farmland and/or the conversion of land designated or zoned for agriculture, to other uses.	Please see Impact 4.2-1. Mitigation Measure 4.2-1 would ensure that converted Prime Farmland would be reclaimed to agricultural land or mitigated at required ratios. Therefore, the proposed project would be consistent with this policy.
Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.	The project is a proposed new aggregate mining site. Proposed reclamation result in new prime farmland, wildlife habitat, open water lake, recreation, and other future benefits. Therefore, the proposed project would be consistent with this policy.
Action CO-A47 Ensure that mined areas are reclaimed to a usable condition that is readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities.	The project would include reclamation of the proposed mining area to agriculture and habitat uses. Thus, the proposed project would be consistent with this goal.
Policy ED-1.2 Support the continued operation of existing aggregate mining activities within the county as well as new aggregate mining in appropriate areas, to meet the long-range construction needs of the region.	The project is a proposed new aggregate mining site that would comply with the policies and regulations of the OCMP. Therefore, the proposed project would be consistent with this policy.
Policy ED-1.8 Retain and encourage growth in important economic export sectors, including mining, natural gas, tourism and manufacturing.	The proposed project would allow for important economic mining extraction to occur on the site. In addition, the proposed project would extend the life of the Woodland Plant. Thus, the proposed project would be consistent with this policy.
Off-Channel Mining Plan	
Goal 2.2-2 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, watershed, wildlife, agriculture, aesthetics, flood control, and other environmental factors.	The proposed project would involve active mining and production of mineral resources on the project site. In addition, the project includes reclamation of the proposed mining area to agriculture and habitat uses. Thus, the proposed project would be consistent with this goal.
Goal 2.2-5 Ensure that mined areas are reclaimed to a usable condition which are readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities.	The project would include reclamation of the proposed mining area to agriculture and habitat uses. Thus, the proposed project would be consistent with this goal.

(Continued on next page)

Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Objective 5.3-1 Encourage the preservation of prime and important farmland along Cache Creek, while giving consideration to other compatible beneficial uses, such as groundwater storage and recharge facilities, surface mining operations, riparian habitat, and public recreation. Reclamation of agricultural lands to other uses; however, is discouraged wherever agricultural reclamation is feasible.	Please see Impact 4.2-1. Mitigation Measure 4.2-1 would ensure that converted Prime Farmland would be reclaimed to agricultural land or mitigated at required ratios. The proposed relocated alignment of the Moore Canal would be setback a minimum of 200 feet from the top of bank, and the nearest proposed mining activities would be located approximately 300 feet from Cache Creek. Therefore, the proposed project would be consistent with this policy.
Objective 5.3-2 Ensure the use of appropriate agricultural management practices in reclaiming mined areas to productive farmland.	The proposed project would reclaim the mined land to agriculture and a mix of habitat uses, including a lake, grassland, riparian woodland, and native landscape, in accordance with the requirements of the Surface Mining and Reclamation Act (SMARA), the OCMP, OCSMO, and SMRO. Reclamation in compliance with the standards set forth in the aforementioned regulations would ensure appropriate agricultural management practices are applied during reclamation of the mining areas. Thus, the proposed project would be consistent with this objective.
Action 5.4-1 Maintain the existing A-N (Agricultural Intensive) or A-X (Agricultural Extensive) base zoning within the off-channel planning area, except where it serves as a holding area for growth within the community spheres of Capay, Madison, Esparto, and Yolo, so as to preserve the agricultural character of the region.	The proposed project would retain the project site's current Agricultural Intensive (A-N) zoning designation, with the addition of the Sand and Gravel Overlay Zone (SG-O) to allow for mining. Therefore, the proposed project would be consistent with this action.
Action 5.4-3 Provide for the protection of farmland within the planning area, including mined and reclaimed farmland, through the use of agricultural preserves and/or conservation easements.	Pursuant to SMRO Section 10-5.520.2, upon completion of reclamation within each phase of the project, for land that will not be dedicated or deeded to the County, the operator is required to enroll each parcel reclaimed to agriculture in Williamson Act contract, or other equivalent long-term easements or deed restriction satisfactory to the County, for the purpose of protecting the agricultural use of the reclaimed land in perpetuity. Therefore, the proposed project would be consistent with this action.
Action 5.4-4 Ensure that all proposed surface mining operations that include reclamation to agricultural uses comply with the requirements of the Land Conservation (Williamson) Act and the State Mining and Geology Board Reclamation Regulations.	Compliance with the CCAP and required review of the proposed reclamation plan Financial Assurance Cost Estimate (FACE) by the County staff and State Division of Mine Reclamation pursuant to SMARA would ensure compliance with these requirements. Therefore, the proposed project would be consistent with this action.

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Action 5.4-6 Encourage off-channel excavation operations to access additional aggregate reserves through the use of wet pits, in order to minimize the amount of agricultural land disturbed by mining.	The project site has been identified in the CCAP for future mining. The project proposes to mine to a maximum depth of approximately 70 feet below existing ground surface in the southwestern corner of the project area. The site would be reclaimed in phases as soon as possible, and would, thus, minimize the amount of agricultural land disturbed. Therefore, the project would be consistent with this action.
Action 5.4-7 Ensure maximum public benefit from reclaimed uses by establishing the following priority to be used to assess the adequacy of proposed reclamation plans: 1. Reclamation to viable agricultural uses; 2. Reclamation to native habitat; 3. Reclamation to recreation/ open space uses; 4. Reclamation to other uses.	The project proposes to reclaim approximately 116.7 acres to agriculture, approximately 113 acres to open water lake, and approximately 45 acres to habitat, with the remainder in access roads. Therefore, the project would be consistent with this action.
Action 6.4-3 Mitigate for short-term and long-term loss of agricultural land and habitat pursuant to applicable County requirements and CEQA. Comply with the Yolo HCP/NCCP for species covered by that Plan. For non-covered species for which impacts may occur, ensure compliance with appropriate measures in site-specific biological assessments required under the OCMP and CCRMP, in compliance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations, plans and programs, as appropriate.	As discussed in Chapter 4.4 of this EIR, Mitigation Measure 4.4-1(a) requires the project applicant to obtain coverage under the Yolo HCP/NCCP and pay all applicable HCP/NCCP fees. The fees are used to mitigate for the loss of habitat for covered species. For all plant and wildlife species potentially affected by the proposed project, including non-covered species, this EIR includes mitigation to ensure that impacts are reduced to less-than-significant levels. Please see Impact 4.2-1. Mitigation Measure 4.2-1 would ensure that converted Prime Farmland would be reclaimed to agricultural land or mitigated at required ratios. Therefore, the proposed project would be consistent with this action.
Land Development and Zoning (Yolo County Code of Ordinances, Title 8)	
Section 8-2.404[1] (a) Purpose The purpose of this section is to implement the agricultural land conservation policies contained in the Yolo County General Plan with a program designed to permanently protect agricultural land located within the unincorporated area. (c) Mitigation Requirements	In order to mitigate for the permanent loss of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, the proposed project must adhere to Section 10-5.525 of the SMRO, which establishes requirements to compensate for the permanent loss of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance that are equivalent to the countywide requirements identified in Section 8-2.404 of the County Code,

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(1) Agricultural mitigation shall be required for conversion or change from agricultural use to a predominantly non-agricultural use prior to, or concurrent with, approval of a zone change from agricultural to urban zoning, permit, or other discretionary or ministerial approval by the County Agricultural mitigation shall be required for conversion or change from agricultural use to a predominantly non-agricultural use prior to, or concurrent with, approval of a zone change from agricultural to urban zoning, permit, or other discretionary or ministerial approval by the County (2) The following uses and activities shall be exempt from, and are not covered by, the Agricultural Conservation and Mitigation Program: (i) Affordable housing projects, where a majority of the units are affordable to very low or low income households, as defined in Title 8, Chapter 8 of the Yolo County Code (Inclusionary Housing Requirements); (ii) Public uses such as parks, schools, cultural institutions, and other public agency facilities and infrastructure that do not generate revenue. The applicability of this exemption to public facilities and infrastructure that generate revenue shall be evaluated by the approving authority on a case-by-case basis. The approving authority may partly or entirely deny the exemption if the approving authority determines the additional cost of complying with this program does not jeopardize project feasibility and no other circumstances warrant application of the exemption; (iii) Gravel mining projects regulated under Title 10, Chapters 3-5 of the Yolo County Code, pending completion of a comprehensive	but modified to reflect the unique requirements and outcomes of the CCAP. The project would include mitigation for the loss of Unique Farmland and Farmland of Statewide Importance. The same ratio of 1:1 replacement would be applied to the loss of Unique Farmland and Farmland of Statewide Importance. In particular, Mitigation Measure 4.2-1 brings forward and applies specific requirements from this section, including the specifications in Section 8-2.404(c)(d)(e)(f) and (g) Additionally, as discussed in Chapter 3, Project Description, of this EIR, the benefits of the project, described as "net gains," would include land dedication and reclamation pursuant to the County's requirements. Therefore, the proposed project would be consistent with this regulation

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
update of the gravel mining program (anticipated in January 2017); and (iv) Projects covered by an approved specific plan which includes an agricultural mitigation program. (d) Agricultural Mitigation Implementation. Agricultural mitigation required by this section shall be implemented as follows (1) Location, Generally. Mitigation lands shall be located within two (2) miles of sphere of influence of a city or within two (2) miles of the General Plan urban growth boundary of the town of Esparto ("Esparto Urban Growth Boundary"). Mitigation may also occur in any other area designated by the Board of Supervisors based on substantial evidence demonstrating that the parcel at issue consists predominantly of prime farmland and/or is subject to conversion to non-agricultural use in the foreseeable future. Any such designation shall be made by resolution and shall specify whether the designated area is a priority conservation area subject to a 1:1 mitigation ratio. For all other designated areas, the resolution shall specify the mitigation ratio for any mitigation occurring in the covered area, which may exceed the applicable base ratio. (2) Adjustment Factors. The following adjustment factors shall be applied, where relevant, to modify the base ratio: (i) Priority Conservation Areas. Mitigation occurring within a priority conservation area shall occur at a reduced 1:1 ratio unless otherwise specified below. The following areas shall be deemed priority conservation areas for purposes of this section: (A) Parcels partly or entirely within one-quarter (0.25) mile of the sphere of influence of a city or the Esparto Urban Growth Boundary, or, for projects that convert primarily non-prime farmland, one (1) mile of the sphere of influence of a city or the Esparto Urban	

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Growth Boundary. For the purposes of this subsection, the word "primarily" shall mean greater than fifty (50) percent (B) Parcels lying partly or entirely within the area bounded by County Roads 98 and 102 on the west and east, respectively, and by County Roads 29 and 27 on the north and south, respectively. For mitigation of impacts to prime farmland, the ratio shall be 2:1 within this area. (3) Other Factors (i) If the area to be converted is twenty (20) acres or more in size, subject to the exception in (iii), below, by granting, in perpetuity, a farmland conservation easement to a qualifying entity with the County as a third party beneficiary, together with the provision of funds sufficient to compensate for all administrative costs incurred by the qualifying entity and the County as well as funds needed to establish an endowment to provide for monitoring, enforcement, and all other services necessary to ensure that the conservation purposes of the easement or other restriction are maintained in perpetuity. (ii) If the area to be converted is a small project less than twenty (20) acres in size, by granting a farmland conservation easement as described in subsection (i), above, or payment of the in-lieu fee established by the County to purchase a farmland conservation easement consistent with the provisions of this section; and the payment of fees in an amount established by the County to compensate for all administrative costs incurred by the County inclusive of endowment funds for the purposes set forth in subsection (i), above. The in-lieu fee, paid to the County, shall be used for agricultural mitigation	

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
purposes only (i.e. purchases of conservation easements and related transaction and administrative costs). (iii) If Yolo County or a qualifying entity establishes a local farmland mitigation bank and sufficient credits are available at a total cost not exceeding the in lieu fee (and all related transactional and similar costs), small projects shall satisfy their farmland mitigation requirement by purchasing credits from the mitigation bank in a quantity sufficient to discharge the mitigation obligations of the project under this section. Other local projects converting twenty (20) or more acres of farmland may also purchase credits to discharge their farmland mitigation requirements, in lieu of providing an easement under subsection (i), above. A farmland mitigation bank must be approved by the Board of Supervisors for local (i.e., within Yolo County) mitigation needs based upon a determination that it satisfies all of the farmland mitigation requirements of this section. Landowners and project applicants that conserve more farmland than necessary to satisfy their mitigation obligations may seek approval of a farmland mitigation bank through an application process to be developed by the Planning, Public Works, and Environmental Services Department. (iv) Agricultural mitigation shall be completed as a condition of approval prior to the acceptance of a final parcel or subdivision map, or prior to the issuance of any building permit or other final approval for development projects that do not involve a map. (e) Eligible lands. Land shall meet all of the following criteria in sections (1) through (6), below, to qualify as agricultural mitigation:	

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(1) Agricultural conservation easements resulting from this program shall be acquired from willing sellers only; (2) The property is of adequate size, configuration and location to be viable for continued agricultural use; (3) The equivalent class of soil, based on the revised Storie index or NRCS soil survey maps, for the agricultural mitigation land shall be comparable to, or better than, the land which is converted; (4) The land shall have an adequate water supply to maintain the purposes of the easement, i.e., to irrigate farmland if the converted farmland is irrigated or capable of irrigation. The water supply shall be sufficient to support ongoing agricultural uses; (5) The mitigation land shall be located within the County of Yolo in a location identified for mitigation in accordance with this section; (6) It is the intent of this program to work in a coordinated fashion with the habitat conservation objectives of the Yolo Habitat Conservancy joint powers agency and the developing Habitat Conservation Plan/Natural Communities Conservation Plan. The mitigation land may not overlap with existing habitat conservation easement areas; the intent is to not allow "stacking" of easements, except for habitat conservation easements protecting riparian corridors, raptor nesting habitat, wildlife-friendly hedgerows, or other restored or enhanced habitat areas so long as such areas do not exceed five percent (5%) of the total area of any particular agricultural conservation easement. (f) Ineligible lands. A property is ineligible to serve as agricultural mitigation land if any of the circumstances below apply: (1) The property is currently encumbered by a conservation, flood, or other type of easement or deed restriction that legally or practicably prevents converting the property to a nonagricultural use; or (2) The property is currently under public ownership and will remain so in the future,	

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
except to the extent it is included within a mitigation bank that may subsequently be established by the County or other public agency; or (3) The property is subject to physical conditions that legally or practicably prevent converting the property to a nonagricultural use. (g) Minimum conservation requirements. The following minimum requirements shall be incorporated into all conservation easements recorded to satisfy the requirements of this mitigation program. Nothing in this subsection is intended to prevent the inclusion of requirements that require a higher level of performance from the parties to a conservation easement or other instrument to ensure that the goals of this mitigation program are achieved. (1) It is the intent of the County to transfer most, if not all, of the easements that are received from this program to a qualifying entity, as defined above, for the purpose of monitoring compliance with easement terms and taking any necessary enforcement and related actions. Estimated costs of any such transfer may be recovered from the applicant at the time of easement acceptance by the County. (2) All farmland conservation easements shall be acceptable to County Counsel and the qualifying entity that will receive the easement, and signed by all owners with an interest in the mitigation land. (3) The instrument shall prohibit any uses or activities which substantially impair or diminish the agricultural productivity of the mitigation land, except for the restoration or conversion to habitat uses of up to five percent (5%) of the total easement land, or that are otherwise inconsistent with the conservation purposes of this mitigation program. The instrument shall protect the existing water rights and retain them with the agricultural mitigation land; however, the instrument shall not preclude the limited transfer of water rights on a temporary basis (i.e., not to exceed two (2) years in any ten (10) year period) to other agricultural uses within the County, so long as sufficient water remains available to	

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
continue reasonable and customary agricultural use of the mitigation land. (4) The instrument shall prohibit the presence, construction, or reconstruction of homes or other non-agricultural uses except within a development envelope designated in an exhibit accompanying the easement. Any such development envelope(s) shall not count toward the acreage totals of the conservation easement for mitigation purposes. The easement shall specify that ancillary uses must be clearly subordinate to the primary agricultural use. (5) Conservation easements held by a qualifying entity shall name the County as a third party beneficiary with full enforcement rights. (6) Interests in agricultural mitigation land shall be held in trust by a qualifying entity and/or the County in perpetuity. The qualifying entity or the County shall not sell, lease, or convey any interest in agricultural mitigation land which it shall acquire except in accordance with the terms of the conservation easement. (7) The conservation easement can only be terminated by judicial proceedings. Termination shall not be effective until the proceeds from the sale of the public's interest in the agricultural mitigation land is received and used or otherwise dedicated to acquire interests in other agricultural mitigation land in Yolo County, as approved by the County and provided in this chapter. (8) If any qualifying entity owning an interest in agricultural mitigation land ceases to exist, the duty to hold, administer, monitor and enforce the interest shall pass to the County or other qualifying entity as acceptable and approved by the County.	
Off-Channel Surface Mining Ordinance	
None applicable.	
Surface Mining Reclamation Ordinance	
Section 10-5.103 The purposes of this chapter are as follows:	Reclamation Plan for the project site includes reclamation of the approximately 277-acre mining area to agricultural and habitat uses as shown in

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(a) The reclamation of mined lands is necessary to prevent or minimize the adverse effects of mining on the environment and to protect the public health and safety; (b) The reclamation of mined lands shall provide for the protection and subsequent beneficial use of mined lands. However, mining takes place in diverse areas, with significantly different geologic, topographic, climatic, biological, and social conditions, so that the methods and operations of reclamation plans may vary accordingly to provide for the most beneficial reclamation of mined lands; (c) In order to provide for reclamation plans that are specifically adapted to the requirements of particular mined lands; and to ensure that mined land is reclaimed to end uses such as agriculture, habitat, groundwater recharge, flood control, and channel stabilization in a consistent manner to maximize their overall management; this chapter imposes performance standards by which reclamation methods and operations shall be measured; (d) The continued protection of agriculture and open-space uses is essential. As such, all off-channel, prime agricultural land and/or off-channel lands zoned Agricultural Preserve (A-P) and within a Williamson Act contract at the time that mining commences shall be reclaimed to an agriculturally productive state equal to or greater than that which existed before mining commenced. Prime agricultural land that is within the A-P Zone and is not within a Williamson Act contract shall be reclaimed to those uses which are declared by the County to be compatible with agricultural activities. Such uses include, but are not limited to, the following: (1) Agriculture and range land; (2) Groundwater storage and recharge areas;	Figure 3-14 of the Project Description Chapter of this Draft EIR. Approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. Slopes would be reclaimed to grassland. Although the reclamation plan does not include aspects that would support recreational uses, the project would support continued agricultural use of the project site, while also supporting habitat uses. Consequently, the Reclamation Plan included in the project would comply with this Section of the SMRO.

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(3) Native fish, wildlife, invertebrate, and plant habitat; (4) Watercourses and flood control basins; and, (5) Recreational or open space lands. (e) Non-prime agricultural land shall be similarly reclaimed to one of the alternate uses described above; and (f) Reclamation plans shall be designed to integrate with the long-term goals of encouraging agriculture and recreation while protecting, habitat, recreation, and protecting the riparian corridor. Provisions shall be made to continue monitoring and maintenance activities after reclamation is completed, where appropriate, in order to ensure that reclaimed uses remain compatible with and enhance local resource management.	
Section 10-5.221 "Prime agricultural land" shall mean all land which meets the definition of prime agricultural land set forth in Section 51201 of the Government Code of the State as administered by the County in the administration of its agricultural preserve program.	The definition of Prime Farmland used in this chapter meets the definition of "Prime agricultural land" used in Section 10-5.221. Thus, the project complies with this section.
Section 10-5.509 Where fence row or field margin habitat previously existed, reestablish similar habitat as part of reclamation to agricultural use to replace and improve the wildlife habitat value of agricultural lands, allowing for the reestablishment of scattered native trees, shrubs, and ground covers along the margins of reclaimed fields. Reestablished habitat can be located in areas other than where it occurred originally. Restoration plans shall specify ultimate fence row or field margin locations, identify planting densities for trees and shrubs, and include provisions for monitoring and maintenance to ensure establishment. Restoration plans should be reviewed and approved by the TAC.	The project site does not currently contain significant fence rows; however, existing visual landscape buffers have been planted along the south and southwestern boundaries of the project site. As part of the proposed project, the northern section of the western perimeter would be planted with native tree and shrub species prior to commencement of mining activities. Oak woodland habitat exists in the northern portion of the project site, and would be removed during mining activity. Reclamation of the project site would include planting of lower and upper riparian woodlands, which would act to replace the oak woodland habitat removed during project implementation. The Reclamation Plan identifies locations and planting densities for habitat to be restored. The project would comply with this Section.
Section 10-5.512 The operator shall retain a Licensed Land Surveyor or Registered Civil Engineer to resurvey any areas reclaimed to agricultural usage after the first two (2) crop seasons have been completed.	Section 6.1 of the Reclamation Plan states the following "After the first two crop seasons have been completed on the reclaimed agricultural fields, Teichert shall retain a Licensed Land Surveyor or Registered Civil Engineer to resurvey

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Any areas where settling has occurred shall be releveled to the field grade specified in the approved reclamation plan.	the fields; any areas where settling has occurred shall be releveled to the field grade specified in the approved reclamation plan." Thus, the project would comply with this Section.
Section 10-5.516 The final distance between lowered surfaces reclaimed to agriculture and the average high groundwater shall not be less than five (5) feet. The average high groundwater level shall be established for each proposed mining area. The degree of groundwater level fluctuation varies with location throughout the basin and within relatively small areas (proposed mining sites). The determination of the average high groundwater level shall be conducted by a Registered Civil Engineer or Certified Hydrogeologist and shall be based on wet season water level elevation data collected at the proposed site or adjacent areas with similar hydrogeological conditions. Water level records prior to 1977 shall not be used since they would reflect conditions prior to the installation of the Indian Valley Dam. The dam caused a significant change in hydrology of the basin and data collected before its installation shall not be used in estimating current average high groundwater levels. The wells shall be adequately distributed throughout the proposed mining site to reflect spatial variation in groundwater levels and fluctuations.	Agricultural reclamation would require the use of overburden and processing fines to raise the pit floor elevation above the average high groundwater level followed by the placement of a minimum of four feet of salvaged reclamation soils (stockpiled topsoil and upper layers of overburden) on the created land. Consistent with this Section, the Reclamation Plan proposes reclaimed agricultural field elevations of a minimum of five feet above the average high groundwater elevations. Therefore, the proposed project would comply with requirement.
Section 10-5.520.2 Upon completion of reclamation within each phase of the project, for land that will not be dedicated or deeded to the County, the operator shall enroll each parcel reclaimed to agriculture in Williamson Act contract, or other equivalent long-term easement or deed restriction satisfactory to the County, for the purpose of protecting the agricultural use of the reclaimed land in perpetuity.	All reclaimed agricultural land will be dedicated in accordance with this requirement as part of project net gains described in the Development Agreement. Therefore, the proposed project would be consistent with this requirement.
Section 10-5.522 Phasing Plans. All proposed mining and reclamation plans shall present a phasing plan for mining and reclamation activities. The phasing plan shall be structured to minimize the area of disturbed agricultural lands during each mining phase, and encourage the early completion of the reclamation of agricultural land.	The proposed phasing plan for mining and reclamation is provided in Table 3-4, and Figures 3-14 and 3-15 of Chapter 3, Project Description (also included as Table 4.2-5 and Figure 4.2-5 above). Therefore, the proposed project would be consistent with this requirement.
Section 10-5.523 Site-specific planting plans shall be developed by a qualified biologist for proposed habitat	Section 8.4, Plant Procurement and Installation, of the Reclamation Plan, provides a plan for planting in reclaimed areas. Per the Reclamation Plan, a

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
reclamation projects. Restoration components of reclamation plans shall include provisions to enhance habitat for special-status species, where feasible. Native-planted hedgerows and other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.	buffer between the agricultural areas and the habitat areas would be provided by grassland habitat. The proposed riparian habitat would not be located adjacent to agricultural areas. Separation of the proposed riparian areas from the agricultural operations would comply with the intent of this Section.
Section 10-5.525 All mining permit applications shall identify the location and acreage of prime farmlands, unique farmland, and farmland of statewide significance, as shown on the State Farmland Mapping and Monitoring Program (FMMP) which, as a result of reclamation, would be permanently converted to non-agricultural uses. For each acre of farmland in these categories that would be converted to non-agricultural use, the reclamation plan shall present provisions to offset the conversion of these lands, at a ratio consistent with Section 8-2.404 (Agricultural Conservation and Mitigation Program) of the County Code. This mitigation requirement may be satisfied using a variety of flexible options identified below so long as the total acreage of benefit is found to be equivalent to the applicable ratio and acreage required under Section 8-2.404 of the County Code, by type and amount of farmland being impacted, and so long as a minimum ratio of 1:1 of permanently protected agriculture land of equivalent or better quality/capability is achieved. (a) Implementation of improvements, identified by a qualified soil scientist, to the agricultural capability of non-prime lands within the project site or outside the project site but within the OCMP area, that convert non-prime to prime agricultural conditions. These improvements can include permanent improvement of soil capability through soil amendments, reduction of soil limitations (such as excessive levels of toxins), or improvements in drainage for areas limited by flooding or low permeability soils.	With updates to the SMRO, the County included Unique Farmland and Farmland of Statewide Importance in the protection and mitigation of the conversion of agricultural land. As discussed throughout this chapter, the project would include mitigation for the loss of Unique Farmland and Farmland of Statewide Importance. The same ratio of 1:1 replacement would be applied to the loss of Unique Farmland and Farmland of Statewide Importance. Additionally, as discussed in Chapter 3, Project Description, of this EIR, the benefits of the project, described as "net gains," would include land dedication and reclamation pursuant to the County's requirements. Therefore, the proposed project would be consistent with this regulation.

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(b) Placement of permanent conservation easements on land of equal or better quality/capability. The operator shall be encouraged to target property "at risk" of conversion to non-agricultural uses in selecting areas for permanent protection. Prior to approval of the conservation easement, the operator shall consult with the County and/or an appropriate non-profit agency to determine the relative risk of conversion, to which the proposed property might otherwise be subject. A minimum ratio of 1:1 is required in this category (c) Dedication of land, funding, or equivalent improvements, consistent with the County's net gains goals, above and beyond the net gains benefits otherwise required under the CCAP program. (d) Dedication of land, funding, or equivalent improvements, consistent with the Parkway Plan, above and beyond net gains benefits otherwise required under the CCAP program.	
Section 10-5.531 Where areas are to be reclaimed to agricultural usage, all A and B horizon soil shall be ripped to a depth of three (3) feet after every two (2) foot layer of soil is laid down, in order to minimize compaction.	Page 14 of the Reclamation Plan states, "In order to minimize compaction of the reclaimed agricultural fields, each 2-foot layer of soil laid down will be ripped to a depth of at least 3 feet." The project would comply with this Section
Section 10-5.532 Sediment fines associated with processed in-channel aggregate deposits (excavated as a result of maintenance activities performed in compliance with the CCIP) may be used in the backfill or reclamation of off-channel permanent lakes, for in-channel reshaping or habitat restoration, and/or as a soil amendment in agricultural fields provided the operator can demonstrate that no detrimental sediment toxicity exists (consistent with the state's Stream Pollution Trends Monitoring Program protocols) and fine-grained soil (<63 micron) do not exceed 0.4 mg/kg total mercury. The operator shall use overburden and processing fines whenever possible to support reclamation activities for pit lakes. If topsoil (A-horizon soil), formerly in agricultural production, is proposed for use within a pit lake or its drainage area, the	Section 6.1 of the Reclamation Plan presents the method of resoiling that would be used during reclamation. The method of resoiling the site has been designed to achieve compliance with this section.

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Table 4.2-6
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
operator must sample the soils prior to placement and analyze them for pesticides and herbicides (EPA Methods 8141B and 8151A, or equivalent) as well as for total mercury (EPA Method 7471B, or equivalent). The operator shall collect and analyze samples in accordance with EPA Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846 (as updated). Topsoil that contains pesticides or herbicides above the Maximum Contaminant Levels for primary drinking water (California Code of Regulations), or that contains fine-grained soils exceeding on average 0.4 mg/kg total mercury shall not be placed in areas that drain to the pit lakes. Land reclaimed to a subsequent use that includes planting of vegetation (e.g., agriculture, habitat) shall be provided an adequate soil profile (i.e., depth and texture of soil) to ensure successful reclamation. At the discretion of the Director and at the operator's sole expense, the proposed reclamation plan for the project may be peer reviewed by an appropriate expert/professional, and recommendations, if any, shall be incorporated into the project as conditions of approval.	

Note:
[1] Due to the length of Section 8-2.404 of the Yolo County Code, only the pertinent parts are reproduced within this table.

4.3 Air Quality, Greenhouse Gas Emissions, and Energy

4.3. AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND ENERGY

4.3.1 INTRODUCTION

The Air Quality, Greenhouse Gas Emissions, and Energy chapter of the EIR describes the potential impacts of the proposed project on local and regional air quality and energy. The chapter includes a discussion of the existing air quality and greenhouse gas (GHG) setting, air quality and energy impacts resulting from relocation of Moore Canal and modification of Magnolia Canal as well as mining and material processing, grading and equipment emissions, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, demand on energy resources, and mitigation measures warranted to reduce or eliminate any identified significant impacts. This chapter is based on the information, guidance, and analysis protocol provided by the Yolo-Solano Air Quality Management District (YSAQMD) per the *Handbook for Assessing and Mitigating Air Quality Impacts*,[1] as well as emissions projections prepared by Raney Planning and Management,[2] and the Technical Memorandum prepared for the proposed project by ESA.[3] In addition, the section uses information obtained from the Yolo County General Plan[4] and associated EIR,[5] as well as the EIR for the Cache Creek Area Plan (CCAP) update.[6] All emissions modeling prepared for the proposed project is included as Appendix D to this EIR.

In response to the NOP, the County received comments related to air quality, GHG emissions, and energy from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Increase in criteria pollutants and GHG emissions (Yolo-Solano Air Quality Management District);
- Dust associated with mining operations (Resident);
- Impacts on air quality from the use of heavy-duty mining equipment (Yolo-Solano Air Quality Management District);
- Impacts to animal health from air emissions (Resident);
- Use of renewable energy at project site (Resident);
- Use of electric vehicles to replace heavy-duty equipment (Resident);
- Movement of mined material on railways rather than on-road hauling (Resident);
- Compliance with the Environmental Protection Agency's (EPA) Tier 4 emission standards (Resident);

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1 Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts*. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

2 BREEZE Software, A Division of Trinity Consultants, in collaboration with South Coast Air Quality Management District and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.2*. November 2017.

3 ESA. *Teichert Shifler Mining and Reclamation Project Air Quality and Greenhouse Gas Technical Memorandum*. October 2015.

4 Yolo County. *2030 Countywide General Plan.* November 10, 2009.

5 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034.* April 2009.

6 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

- Compliance with the 2016 California Green Building Standards Code (Resident);
- Provision of electric vehicle parking infrastructure (Resident);
- Provision of electrical power to any long-haul heavy-duty trucks parked on-site (Resident);
- Planting of vegetation at border of project site to potentially screen diesel particulate matter (Resident);
- Use of carbon credits to offset potential GHG emissions (Resident);
- Odor impacts from construction and operations of the proposed project (Resident);
- Potential impacts on nearby sensitive receptors, including the school operated by the West Valley Baptist Church, and sensitive receptors along truck routes (Resident, Yolo-Solano Air Quality Management District); and
- Construction of Class I Bicycle infrastructure to the project site (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following terms are used throughout this section and have important bearing upon properly evaluating air quality, GHG emissions, and energy within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

Both the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards (AAQS) for common pollutants. Pollutants for which a national AAQS (NAAQS) or a California AAQS (CAAQS) have been established are referred to as a criteria pollutant. The most prevalent criteria pollutants include ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). More information regarding criteria pollutants is presented in Table 4.3-1. Ozone is not emitted directly and instead is considered a secondary pollutant, which forms as a result of a complex chemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO_X) emissions in the presence of sunlight. In addition to the criteria pollutants, Toxic Air Contaminants (TACs) are also a category of environmental concern. TACs are comprised of a wide range of pollutants that pose a risk to public health when inhaled.

GHGs are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. Some GHGs occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated carbons. Other common GHGs include water vapor, ozone, and aerosols. The increase in atmospheric concentrations of GHG due to human activities has resulted in more heat being held within the atmosphere, which is the accepted explanation for global climate change.

In the context of this EIR, the term "energy" is used broadly to refer to any electricity or fossil fuels used during project implementation or under the existing setting. The principal fossil fuel

consumed during mining activity is diesel fuel for operation of heavy-duty equipment. Electricity, which is often measures in watts per hour, may either be generated by renewable sources, such as wind turbines, photovoltaic cells, and geothermal sources, or through combustion of fossil fuels, principally natural gas.

4.3.2 EXISTING ENVIRONMENTAL SETTING

The following information provides an overview of the existing environmental setting in relation to air quality within the proposed project area. A description of the regional environment, ambient air quality, the local environment, the geographic and climate setting, climate change, and GHGs are provided below.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands, ornamental landscaping, and scattered native vegetation.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

Yolo County is located within the Yolo-Solano portion of the Sacramento Valley Air Basin (SVAB), which is under the jurisdiction of the YSAQMD. Air quality in the SVAB is largely the result of the following factors: emissions, geography, and meteorology (wind, atmospheric stability, and sunlight). The Sacramento Valley is often described as a bowl-shaped valley, with the SVAB being bounded by the North Coast Ranges on the west, the northern Sierra Nevada Mountains on the east, and the intervening terrain being flat.

The winds in the area are moderate in strength and vary from moist, clean breezes from the south to dry land flows from the north. The prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north.[7] The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during such periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in the air.

[7] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts*. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

Table 4.3-1
Summary of Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive gas produced by the photochemical process involving a chemical reaction between the sun's energy and other pollutant emissions. Often called photochemical smog.	• Eye irritation • Wheezing, chest pain, dry throat, headache, or nausea • Aggravated respiratory disease such as emphysema, bronchitis, and asthma	Combustion sources such as factories, automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream • Impaired vision, reduced alertness, chest pain, and headaches • Can be fatal in the case of very high concentrations	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	A reddish-brown gas that discolors the air and is formed during combustion of fossil fuels under high temperature and pressure.	• Lung irrigation and damage • Increased risk of acute and chronic respiratory disease	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	A colorless, irritating gas with a rotten egg odor formed by combustion of sulfur-containing fossil fuels.	• Aggravation of chronic obstruction lung disease • Increased risk of acute and chronic respiratory disease	Diesel vehicle exhaust, oil-powered power plants, and industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	A complex mixture of extremely small particles and liquid droplets that can easily pass through the throat and nose and enter the lungs.	• Aggravation of chronic respiratory disease • Heart and lung disease • Coughing • Bronchitis • Chronic respiratory disease in children • Irregular heartbeat • Nonfatal heart attacks	Combustion sources such as automobiles, power generation, industrial processes, and wood burning. Also from unpaved roads, farming activities, and fugitive windblown dust.
Lead	A metal found naturally in the environment as well as in manufactured products.	• Loss of appetite, weakness, apathy, and miscarriage • Lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract	Industrial sources and combustion of leaded aviation gasoline.

Sources:

- ***California Air Resources Board. California Ambient Air Quality Standards (CAAQS). Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed April 2020.***
- ***Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. Air Quality Information for the Sacramento Region. Available at: sparetheair.com. Accessed April 2020.***
- ***California Air Resources Board. Glossary of Air Pollution Terms. Available at: http://www.arb.ca.gov/html/gloss.htm. Accessed April 2020.***

The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning, which is regulated through YSAQMD permits, or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds, with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. However, during approximately half of the days from July to September, a phenomenon called the "Schultz Eddy" prevents such transport from occurring. Instead of allowing for the prevailing wind patterns to move north, carrying the pollutants out of the valley, the Schultz Eddy causes the wind pattern and pollutants to circle back southward. The Schultz Eddy effect exacerbates the pollution levels in the area and increases the likelihood of violating the federal and State air quality standards.

Ambient Air Quality

Air districts are required to monitor ambient criteria pollutant levels to determine whether the NAAQS and CAAQS are being met. Depending on whether the NAAQS and CAAQS are met or exceeded, the air basin is classified as in attainment or nonattainment of the AAQS.

The NAAQS are divided into primary standards, which are designed to protect the public health, and secondary standards, which are designed to protect the public welfare. The AAQS for each contaminant represent safe levels that avoid specific adverse health effects. Table 4.3-1 identifies the major pollutants, characteristics, health effects and typical sources. The NAAQS and CAAQS are summarized in Table 4.3-2. The NAAQS and CAAQS were developed independently with differing purposes and methods. As a result, the federal and State standards differ in some cases. In general, the CAAQS are more stringent than the NAAQS, particularly for ozone and particulate matter (PM).

Attainment Status and Regional Air Quality Plans

Areas not meeting the NAAQS presented in Table 4.3-2, below, are designated by the USEPA as nonattainment. Further classifications of nonattainment areas are based on the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from marginal to serious. The federal Clean Air Act (CAA) requires areas violating the NAAQS to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures for states to use to attain the NAAQS. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA reviews SIPs to determine if they conform to the mandates of the federal CAA amendments and would achieve air quality goals when implemented.

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. The CCAA classifies ozone nonattainment areas as moderate, serious, severe, and extreme based on severity of violations of CAAQS. For each nonattainment area classification, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment areas, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air districts with air quality that is in

violation of CAAQS are required to prepare an air quality attainment plan that lays out a program to attain the CCAA mandates.

Table 4.3-2
Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary	Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.070 ppm	0.070 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	-
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.030 ppm	53 ppb	Same as primary
	1 Hour	0.18 ppm	100 ppb	-
Sulfur Dioxide	24 Hour	0.04 ppm	-	-
	3 Hour	-	-	0.5 ppm
	1 Hour	0.25 ppm	75 ppb	-
Respirable Particulate Matter (PM_{10})	Annual Mean	20 ug/m^3	-	Same as primary
	24 Hour	50 ug/m^3	150 ug/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	12 ug/m^3	12 ug/m^3	15 ug/m^3
	24 Hour	-	35 ug/m^3	Same as primary
Lead	30 Day Average	1.5 ug/m^3	-	-
	Calendar Quarter	-	1.5 ug/m^3	Same as primary
Sulfates	24 Hour	25 ug/m^3	-	-
Hydrogen Sulfide	1 Hour	0.03 ppm	-	-
Vinyl Chloride	24 Hour	0.010 ppm	-	-
Visibility Reducing Particles	8 Hour	see note below	-	-

ppm = parts per million
ppb = parts per billion
µg/m^3 = micrograms per cubic meter

Note: Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Source: California Air Resources Board. Ambient Air Quality Standards. May 4, 2016. Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed April 2020.

Table 4.3-3 below presents the current attainment status of the jurisdictional area of the YSAQMD. As shown in the table, Yolo County is in attainment for all State and federal AAQS, with the exception of ozone, PM_{10}, and $PM_{2.5}$. At the federal level, the area is designated as severe nonattainment for the 8-hour ozone standard, nonattainment for the 24-hour $PM_{2.5}$ standard, unclassified/nonattainment for annual $PM_{2.5}$, and attainment or unclassified for all other criteria pollutants.

At the State level, the project area is designated as a nonattainment area for the 1-hour ozone standard, nonattainment for the 8-hour ozone standard, nonattainment for the PM_{10} and $PM_{2.5}$ standards, and attainment or unclassified for all other State standards. Although the 1-Hour federal ozone standard has been revoked, on October 18, 2012, the USEPA officially determined

that the Sacramento Federal Nonattainment Area (SFNA), which includes Sacramento and Yolo counties, Placer and El Dorado counties (except Lake Tahoe Basin portions), Solano County (eastern portion), and Sutter County (southern portion), attained the revoked 1-hour ozone NAAQS. The determination became effective November 19, 2012.[8]

Table 4.3-3
Attainment Status

Pollutant	Designation / Classification	
	Federal Standards	**State Standards**
Ozone – 1-Hour	Revoked in 2005	**Nonattainment**
Ozone – 8-Hour	**Nonattainment**	**Nonattainment**
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Attainment (Pending)	Attainment
PM_{10}	Attainment	**Nonattainment**
$PM_{2.5}$ – 24-Hour	**Nonattainment**	No State Standard
$PM_{2.5}$ – Annual	**Unclassified/Nonattainment**	**Nonattainment**
Lead	Unclassified/Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility Reducing Particles	No Federal Standard	Unclassified

Sources:
- ***YSAQMD. Ambient Air Quality Standards. Available at: https://www.ysaqmd.org/wp-content/uploads/2016/06/Attainment_Detailed.jpg. Accessed April 2020.***
- ***California Air Resources Board. Air Quality Standards and Area Designations. Available at: https://www.arb.ca.gov/desig/desig.htm. Accessed April 2020.***

Due to the nonattainment designations, the YSAQMD, along with the other air districts in the SVAB region, is required to develop plans to attain the federal and State standards for ozone and particulate matter. The air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control measures have worked, and show how air pollution would be reduced. In addition, the plans include the estimated future levels of pollution to ensure that the area would meet air quality goals. Each of the attainment plans currently in effect are discussed in further detail in the Regulatory Context discussion of this section.

Local Air Quality Monitoring

Air quality is monitored by CARB at various locations to determine which air quality standards are being violated, and to direct emission reduction efforts, such as developing attainment plans and rules, incentive programs, etc. The nearest local air quality monitoring station to the project site is the Woodland-Gibson Road station, located approximately 6.5 miles southeast of the site, near East Gibson Road, within the Yolo County Sheriff's complex. The Woodland-Gibson Road station does not provide data for 1-Hour Nitrogen Dioxide concentrations; thus, the nearest station with such data was used, which was the Davis-UCD Campus station, located along Campbell Road between Hutchinson Drive and Garrod Road in Davis, approximately 10.8 miles south of the project site. Table 4.3-4 presents the number of days that each criteria air pollutant standard was exceeded and/or the annual average mean concentrations for the years 2016 through 2018 for those pollutants for which monitoring data is available from the Woodland-Gibson Road and the Davis-UCD Campus monitoring stations. The USEPA uses such data (air quality monitoring data

[8] U.S. Environmental Protection Agency. *Air Actions in the Sacramento Metro Area*. October 3, 2012. Available at: http://www.epa.gov/region9/air/actions/sacto/index.html. Accessed March 2018.

for the most recent three-year period), as well as a number of other factors, in making final determinations regarding area designations.

Table 4.3-4
Air Quality Monitoring Data Summary for Project Area

Pollutant	Standard	Days Standard Was Exceeded		
		2016	2017	2018
1-Hour Ozone	State	1	0	1
	Federal	0	0	0
8-Hour Ozone	State	4	2	2
	Federal	4	2	2
24-Hour $PM_{2.5}$	Federal	0.0	12.3	12.3
24-Hour PM_{10}	State	12.2	18.4	24.5
	Federal	0	0	6.1
1-Hour Nitrogen Dioxide	State	0	0	0
	Federal	0	0	0

Note: All measurements from the Woodland-Gibson Road Station, with the exception of the 1-Hour Nitrogen Dioxide measurements, which are from the Davis-UCD Campus station.

Source: California Air Resources Board. Aerometric Data Analysis and Management (iADAM) System. Available at http://www.arb.ca.gov/adam/welcome.html. Accessed April 2020.

Criteria Pollutants

A description of each criteria pollutant and its potential health effects is provided in the following section.

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant. As such, unlike other pollutants, ozone is not released directly into the atmosphere from any sources. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation. The primary source of ozone precursors is mobile sources, including cars, trucks, buses, construction equipment, and agricultural equipment.

Ground-level ozone reaches the highest level during the afternoon and early evening hours. High levels occur most often during the summer months. Ground-level ozone is a strong irritant that could cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments.

Reactive Organic Gas

ROG is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

NO_X are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown

gas that discolors the air and is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_X. NO_X reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_X emissions are a major component of acid rain. Health effects related to NO_X include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels such as gasoline, oil, and wood. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO can include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, reduced mental alertness, and death at high concentrations.

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a rotten egg odor formed primarily by the combustion of sulfur-containing fossil fuels from mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Similar to airborne NO_X, suspended sulfur oxide particles contribute to poor visibility. The sulfur oxide particles are also a component of PM_{10}.

Particulate Matter

Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health impacts. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller (PM_{10}) because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, the particles could affect the heart and lungs and cause serious health effects. USEPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($PM_{2.5-10}$)," which are found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5-10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," which are found in smoke and haze, are 2.5 micrometers in diameter and smaller. $PM_{2.5}$ particles could be directly emitted from sources such as forest fires, or could form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- “Ultrafine particles (UFP),” are very, very small particles (less than 0.1 micrometers in diameter) largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, their high surface area, deep lung penetration, and transfer into the bloodstream could result in disproportionate health impacts relative to their mass. UFP is not currently regulated separately, but is analyzed as part of $PM_{2.5}$.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants, which are emitted directly to the atmosphere and secondary pollutants, which are formed in the atmosphere by chemical reactions among

precursors. Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include the same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust. Long-term PM pollution, especially fine particles, could result in significant health problems including, but not limited to, the following: increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing; decreased lung function; aggravated asthma; development of chronic respiratory disease in children; development of chronic bronchitis or obstructive lung disease; irregular heartbeat; heart attacks; and increased blood pressure.

Lead

Lead is a relatively soft and chemically resistant metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, and, thus, essentially persists forever. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically. However, because lead was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) as a result of airborne dispersion and could become re-suspended into the air.

Because lead is only slowly excreted by the human body, exposures to small amounts of lead from a variety of sources could accumulate to harmful levels. Effects from inhalation of lead above the level of the ambient air quality standard may include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms could include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead also causes cancer.

Sulfates

Sulfates are the fully oxidized ionic form of sulfur and are colorless gases. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. The sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The sulfates standard established by CARB is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations, especially in enclosed spaces (800 ppm can cause death).

Vinyl Chloride

Vinyl Chloride (C_2H_3Cl, also known as VCM) is a colorless gas that does not occur naturally, but is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Visibility Reducing Particles

Visibility Reducing Particles are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Toxic Air Contaminants (TACs)

TACs are present in many types of emissions with varying degrees of toxicity. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Common stationary sources of TACs include gasoline stations, dry cleaners, and diesel backup generators, which are subject to YSAQMD stationary source permit requirements. The other, often more significant, common source type is on-road motor vehicles, such as cars and trucks, on freeways and roads, and off-road sources such as construction equipment, ships, and trains. Mining activities may release multiple types of TACs, from multiple sources; the predominant types and sources of TACs attributable to mining activities are discussed below.

Fossil fueled combustion engines, including those used in cars, trucks, and some pieces of construction and mining equipment, release at least 40 different TACs. In terms of health risks, the most volatile contaminants are diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene, toluene, xylenes, and acetaldehyde. Gasoline vapors contain several TACs, including benzene, toluene, and xylenes. Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust, DPM, is composed of carbon particles and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of such chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and NO_X. Due to the published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects, the CARB has identified DPM from diesel-fueled engines as a TAC. Although a variety of TACs are emitted by fossil fueled combustion engines, the cancer risk due to DPM exposure represents a more significant risk than the other TACs discussed above.[9]

More than 90 percent of DPM is less than one micrometer in diameter, and, thus, DPM is a subset of $PM_{2.5}$. As a California statewide average, DPM comprises about eight percent of $PM_{2.5}$ in outdoor air, although DPM levels vary regionally due to the non-uniform distribution of sources throughout the State. Most major sources of diesel emissions, such as ships, trains, and trucks, operate in and around ports, rail yards, and heavily-traveled roadways. Such areas are often located near highly populated areas. Accordingly, elevated DPM levels are mainly an urban problem, with large numbers of people exposed to higher DPM concentrations, resulting in greater health consequences compared to rural areas.

[9] California Air Resources Board. *Reducing Toxic Air Pollutants in California's Communities*. February 6, 2002.

Due to the high levels of diesel activity, high volume freeways, stationary diesel engines, rail yards and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Mining activities also have the potential to generate concentrations of DPM from on-road haul trucks and off-road equipment exhaust emissions.

The size of diesel particulates that are of the greatest health concern are fine particles (i.e., $PM_{2.5}$) and ultrafine particles (UFPs), which are a subset of $PM_{2.5}$. UFPs have a small diameter (on the order of 0.1 micrometers).[10] The small diameter of UFPs imparts the particulates with unique attributes, such as high surface areas and the ability to penetrate deeply into lungs. Once UFPs have been deposited in lungs, the small diameter allows the UFPs to be transferred to the bloodstream. The high surface area of the UFPs also allows for a greater adsorption of other chemicals, which are transported along with the UFPs into the bloodstream of the inhaler, where the chemicals can eventually reach critical organs.[11] The penetration capability of UFPs may contribute to adverse health effects related to heart, lung, and other organ health.[12] UFPs are a subset of DPM and activities that create large amounts of DPM, such as the operations involving heavy diesel-powered engines, also release UFPs. Considering that UFPs are a subset of DPM, and DPM is considered a subset of $PM_{2.5}$, estimations of either concentrations or emissions of $PM_{2.5}$ or DPM include UFPs.

Respirable Silica

In addition to concerns regarding DPM and UFPs, silicon dioxide, commonly referred to as silica or respirable silica, is considered a TAC. Silica is a common mineral that is contained naturally in many types of sand and stone, and, thus, can be found in man-made products such as concrete, mortar, glass, pottery, and bricks. From a health risk perspective, the portion of silica dust that is respirable is of principle concern. Activities such as sawing, grinding, and crushing stones, sand, or other silica containing materials can release respirable silica. Inhalation of respirable silica has been linked with chronic lung disease, specifically silicosis, as well as lung cancer, chronic obstructive pulmonary disease, and kidney disease. Due to the health risks posed by silica dust, the United States Occupational Safety and Health Administration has established standards for exposure of workers.[13] The proposed mining activities would have the potential to release silica dust, and, as such, health risks related to the release of silica dust are analyzed within this EIR.

Health Risks from TACs

Health risks from TACs are a function of both the concentration of emissions and the duration of exposure, which typically are associated with long-term exposure and the associated risk of contracting cancer. Health effects of exposure to TACs other than cancer include birth defects, neurological damage, and death. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to criteria air pollutants that have established AAQS. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an AAQS or emission-based threshold.

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10 South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.
11 Health Effects Institute. *Understanding the Health Effects of Ambient Ultrafine Particles*. January 2013.
12 South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.
13 U.S. Occupational Safety and Health Administration. *Silica, Crystalline*. Available at: https://www.osha.gov/dsg/topics/silicacrystalline/. Accessed April 2020.

Naturally Occurring Asbestos

Another concern related to air quality is naturally occurring asbestos (NOA). Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). Because asbestos is a known carcinogen, NOA is considered a TAC. Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock; construction activities in ultramafic rock deposits; or rock quarrying activities where ultramafic rock is present.

According to mapping prepared by the California Geological Survey, Yolo County is not in an area likely to contain NOA.[14] Consequently, NOA is not expected to be present at the project site.

Odors

While offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable annoyance and distress among the public and can generate citizen complaints to local governments and air districts. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative or formulaic methodologies to determine the presence of a significant odor impact do not exist. Adverse effects of odors on residential areas and other sensitive receptors warrant the closest scrutiny; but consideration should also be given to other land use types where people congregate, such as recreational facilities, worksites, and commercial areas. The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between a receptor and an odor source, and local meteorological conditions.

One of the most important factors influencing the potential for an odor impact to occur is the distance between the odor source and receptors, also referred to as a buffer zone or setback. The greater the distance between an odor source and receptor, the less concentrated the odor emission would be when reaching the receptor.

Meteorological conditions also affect the dispersion of odor emissions, which determines the exposure concentration of odiferous compounds at receptors. The predominant wind direction in an area influences which receptors are exposed to the odiferous compounds generated by a nearby source. Receptors located upwind from a large odor source may not be affected due to the produced odiferous compounds being dispersed away from the receptors. Wind speed also influences the degree to which odor emissions are dispersed away from any area.

Odiferous compounds could be generated from a variety of source types including both construction and operational activities. Examples of common land use types that typically generate significant odor impacts include, but are not limited to wastewater treatment plants; sanitary landfills; composting/green waste facilities; recycling facilities; petroleum refineries; chemical manufacturing plants; painting/coating operations; rendering plants; and food packaging plants. Asphalt plants are also considered potential sources of odors. The Woodland Plant currently contains an asphalt plant, which could represent an existing source of odors.

[14] California Department of Conservation, Division of Mines and Geology. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*. August 2000.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), rural residential, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The aggregate mining operations to the west consist of Teichert's Storz mining site and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

Local air quality is primarily affected by regional trends; however, certain localized activities such as tilling of fields for crops, can create increased levels of localized dust.

Existing Emissions

The Shifler mining site is currently used for agricultural purposes. Emissions resulting from existing agricultural activities would primarily include PM (from both fugitive dust and equipment exhaust) and ozone precursors (primarily from harvesting equipment exhaust). Existing agricultural activities result in emissions as presented in Table 4.3-5.

Table 4.3-5
Existing Agricultural Emissions

ROG (tons/yr)	NO_X (tons/yr)	PM_{10} (lbs/day)	GHG (tons/yr)
0.0	0.1	3.9	17

See Appendix D for all emissions calculations.

In addition to the agricultural emissions that occur within the Shifler mining site, the project applicant currently processes aggregate material at both the Woodland Plant and the Esparto

Plant. Existing operations at both the Woodland Plant and Esparto Plant are subject to the regulations within Yolo County's Off-Channel Surface Mining Ordinance (OCSMO). Specifically, Section 10-4.414 of the OCSMO includes specific requirements for the control of dust emissions. Therefore, the existing operations at the Woodland Plant and Esparto Plant include implementation of dust control measures. Due to the current use of dust control measures at the Woodland Plant and Esparto Plant, the existing emissions from both plants that are presented in Table 4.3-6 below include consideration of dust control practices.

Table 4.3-6
Existing Controlled Mining Emissions

ROG (tons/yr)	NO_X (tons/yr)	PM_{10} (lbs/day)	GHG (tons/yr)
2.59	45.43	643.69	11,258.53
See Appendix D for all emissions calculations.			

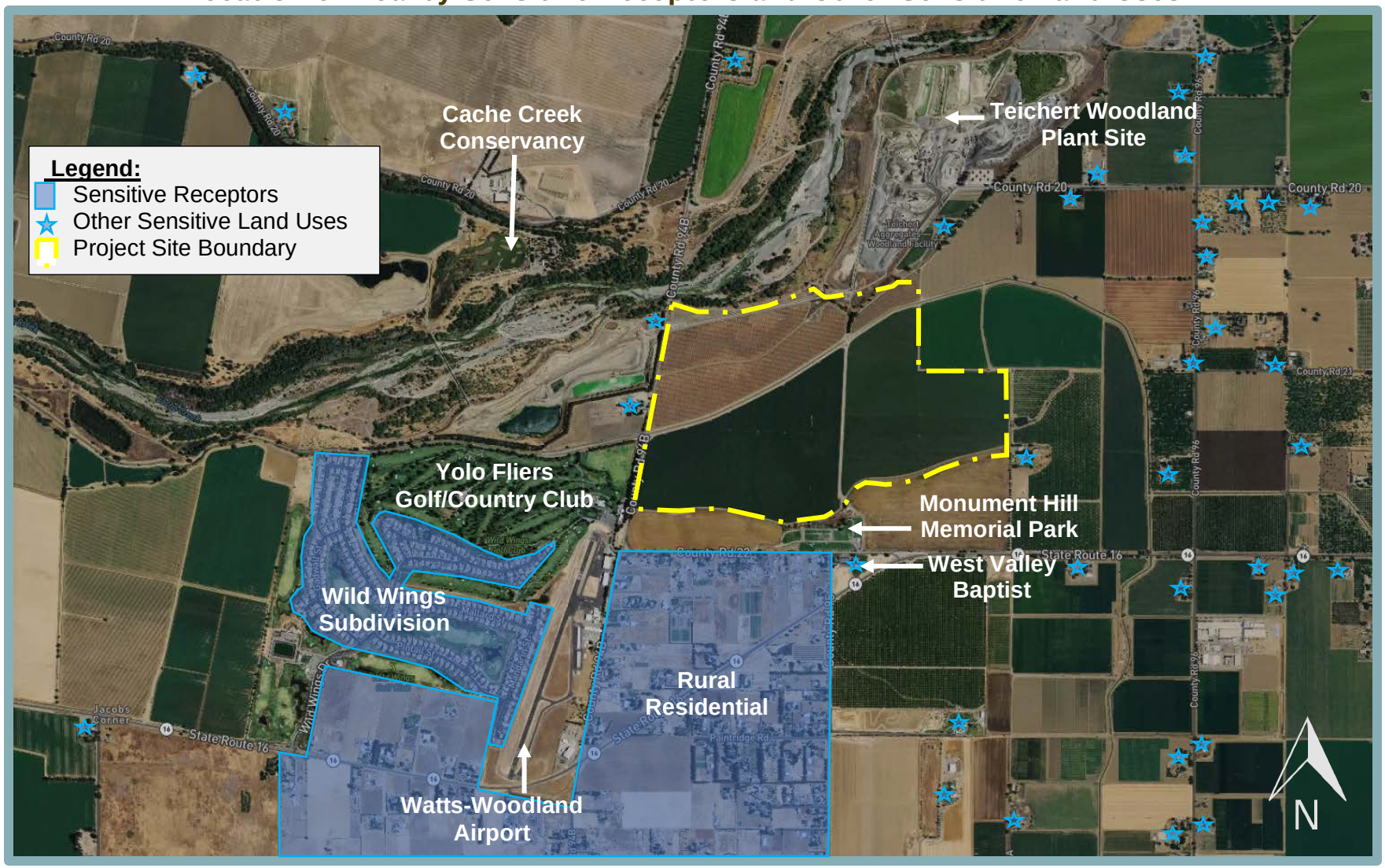
Sensitive Receptors and Other Sensitive Land Uses

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors for the purposes of air quality analyses include residences, schools, day care centers, playgrounds, and medical facilities.

Policy CO-A107 of the Yolo County General Plan provides a County-specific definition of sensitive receptors using the following criteria: residentially designated land uses; hospitals, nursing/convalescent homes, and similar board and care facilities; hotels and lodgings; schools and day care centers; and neighborhood parks. Considering Yolo County's definition of sensitive receptors, the nearest sensitive receptors to the project site are a church-run school located approximately 650 feet south of the Shifler mining site, residences located approximately 430 feet south of the site across County Road 22, and the residences located in the Wild Wings subdivision, which is located approximately 1,180 feet to the southwest of the Shifler mining site (see Figure 4.3-1).

Various farm dwellings exist within areas designated for agricultural uses by Yolo County, which are in close proximity to both the existing Teichert operational areas as well as the proposed Shifler site. For instance, the nearest farm dwelling to the Shifler site is approximately 165 feet to the west, while another farm dwelling approximately 180 feet to the east. Multiple farm dwellings exist in close proximity to the existing Woodland Plant. Figure 4.3-1 presents some of the farm dwelling locations in close proximity to the Woodland Plant and Shifler site. Additional farm dwellings in the vicinity of the project site were also considered in this analysis. All such farm dwellings are considered other sensitive land uses for the purposes of this analysis.

Figure 4.3-1
Location of Nearby Sensitive Receptors and Other Sensitive Land Uses



Note: The analyses prepared for this chapter included consideration of additional farm dwellings not individually identified here.

Greenhouse Gas Emissions and Climate Change

The following section includes a discussion of the geographic and climate setting of Yolo County, climate change, GHGs, as well as GHG sources and inventories.

Geographic and Climate Setting

As noted previously, Yolo County is within the SVAB, which is bounded by the North Coast Ranges on the west, the northern Sierra Nevada Mountains on the east, and the intervening terrain being flat. The Sacramento Valley has a Mediterranean climate, characterized by hot, dry summers and mild, rainy winters. During the year, the temperature may range from 20 to 115 degrees Fahrenheit, with summer highs usually in the 90-degree Fahrenheit range and winter lows occasionally below freezing. Average annual rainfall is approximately 20 inches, with snowfall being very rare.

Climate Change

The United Nations defines climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere.[15] The predominant cause of climate change is through the emission of GHGs, primarily through the combustion of fossil fuels. However, vast array of human activities can contribute to climate change. For instance, the clearing of forests, development of heavily paved cities, and certain agricultural practices can all contribute to climate change through direct and indirect means. The net effect of human activity has been increased concentrations of CO_2 in the atmosphere, an increase in global temperature of 1.9 degrees in Fahrenheit since 1880, a 12.8 percent decrease in the minimum extent of arctic sea ice, and a loss of 413 gigatonnes from global ice sheets each year.[16] Although natural processes have resulted in a changing climate throughout earth's history, the International Panel on Climate Change (IPCC) has determined that the current rate of climate change is unprecedented when compared to natural changes throughout earth's history , and that the current changes in earth's climate being observed are extremely likely to have been caused by human activities.[17]

Greenhouse Gases (GHGs)

As discussed previously, GHGs are gases that absorb and emit thermal infrared radiation, trapping heat in the earth's atmosphere. GHGs are emitted naturally and through anthropogenic sources, and the IPCC considers anthropogenic GHG emissions to be the cause of currently observed climate change.

The primary GHG emitted by human activities is CO_2, with the next largest components being CH_4 and N_2O. A wide variety of human activities result in the emission of CO_2. Some of the largest sources of CO_2 include the burning of fossil fuels for transportation and electricity, industrial processes including fertilizer production, agricultural processing, and cement production. The primary sources of CH_4 emissions include domestic livestock sources, decomposition of wastes in landfills, releases from natural gas systems, coal mine seepage, and manure management. The main human activities producing N_2O are agricultural soil management, fuel combustion in motor vehicles, nitric acid production, manure management, and

15 United Nations. *United Nations Framework Convention on Climate Change*. 1992.
16 National Aeronautics and Space Agency. *Global Climate Change*. Available at: https://climate.nasa.gov/. Accessed August 2019.
17 IPCC, Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [pg. 151]. 2014.

stationary fuel combustion. Emissions of GHG by economic sector indicate that energy-related activities account for the majority of U.S. emissions. Electricity generation is the largest single-source of GHG emissions, and transportation is the second largest source, followed by industrial activities. The agricultural, commercial, and residential sectors account for the remainder of GHG emission sources.[18]

Emissions of GHG are partially offset by uptake of carbon and sequestration in trees, agricultural soils, landfilled yard trimmings and food scraps, and absorption of CO_2 by the earth's oceans. Additional emission reduction measures for GHG could include, but are not limited to, compliance with local, State, or federal plans or strategies for GHG reductions, on-site and off-site mitigation, and project design features. Attainment concentration standards for GHGs have not been established by the federal or State government.

Global Warming Potential

Global Warming Potential (GWP) is one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. According to the USEPA, the global warming potential of a gas, or aerosol, to trap heat in the atmosphere is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for comparison is CO_2. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of CO_2, as well as the decay rate of each gas relative to that of CO_2. Each gas's GWP is determined by comparing the radiative forcing associated with emissions of that gas versus the radiative forcing associated with emissions of the same mass of CO_2, for which the GWP is set at one. Methane gas, for example, is estimated by the USEPA to have a comparative global warming potential 21 times greater than that of CO_2, as shown in Table 4.3-7

Table 4.3-7
Global Warming Potentials and Atmospheric Lifetimes of Select GHGs

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50-200[1]	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-23	230-270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

[1] For a given amount of carbon dioxide emitted, some fraction of the atmospheric increase in concentration is quickly absorbed by the oceans and terrestrial vegetation, some fraction of the atmospheric increase will only slowly decrease over a number of years, and a small portion of the increase will remain for many centuries or more.

Source: USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013, April 15, 2015.

[18] U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://19january2017snapshot.epa.gov/ghgemissions/sources-greenhouse-gas-emissions_.html. Accessed March 2018.

As shown in the table, at the extreme end of the scale, sulfur hexafluoride is estimated to have a comparative GWP 22,800 times that of CO_2. The "specified time horizon" is related to the atmospheric lifetimes of such GHGs, which are estimated by the USEPA to vary from 50 to 200 years for CO_2, to 50,000 years for tetrafluoromethane. Longer atmospheric lifetimes allow GHG to buildup in the atmosphere; therefore, longer lifetimes correlate with the global warming potential of a gas. The common indicator for GHG is expressed in terms of metric tons of CO_2 equivalents ($MTCO_2e$), which is calculated based on the global warming potential for each pollutant.

Environmental Effects of Global Climate Change

Uncertainties exist as to exactly what the climate changes will be in various areas of the Earth. According to the Intergovernmental Panel on Climate Change's Working Group II Report, *Climate Change 2007: Impacts, Adaptation and Vulnerability*,[19] climate change impacts to North America may include:

- Diminishing snowpack;
- Increasing evaporation;
- Exacerbated shoreline erosion;
- Exacerbated inundation from sea level rising;
- Increased risk and frequency of wildfire;
- Increased risk of insect outbreaks;
- Increased experiences of heat waves; and
- Rearrangement of ecosystems as species and ecosystems shift northward and to higher elevations.

For California, climate change has the potential to cause/exacerbate the following environmental impacts:

- Increased frequency, duration, and intensity of conditions conducive to air pollution formation (particularly ozone);
- Reduced precipitation, changes to precipitation and runoff patterns, reduced snowfall (precipitation occurring as rain instead of snow), earlier snowmelt, decreased snowpack, and increased agricultural demand for water;
- Increased growing season and increased growth rates of weeds, insect pests and pathogens;
- Inundation by sea level rise;
- Increased incidents and severity of wildfire events; and
- Expansion of the range and increased frequency of pest outbreaks.

The Yolo County CAP identifies the following potential environmental impacts that could affect the County as a result of climate change:

- Increased temperature;
- Change in precipitation patters;
- Impacted water resources;
- Increased risk of wildfire events; and

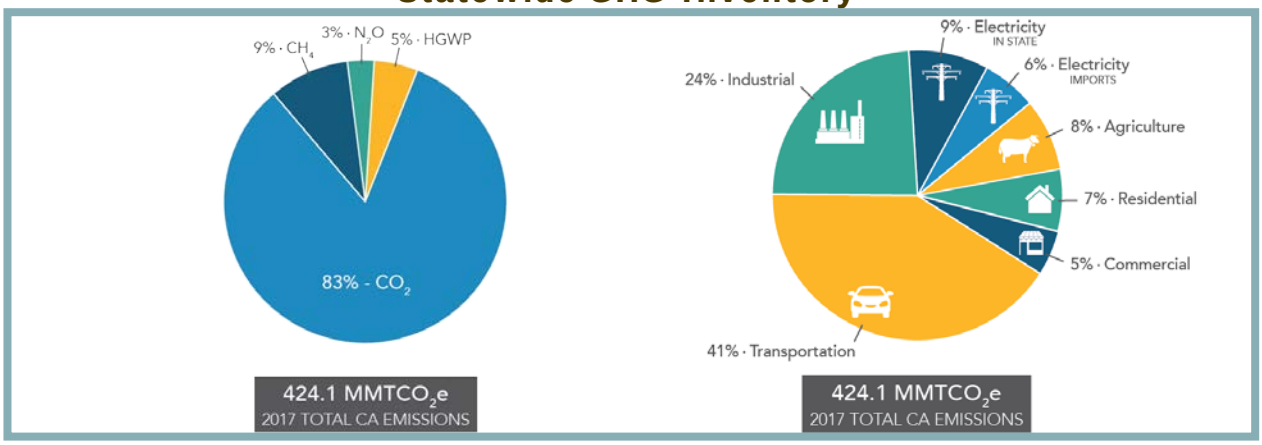
[19] IPCC, Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [pg. 151]. 2014.

- Sea level rise in the Delta.

Greenhouse Gas Sources and Inventories

An annual statewide emissions inventory has been prepared for California since the year 2000. In the most recent year for which inventory data is available, statewide emissions equaled 424.1 million $MTCO_2e$. As shown in Figure 4.3-2, the vast majority of GHG emissions were comprised of CO_2, with smaller proportions of CH_4, N_2O, and other high GWP gases. The predominant source of emissions within the State, representing 41 percent of total emissions, is transportation, which includes sources such as passenger vehicles, public transit, air travel, and freight transportation. Industrial activities represent the second largest source of emissions, at 24 percent of total emissions.

Figure 4.3-2
Statewide GHG Inventory



Source: California Air Resources Board. California Greenhouse Gas Emissions Inventory – 2019 Edition. Available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm. Accessed September 2019.

Project Site

In addition to the existing emissions of criteria pollutants that occur from agricultural operations at the Shifler site, the existing agricultural activities within the Shifler site result in GHG emissions. GHG emissions related to agricultural activities would primarily include CO_2 from the use of combustion engines in agricultural equipment. Emissions from existing operations are estimated to equate to approximately 16.60 $MTCO_2e$ per year (see Appendix D).

Existing operations at the Esparto and Woodland plants and mining sites also result in GHG emissions. Emissions related to existing mining and processing are primarily related to sources such as the use of heavy-duty off-road equipment, hauling of material to and from the site, and the off-site generation of electricity to power the electric machinery on-site. In total, Teichert's existing operations result in approximately 11,258.94 $MTCO_2e$ per year (see Appendix D).

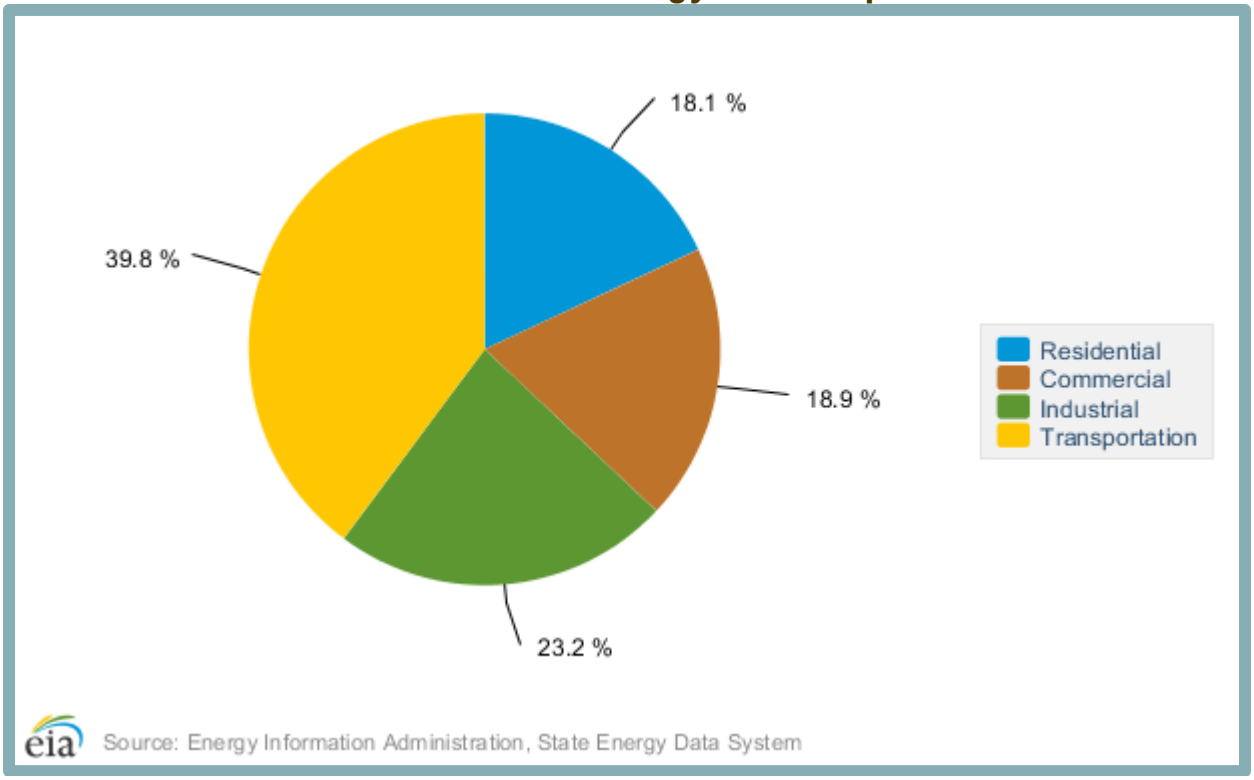
Energy

California is one of the highest energy demanding states within the nation. Activities such as heating and cooling structures, lighting, the movement of goods, agricultural production, and countless other facets of daily life consume a variety of energy sources. Energy within the state is provided primarily by the combustion of fossil fuels such as natural gas, motor gasoline, diesel, jet fuel, and, to a lesser extent, coal. In addition to the fossil fuel-based energy sources, the state is ranked second in the nation in renewable energy generation, which includes solar, geothermal,

wind, and biomass resources. In fact, California leads the nation in solar thermal electricity capacity, with 73 percent of the nation's total solar thermal capacity installed within the state.[20]

As shown in Figure 4.3-3, transportation-related activity consumes the largest share of energy within the State. Within the transportation sector, motor gasoline is the dominate form of energy, with jet fuel, diesel, natural gas, and electricity supplying the remaining portions of California's transportation sector energy demand.

Figure 4.3-3
2018 California Energy Consumption



Source: U.S. Energy Information Administration. California: State Profile and Energy Estimates. Accessible at: https://www.eia.gov/state/index.php?sid=CA. Accessed June 2020.

Electricity is provided to California consumers through a mix of sources including natural gas, hydroelectric, non-hydroelectric renewable sources, nuclear, coal, and petroleum. Of the foregoing sources of electricity, natural gas provided the greatest amount of electricity at approximately 45 percent of California's statewide supply in 2018. Meanwhile, non-hydroelectric based sources of renewable energy provided an additional 35 percent of the state's energy, with hydroelectric and nuclear providing nine and 11 percent respectively. Coal contributed less than 0.2 percent of the State's total electricity supply. The foregoing sources of electricity supply provided for the consumption of a statewide total of 13,103 gigawatt hours (GWh) in the year 2018.[21] Of the total electricity supplied to the State, Yolo County consumed approximately

[20] U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Available at: https://www.eia.gov/state/index.php?sid=CA. Accessed June 2020.
[21] U.S. Energy Information Administration. *California Net Electricity Generation by Source*. Available at: https://www.eia.gov/state/index.php?sid=CA#tabs-4. Accessed June 2020.

1,718.06 GWh, which constitutes approximately 13 percent of the total energy consumed within the State.[22]

California residents and businesses consume petroleum products for various purposes including on-road vehicles, off-road equipment, and air travel. In 2018, 49 percent of all petroleum products consumed within California consisted of motor gasoline. The second largest demand on petroleum products is jet fuel, which represents 19 percent of the petroleum products consumed, while distillate fuel oils, which includes diesel fuel, represents 16 percent of the total petroleum products demanded within the state.[23]

Existing Teichert Energy Consumption

Teichert's existing mining and processing activities require energy inputs. The main sources of energy consumed by Teichert's existing operations at Esparto and Woodland are electricity and diesel fuel. Typical activities that consume energy related to existing mining and processing activities include the use of heavy-duty off-road equipment, which is typically diesel fueled, as well as electricity to transport the mined material on conveyor from the mining site to the processing plants. Processing activities would also require the use of some heavy-duty off-road equipment, as well as electricity for conveyors, crushing machinery, and sorting machinery. In order to meet the existing demand for electricity, Teichert has voluntarily installed a photovoltaic energy system at the Woodland Plant. The electricity generated by the photovoltaic energy system is fed into the grid, and off-sets a portion of the electricity demanded by existing operations.

Electricity at the Esparto Plant is provided by Valley Clean Energy (VCE), while electricity at the Woodland Plant is directly purchased through a Direct Access Provider by Teichert. VCE provides electricity to customers within Woodland, Davis, and in unincorporated portions of Yolo County. Launched in June 2018, VCE purchases energy with a higher renewable energy content, and lower GHG content, as compared to equivalent grid electricity provided by Pacific Gas and Electric (PG&E), which previously provided electricity services to Yolo County. Although VCE purchases the electricity, electricity within the County continues to be transported through PG&E owned equipment. Direct Access Providers are regulated by the California Public Utilities Commission, and allow retail customers to purchase electric power directly from an independent electric service provider rather than solely through investor-owned utilities. While Direct Access allows purchasers flexibility in sourcing electricity from various entities, Direct Access Providers are subject to similar regulations as investor-owned utilities with regard to resource adequacy, renewable portfolio standards, and GHG emissions reductions.[24] Once purchased, electricity from the Direct Access Provider is transmitted over PG&E owned infrastructure to the Woodland Plant.

Based on the existing equipment operated by Teichert at the Woodland Plant, Schwarzgruber mine, Esparto Plant, and Esparto mine, the total fuel consumed by off-road equipment, as well as the total electricity consumed was quantified. With regard to the mining and processing activity in Esparto, a total of approximately 95,500 gallons of diesel fuel and approximately 1,909 megawatt hours (MWh) were estimated to be consumed each year. Activities at the Schwarzgruber mine

[22] California Energy Commission. *Electricity Consumption by County*. Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed June 2020.

[23] U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Available at: https://www.eia.gov/state/index.php?sid=CA. Accessed June 2020.

[24] California Public Utilities Commission. *Decision 10-03-022, Decision Regarding Increased Limits for Direct Access Transactions*. March 11, 2020.

and Woodland Plant consume an estimated 162,500 gallons of diesel fuel and approximately 4,345 MWh each year.

4.3.3 REGULATORY CONTEXT

Air quality, GHG emissions, and energy are monitored and regulated through the efforts of various international, federal, State, and local government agencies. Agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving the air quality within the project area and monitoring or reducing GHG emissions are discussed below.

Federal Regulations

The following are the federal regulations relevant to air quality, GHG emissions, and energy.

FCAA and USEPA

The FCAA requires the USEPA to set NAAQS and designate areas with air quality not meeting NAAQS as nonattainment. The USEPA is responsible for enforcement of NAAQS for atmospheric pollutants and regulates emission sources that are under the exclusive authority of the federal government including emissions of GHGs. The USEPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990. The USEPA has adopted policies consistent with FCAA requirements demanding states to prepare SIPs that demonstrate attainment and maintenance of the NAAQS. In order to track GHG emissions, the USEPA develops official U.S. GHG inventories each year, which account for emissions and removals of GHG.

On December 7, 2009, USEPA issued findings under Section 202(a) of the CAA concluding that GHGs are pollutants that could endanger public health. Under the so-called Endangerment Finding, USEPA found that the current and projected concentrations of the six key, well-mixed GHGs – CO_2, CH_4, N_2O, PFCs, SF_6, and HFCs – in the atmosphere threaten the public health and welfare of current and future generations. These findings do not, by themselves, impose any requirements on industry or other entities.

Energy Policy and Conservation Act

The Energy Policy and Conservation Act was originally enacted in 1975 with the intention of ensuring that all vehicles sold in the U.S. meet established fuel economy standards. Following congressional establishment of the original set of fuel economy standards the U.S. Department of Transportation was tasked with establishing additional on-road vehicle standards and making revisions to standards as necessary. Compliance with established standards is based on manufacturer fleet average fuel economy, which originally applied to both passenger cars and light trucks but did not apply to heavy-duty vehicles exceeding 8,500 pounds in gross vehicle weight. The fuel economy program implemented under the Energy Policy and Conservation Act is known as the Corporate Average Fuel Economy (CAFE) Standards. Updates to the CAFE standards since original implementation have increased fuel economy requirements and begun regulation of medium- and heavy-duty vehicles.

Energy Policy Act of 2005

The Energy Policy Act of 2005 addressed energy production in the U.S. from various sources. In particular, the Energy Policy Act of 2005 included tax credits, loans, and grants for the implementation of energy systems that would reduce GHG emissions related to energy production.

State Regulations

The following are applicable State regulations related to air quality, GHG emissions, and energy. Only the most prominent and applicable California air quality- and GHG-related legislation is included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the CARB website (http://www.arb.ca.gov/html/lawsregs.htm).

CCAA and CARB

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. The CCAA requires that air quality plans be prepared for areas of the State that have not met the CAAQS for ozone, CO, NO_X, and SO_2. Among other requirements of the CCAA, the plans must include a wide range of implementable control measures, which often include transportation control measures and performance standards. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls. The CARB, California's air quality management agency, regulates and oversees the activities of county air pollution control districts and regional air quality management districts. The CARB regulates local air quality indirectly using State standards and vehicle emission standards, by conducting research activities, and through planning and coordinating activities. In addition, the CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the USEPA. Furthermore, the CARB is charged with developing rules and regulations to cap and reduce GHG emissions.

Air Quality and Land Use Handbook

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook) addresses the importance of considering health risk issues when siting sensitive land uses, including residential development, in the vicinity of intensive air pollutant emission sources including freeways or high-traffic roads, distribution centers, ports, petroleum refineries, chrome plating operations, dry cleaners, and gasoline dispensing facilities.[25] The CARB Handbook draws upon studies evaluating the health effects of traffic traveling on major interstate highways in metropolitan California centers within Los Angeles (I-405 and I-710), the San Francisco Bay, and San Diego areas. The recommendations identified by CARB, including siting residential uses a minimum distance of 500 feet from freeways or other high-traffic roadways, are consistent with those adopted by the State of California for location of new schools. Specifically, the CARB Handbook recommends, "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day".[26]

Importantly, the Introduction chapter of the CARB Handbook clarifies that the guidelines are strictly advisory, recognizing that: "[l]and use decisions are a local government responsibility. The Air Resources Board Handbook is advisory and these recommendations do not establish regulatory standards of any kind." CARB recognizes that there may be land use objectives as well as meteorological and other site-specific conditions that need to be considered by a governmental jurisdiction relative to the general recommended setbacks, specifically stating, "[t]hese recommendations are advisory. Land use agencies have to balance other considerations,

[25] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
[26] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

including housing and transportation needs, economic development priorities, and other quality of life issues".[27]

AB 1807

Assembly Bill (AB) 1807 (Health and Safety Code [HSC] Section 39650), which was legislated as the Toxic Air Contaminant Identification and Control Act by AB 1807 enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. CARB is responsible for the identification and control of TACs, except pesticide use, which is regulated by the California Department of Pesticide Regulation.

AB 2588

HSC Section 44300-44394, which was legislated as AB 2588 the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), provides for the regulation of over 200 TACs, including DPM, and is the primary air contaminant legislation in California. Under the act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

In 2002, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17, Section 93105, of the California Code of Regulations) went into effect, which requires each air pollution control and air quality management district to implement and enforce the requirements of Section 93105 and propose their own asbestos ATCM as provided in Health and Safety Code section 39666(d).[28]

Renewable Portfolio Standard (RPS) and SB 100

Established in 2002 under SB 1078 (which added Section 387, 390.1, and 399.25 to the Public Utilities Code and added Article 16 to Chapter 2.3 of Part 1 Division 1 of the Public Utilities Code), accelerated in 2006 under SB 107 (which amended sections 25620.1, 25740, 25741, 25742, 25743, 25746, and 25751 of, added sections 25470.5 and 25744.5, and repealed Sections 25745 and 25749 of, the Public Resources Code, as well as amending sections 87, 399.11, 399.12, 399.13, 399.14, and 399.15 of the Public Utilities code, adding Article 9to chapter 3 of Part 1 of Division 1 of the Public Utilities Code, and to repeal and add Section 399.16 of the Public Utilities Code), and expanded in 2011 under SB 2 (which amended sections 5740, 25740.5, 25741, 25742, 25746, 25747, and 25751 of the Public Resources Code, added section 25519.5 to the Public Resources Code, to add and repeal section 25741.5 of, the Public Resources Code, and to amend Sections 399.11, 399.12, 399.20, and 454.5 of, to amend, renumber, and add Sections 399.13 and 399.16 of, to add Sections 399.18, 399.19, 399.26, 399.30, 399.31, and 1005.1 to, to add Article 11 (commencing with Section 910) to Chapter 4 of Part 1 of Division 1 of, to repeal Section 387 of, and to repeal and add Sections 399.14, 399.15, and 399.17 of, the Public Utilities Code), California's RPS is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community

[27] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
[28] California Air Resources Board. *2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations*. June 3, 2015. Available at: http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm. Accessed April 2017.

choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Since the inception of the RPS program, the program has been extended and enhanced multiple times. In 2015, SB 350 (An act to add Section 44258.5 to the Health and Safety Code, to amend Section 1720 of the Labor Code, to amend Sections 25310 and 25943 of, and to add Sections 25302.2 and 25327 to, the Public Resources Code, and to amend Sections 359, 399.4, 399.11, 399.12, 399.13, 399.15, 399.16, 399.18, 399.21, 399.30, 454.55, 454.56, 701.1, 740.8, 9505, and 9620 of, to amend and repeal Sections 337 and 352 of, to add Sections 237.5, 365.2, 366.3, 454.51, 454.52, 740.12, 9621, and 9622 to, to add Article 17 (commencing with Section 400) to Chapter 2.3 of Part 1 of Division 1 of, to add and repeal Article 5.5 (commencing with Section 359.5) of Chapter 2.3 of Part 1 of Division 1 of, and to repeal Article 5 (commencing with Section 359) of Chapter 2.3 of Part 1 of Division 1 of, the Public Utilities Code) extended the State's RPS program by requiring that publicly owned utilities procure 50 percent of their electricity from renewable energy sources by 2030. The requirements of SB 350 were expanded and intensified in 2018 through the adoption of SB 100 (An act to amend Sections 399.11, 399.15, and 399.30 of, and to add Section 454.53 to, the Public Utilities Code), which mandated that all electricity generated within the State by publicly owned utilities be generated through carbon-free sources by 2045. In addition, SB 100 increased the previous renewable energy requirement for the year 2030 by 10 percent; thus, requiring that 60 percent of electricity generated by publicly owned utilities originate from renewable sources by 2030.

SB 656

In 2003, the Legislature passed Senate Bill (SB) 656, which added to HSC Section 39614, to reduce public exposure to PM_{10} and $PM_{2.5}$ above the State CAAQS. The legislation requires the CARB, in consultation with local air pollution control and air quality management districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air districts to reduce PM_{10} and $PM_{2.5}$ emissions. The CARB list is based on California rules and regulations existing as of January 1, 2004, and was adopted by CARB in November 2004. Categories addressed by SB 656 include measures for reduction of emissions associated with residential wood combustion and outdoor greenwaste burning, fugitive dust sources such as paved and unpaved roads and construction, combustion sources such as boilers, heaters, and charbroiling, solvents and coatings, and product manufacturing. Some of the measures include, but are not limited to, the following:

- Reduce or eliminate wood-burning devices allowed;
- Prohibit residential open burning;
- Permit and provide performance standards for controlled burns;
- Require water or chemical stabilizers/dust suppressants during grading activities;
- Limit visible dust emissions beyond the project boundary during construction;
- Require paving/curbing of roadway shoulder areas; and
- Require street sweeping.

Under SB 656, each air district is required to prioritize the measures identified by CARB, based on the cost effectiveness of the measures and their effect on public health, air quality, and emission reductions. Per SB 656 requirements, the PCAPCD amended their Rule 225 related to wood-burning appliances to include conditions consistent with SB 656, including such conditions as the prohibition of the installation of any new, permanently installed, indoor or outdoor, uncontrolled wood-burning appliances.

Heavy-Duty Vehicle Idling Emission Reduction Program

On October 20, 2005, CARB approved a regulatory measure to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth equipped diesel trucks.[29] The regulation established new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. For example, the regulation requires 2008 and newer model year heavy-duty diesel engines to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling, or optionally meet a stringent NO_X emission standard. The regulation also requires operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California. Emission producing alternative technologies such as diesel-fueled auxiliary power systems and fuel-fired heaters are also required to meet emission performance requirements that ensure emissions are not exceeding the emissions of a truck engine operating at idle.

Executive Order S-03-05

On June 1, 2005, then-Governor Schwarzenegger signed Executive Order S-03-05, which established total GHG emission targets. Specifically, emissions are to be reduced to year 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts.

To comply with the Executive Order, the Secretary of the Cal-EPA created a Climate Act Team (CAT) made up of members from various State agencies and commissions. In March 2006, CAT released their first report. In addition, the CAT has released several "white papers" addressing issues pertaining to the potential impacts of climate change on California.

AB 32

In September 2006, AB 32, the California Climate Solutions Act of 2006, was enacted, which added HSC, section 38500-38599. AB 32 delegated the authority for its implementation to the CARB and directs CARB to enforce the State-wide cap. Among other requirements, AB 32 required CARB to (1) identify the State-wide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, and (2) develop and implement a Scoping Plan. Accordingly, the CARB has prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008 and updated in 2014 and 2017.[30] The following sections present further information regarding plans and programs that have been introduced in order to meet the statutory requirements of AB 32.

California Scoping Plan

The 2008 Scoping Plan identified GHG reduction measures that would be necessary to reduce statewide emissions as required by AB 32. Many of the GHG reduction measures identified in the

[29] California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. October 24, 2013. Available at: http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm. Accessed August 2016.

[30] California Air Resources Board. *AB 32 Scoping Plan*. Accessible at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed February 2018.

2008 Scoping Plan have been adopted, such as the Low Carbon Fuel Standard, Pavley, Advanced Clean Car standards, RPS, and the State's Cap-and-Trade system.

Building upon the 2008 Scoping Plan, the 2013 and 2017 Scoping Plan Updates introduced new strategies and recommendations to continue GHG emissions reductions. The 2013 Scoping Plan Update created a framework for achievement of 2020 GHG reduction goals and identified actions that may be built upon to continue GHG reductions past 2020, as required by AB 32. Following the 2013 Scoping Plan, the 2017 Scoping Plan sets a path for the achievement of California's year 2030 GHG reduction goals.

California GHG Cap-and-Trade Program

California's GHG Cap-and-Trade Program was originally envisioned in the 2008 Scoping Plan as a key strategy to achieve GHG emissions reductions mandated by AB 32. The Cap-and-Trade Program is intended to put California on the path to meet the GHG emission reduction goal of 1990 levels by the year 2020, and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors has been established and facilities or industries subject to the cap are be able to trade permits (allowances) to emit GHGs. The CARB designed the California Cap-and-Trade Program to be enforceable and to meet the requirements of AB 32.[31] The Program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions. On January 1, 2014 California linked the state's cap-and-trade plan with Quebec's, and on January 1, 2015 the program expanded to include transportation and natural gas fuel suppliers.[32] AB 398 was adopted by the State's legislature in July 2017, which reauthorized the Cap-and-Trade program through December 31, 2030. The reauthorization and continued operation of the Cap-and-Trade program represents a key strategy within the State's 2017 Scoping Plan Update for the achievement of California's year 2030 GHG reduction goals.

Executive Order S-01-07

On January 18, 2007, then-Governor Schwarzenegger signed Executive Order S-01-07, which mandates that a State-wide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020. The Order also requires that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing), off-road, heavy-duty diesel vehicles in California.[33] Such vehicles are used in construction, mining, and industrial operations. The regulation is designed to reduce harmful emissions from vehicles by subjecting fleet owners to retrofit or accelerated replacement/repower requirements, imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The idling limits require operators of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to less than five minutes. The idling requirements are specified in Title 13 of the California Code of Regulations.

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31 California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed February 2018.

32 California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed February 2018.

33 California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. Accessed August 2019.

SB 97

As amended, SB 97 (An act to add Section 21083.05 to, and to add and repeal Section 21097 of, the Public Resources Code), signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. As directed by SB 97, the OPR amended the CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in CEQA documents. The amendments included revisions to the *Appendix G Initial Study Checklist* that incorporated a new subdivision to address project-generated GHG emissions and contribution to climate change. The new subdivision emphasizes that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. Under the revised CEQA Appendix G checklist, an agency must consider whether a project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and whether a project conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing emission of GHGs.

Further guidance based on SB 97 suggests that the lead agency make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. When assessing the significance of impacts from GHG emissions on the environment, lead agencies should consider the extent to which the project may increase or reduce GHG, as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance determined applicable to the project, and/or the extent to which the project complies with adopted regulations or requirements to implement a state wide, regional, or local plan for the reduction or mitigation of GHG emissions. Feasible mitigation under SB 97 includes on-site and off-site measures, such as GHG emission-reducing design features and GHG sequestration.

AB 1007

AB 1007 added Article 6.5 (commencing with Section 43865) to Chapter 4 of Part 5 of Division 26 of the HSC. Titled the State Alternative Fuels Plan (Pavley, Chapter 371, Statutes of 2005), AB 1007 required development and adoption of a State plan to increase the use of alternative fuels. The final *State Alternative Fuels Plan* was adopted on December 5, 2007 and presented strategies and actions California must take to increase the use of alternative, non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. Examples of such strategies include establishment of government incentive programs for alternative fuels, creation of a Low Carbon Fuel Standard to reduce the carbon intensity of transportation fuels, and the allowance of GHG emissions credits to entities using alternatively fueled vehicles. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality. The Plan recommended goals for alternative fuel use as well as reductions in the carbon intensities of fuels such as gasoline and diesel, and lays a foundation for building a multi-fuel transportation energy future for California by 2050. As of 2017, decreases in the carbon intensity of conventional fuels have met or exceeded the compliance targets, and the use of alternative fuels has increased by approximately 800 million gallons of gas equivalence units.[34]

[34] California Air Resources Board. *Low Carbon Fuel Standard Data Dashboard*. Available at: https://www.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm. Accessed May 2019.

Executive Order S-13-08

Then-Governor Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order was intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

SB 375

In September 2008, SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, was enacted. The act amended Sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, and 65588 of the California Government Code, and to add Sections 14522.1, 14522.2, and 65080.01 to, the California Government Code, and to amend Section 21061.3 of, to add Section 21159.28 to, and to add Chapter 4.2 (commencing with Section 21155) to Division 13 of, the Public Resources Code, relating to environmental quality. The intent of SB 375 was to build on AB 32 by attempting to control GHG emissions by curbing sprawl. SB 375 enhances CARB's ability to reach goals set by AB 32 by directing CARB to develop regional GHG emission reduction targets to be achieved by the State's 18 metropolitan planning organizations (MPOs), including the Sacramento Area Council of Governments (SACOG). Under SB 375, MPOs must align regional transportation, housing, and land-use plans and prepare a "Sustainable Communities Strategy" (SCS) to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets. SB 375 provides incentives for creating walkable and sustainable communities and revitalizing existing communities, and allows home builders to get relief from certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Furthermore, SB 375 encourages the development of alternative transportation options, which will reduce traffic congestion.

AB 1493

California AB 1493, which amended Section 42823 of the HSC and added Section 43018.5 to the HSC, known as Pavley I, was enacted on July 22, 2002. AB 1493 requires that the CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state." On June 30, 2009, the USEPA granted a waiver of CAA preemption to California for the State's GHG emission standards for motor vehicles, beginning with the 2009 model year. Pursuant to the CAA, the waiver allowed for the State to have special authority to enact stricter air pollution standards for motor vehicles than the federal government. On September 24, 2009, the CARB adopted amendments to the Pavley regulations (Pavley I) that reduce GHG emissions in new passenger vehicles from 2009

through 2016. The second phase of the Pavley regulations (Pavley II) affected model year vehicles from 2016 through 2020, and was implemented under a 2013 waiver granted by the USEPA. The CARB estimated that the regulation would reduce GHG emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

However, on September 19, 2019, the federal government revoked the 2013 waiver. In addition, the federal government is anticipated to roll back the previously instated fuel economy standards, which would have the effect of freezing fuel economy standards at 2020 levels. In response to the September 19th actions, 22 states, the District of Columbia, and two cities filed suit in the US District Court for the District of Columbia requesting the court grant permanent injunctive relief by declaring the preemption portion of the final rule unlawful. At the time of preparation of this environmental analysis, the fate of that injunctive relief and the judicial proceedings had not yet been determined.

AB 197 and Senate Bill 32

On September 8, 2016, AB 197 and SB 32 were enacted with the goal of providing further control over GHG emissions in the State. SB 32 added Section 38566 to the HSC, while AB 197 added Article 7.6, commencing with Section 9147.10 to Chapter 1.5 of Part 1 of Division 2 of title 2 of the California Government Code, amended Sections 39510-39607 of the HSC, and added Sections 38506, 38531, 38562.5, and 38562.7 to the HSC. SB 32 built on previous GHG reduction goals by requiring that the CARB ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by the year 2030. Additionally, SB 32 emphasized the critical role that reducing GHG emissions would play in protecting disadvantaged communities and the public health from adverse impacts of climate change. Enactment of SB 32 was predicated on the enactment of AB 197, which seeks to make the achievement of SB 32's mandated GHG emission reductions more transparent to the public and responsive to the Legislature. Transparency to the public is achieved by AB 197 through the publication of an online inventory of GHG and TAC emissions from facilities required to report such emissions pursuant to Section 38530 of California's Health and Safety Code. AB 197 further established a six-member Joint Legislative Committee on Climate Change Policies, which is intended to provide oversight and accountability of the CARB, while also adding two new legislatively-appointed, non-voting members to the CARB. Additionally, AB 197 directs the CARB to consider the "social costs" of emission reduction rules and regulations, with particular focus on how such measures may impact disadvantaged communities.

Executive Order B-55-18

On September 10, 2018, then-Governor Brown established a statewide goal of carbon neutrality as soon as possible, and no later than 2045. Following achievement of carbon neutrality, net negative emissions should be pursued as the new emissions goal. The executive order directed the CARB to work with relevant state agencies to develop frameworks for implementation and tracking of the new goal, and further directed the CARB to support the carbon neutrality goal through future updates to the State Scoping Plan.

California Energy Commission (CEC)

The CEC is the State's primary energy policy and planning agency. Created by the Legislature in 1974, the Commission has seven major responsibilities: forecasting future energy needs; promoting energy efficiency and conservation by setting the State's appliance and building energy efficiency standards; supporting energy research that advances energy science and technology through research, development, and demonstration projects; developing renewable energy

resources; advancing alternative and renewable transportation fuels and technologies; certifying thermal power plants 50 MW and larger; and planning for and directing State response to energy emergencies.[35]

California Public Utilities Commission

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The CPUC is responsible for ensuring that customers have safe, reliable utility service and infrastructure at reasonable rates, regulating utility services, stimulating innovation, and promoting competitive markets.[36]

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

YSAQMD

Various local, regional, State and federal agencies share the responsibility for air quality management in Yolo County. The YSAQMD operates at the local level with primary responsibility for attaining and maintaining the federal and State AAQS in Yolo County. The YSAQMD is tasked with implementing programs and regulations required by the FCAA and the CCAA, including preparing plans to attain federal and State AAQS. The YSAQMD works jointly with the USEPA, CARB, SACOG, other air districts in the region, county and city transportation and planning departments, and various non-governmental organizations to improve air quality through a variety of programs. Programs include the adoption of regulations, policies and guidance, extensive education and public outreach programs, as well as emission reducing incentive programs.

YSAQMD CEQA Guidance

Nearly all development and mining projects in the region have the potential to generate air pollutants that may increase the difficulty of attaining federal and State AAQS. Therefore, for most projects, evaluation of air quality impacts is required to comply with CEQA. In order to help public agencies evaluate air quality impacts, the YSAQMD has developed the *Handbook for Assessing and Mitigating Air Quality Impacts*.[37] The YSAQMD's handbook includes screening methodology and recommended thresholds of significance, including mass emission thresholds for construction-related and operational criteria pollutants. Although the YSAQMD's handbook includes emissions thresholds and analysis methodology for criteria pollutants, the YSAQMD has not yet established or adopted methodology or thresholds for the assessment of impacts related to GHG emissions. In the absence of District-adopted methodology or thresholds for assessing GHG emissions, the YSAQMD is currently recommending GHG analysis consistent with the Sacramento Metropolitan Air Quality Management District (SMAQMD) adopted thresholds of significance.

YSAQMD Rules and Regulations

All projects under the jurisdiction of the YSAQMD are required to comply with all applicable YSAQMD rules and regulations. In addition, YSAQMD permit requirements apply to most

[35] California Energy Commission. *About the California Energy Commission*. Available at: http://www.energy.ca.gov/commission/index.html. Accessed June 2020.
[36] California Public Utilities Commission. *California Public Utilities Commission*. Available at: http://www.cpuc.ca.gov/puc/. Accessed June 2020.
[37] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts*. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

industrial processes (e.g., manufacturing facilities, food processing), many commercial activities (e.g., print shops, drycleaners, gasoline stations), and other miscellaneous activities (e.g., demolition of buildings containing asbestos and aeration of contaminated soils). The YSAQMD regulations and rules include, but are not limited to, the following:

Regulation II – Prohibition, Exceptions - Requirements

Regulation II is comprised of prohibitory rules that are written to achieve emission reductions from specific source categories. The rules are applicable to existing sources as well as new sources. Examples of prohibitory rules include Rule 2.1 (Control of Emissions), Rule 2.28 (Cutback and Emulsified Asphalts), Rule 2.5 (Nuisance), Rule 2.11 (Particulate Matter Concentration), Rule 2.14 (Architectural Coatings), and Rule 2.40 (Wood Burning Appliances). Considering the relevance of Rule 2.5 and Rule 2.11 to the proposed activities, both rules are discussed in further depth below.

Rule 2.5 – Nuisance

Rule 2.5 prohibits the discharge of sufficient quantities of air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. The rule further protects the public from being subject to air contaminants and other materials that could endanger the comfort, repose, health, or safety of any persons, or could damage business or property.

Rule 2.11 – Particulate Matter Concentration

Rule 2.11 is intended to protect the ambient air quality within the YSAQMD's jurisdiction by establishing a standard for PM emissions. Per the definitions of Rule 2.11, PM is defined as any material that is emitted as a liquid or solid particles, or gaseous materials that becomes liquid or solid particles when collected at standard conditions. PM meeting the foregoing definition, shall not be released from any single source operation, dust, fumes, or other total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions.

Regulations III – Permit System

Regulation III is intended to provide an orderly procedure for the review of new sources, and modification and operation of existing sources, of air pollution through the issuance of permits. Regulation III primarily deals with permitting major emission sources and includes, but is not limited to, rules such as General Permit Requirements (Rule 3.1), Exemptions (Rule 3.2), Portable Equipment (Rule 3.3), New Source Review (Rule 3.4), Emission Reduction Credits (Rule 3.5), Emission Statements (Rule 3.7), and Toxics New Source Review (Rule 3.13).

Air Quality Attainment Plans

Each of the attainment plans currently in effect for the SVAB are discussed in further detail below.

2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan[38]

The most recent attainment plan for the ozone NAAQS is the *2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2013 Ozone Attainment Plan), which demonstrates how existing and new control strategies would provide the

[38] Sacramento Metropolitan Air Quality Management District. *2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan.* September 26, 2013.

necessary future emission reductions to meet the federal NAAQS. The SVAB's attainment deadline is 2027. Because the proposed project is located within the nonattainment area for ozone, the project would be subject to the requirements set forth in the 2013 Ozone Attainment Plan, as enforced by YSAQMD through rules and regulations.

$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area[39]

The Sacramento federal $PM_{2.5}$ Nonattainment Area attained the federal $PM_{2.5}$ health standards on December 31, 2011. The *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area* ($PM_{2.5}$ Implementation/Maintenance Plan) was prepared to show that the region has met the requirements and requests that the USEPA re-designate the area to attainment. The USEPA issued a final rule for Determination of Attainment for the Sacramento Nonattainment Area effective August 14, 2013. The $PM_{2.5}$ Implementation/Maintenance Plan would be adopted by the air districts within the nonattainment area, as well as the CARB, as a revision to the SIP. Contents of the $PM_{2.5}$ Implementation/Maintenance Plan include demonstration that the NAAQS was met and that all requirements have been met for a re-designation to attainment, specification of actions to be taken if the standards are violated in the future, and establishment of regional motor vehicle emission budgets.

Because the proposed project is located within the nonattainment area for $PM_{2.5}$, the project would be subject to the requirements set forth in the $PM_{2.5}$ Implementation/Maintenance Plan, as enforced by YSAQMD through rules and regulations.

2016 Triennial Assessment and Plan Update

In addition to the federal attainment plans discussed above for meeting NAAQS, the CCAA requires air districts to endeavor to achieve and maintain the CAAQS and develop plans for attainment. Yolo County meets the CAAQS for sulfur dioxide, nitrogen dioxide, and carbon monoxide, but is designated nonattainment for the State ozone and particulate matter standards. The CCAA requires districts that do not meet the State ozone standard to adopt an Air Quality Attainment Plan and to submit progress reports to the CARB every three years.[40] In July 2016, the YSAQMD adopted the 2016 Triennial Assessment and Plan Update.[41] The 2016 Triennial Assessment and Plan Update analyzes and summarizes data from the years 2012 through 2014, while also forecasting future emissions and reviewing efforts made by YSAQMD to improve air quality.

The YSAQMD is not required to prepare an attainment plan for PM_{10} or $PM_{2.5}$; however, the YSAQMD continues to work to reduce particulate emissions through rules affecting stationary sources, the construction industry, and the YSAQMD's agricultural burning program. The YSAQMD also works with the CARB to identify measures that can, where possible, reduce both ozone and particulate emissions. The YSAQMD has been proactive in attempts to implement the most readily available, feasible, and cost-effective measures that can be employed to reduce emissions of PM.

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39 Sacramento Metropolitan Air Quality Management District. *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area.* October 24, 2013.

40 Yolo-Solano Air Quality Management District. *State Standards and Planning*. Available at: http://www.ysaqmd.org/planning/state.php. Accessed November 2016.

41 Yolo-Solano Air Quality Management District. *Triennial Assessment and Plan Update*. April 2013. Available at: https://www.ysaqmd.org/plans-data/attainment/state. Accessed November 2016.

Because the proposed project is located within the nonattainment area for State ozone and PM standards, the project would be subject to any requirements set forth in the 2016 Triennial Assessment and Plan Update or YSAQMD efforts related to PM emissions, as enforced by YSAQMD through rules and regulations.

Yolo County General Plan

The following goals and policies related to air quality are from the Yolo County General Plan:

Policy CI-4.4 Support and encourage low emission or non-polluting forms of transportation.

Goal ED-5.4 Economic Sustainability. Support sustainable economic development. Encourage local industry to adapt to the expected effects of climate change and minimize greenhouse gases and other emissions.

Policy ED-5.4 Encourage businesses to exceed clean air standards, whenever possible.

Policy CO-6.6 Encourage implementation of YSAQMD Best Management Practices, such as those listed below, to reduce emissions and control dust during construction activities:

- Water all active construction areas at least twice daily.
- Haul trucks shall maintain at least two feet of freeboard.
- Cover all trucks hauling soil, sand, and other loose materials.
- Apply non-toxic binders (e.g. latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles
- Sweep streets if visible soil material is carried out from the construction site
- Treat accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips or mulch.
- Treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.

Goal CO-8 Climate Change. Reduce greenhouse gas emissions and plan for adaptation to the future consequences of global climate change.

Policy CO-8.2 Use the development review process to achieve measurable reductions in greenhouse gas emissions.

Policy CO-8.4 Encourage all businesses to take the following actions, where feasible: replace high mileage fleet vehicles with hybrid and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emissions reductions and reusable materials; and increase recycling.

Policy CO-8.5 Promote GHG emission reductions by supporting carbon efficient farming methods (e.g. methane capture systems, no-till farming, crop rotation, cover cropping); installation of renewable energy technologies; protection of grasslands, open space, oak woodlands, riparian forest and farmlands from conversion to other uses; and development of energy-efficient structures.

Yolo County OCSMO

Section 10-4.407 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding material conveyor systems:

> Section 10-4.407. Conveyor Systems
> Wherever practical and economically feasible, portable or movable conveyor systems shall be used to transport raw materials and overburden.

Section 10-4.414 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding dust control:

> Section 10-4.414. Dust Control
> Unless superseded by newer more effective standards, the following measures shall be implemented in order to control fugitive dust:
> (a) All stockpiled soils shall be enclosed, covered, or have sufficient moisture to control fugitive dust at all times. Inactive soil stockpiles should be vegetated or adequately watered to create an erosion-resistant outer crust.
> (b) During operating hours, all disturbed soil and unpaved roads shall be adequately watered to keep soil moist.
> (c) All disturbed but inactive portions of the site shall either be seeded or watered until vegetation is grown or shall be stabilized using methods such as chemical soil binders, jute netting, or other Yolo-Solano Air Quality Management District approved methods.

Section 10-4.415 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding equipment maintenance:

> Section 10-4.415. Equipment Maintenance
> All internal combustion engine driven equipment and vehicles shall be kept tuned according to the manufacturer's specifications and properly maintained to minimize the leakage of oils and fuel. No vehicles or equipment shall be left idling for a period of longer than is required by law, recommended by the Air District, or ten (10) minutes, whichever is shorter.
>
> Fueling and maintenance activities of heavy equipment (except draglines and floating suction dredges) are prohibited within one-hundred (100) feet of open bodies of water during mining and

reclamation. All Storm Water Pollution Prevention Plans shall include provisions for releases of fuels during fueling activities for draglines and floating suction dredges.

Section 10-4.429 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding setbacks from various uses, including residences:

> Section 10-4.429. Setbacks.
> All off-channel surface mining operations shall comply with the following setbacks:
> (a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented.

Section 10-4.414 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding soil stockpiles and erosion control, which relates to windborne erosion:

> Section 10-4.433. Soil stockpiles.
> Topsoil, subsoil, and subgrade materials in stockpiles shall not exceed forty (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles, other than aggregate stockpiles, shall be seeded with a native vegetative cover to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Director.
>
> Slopes on stockpiled soils shall be graded to 2:1 (horizontal:vertical) for long-term storage to prevent use by bank swallows. At no time during the active breeding season (May 1 through July 31) shall slopes on stockpiles exceed a slope of 1:1, even on a temporary basis. Stockpiles shall be graded to a minimum 1:1 slope at the end of each work day where stockpiles have been disturbed during the active breeding season.

Yolo County Climate Action Plan

To fulfill General Plan Action CO-A117, Yolo County prepared a Climate Action Plan (CAP) in 2011. The County's CAP includes an inventory of GHG emissions from unincorporated areas in the County during the years 1990 and 2008 as well as projections of emissions for the years 2020, 2030, 2040, and 2050. With regard to the emissions inventory, the sectors of energy, transportation, agriculture, solid waste, stationary sources, wastewater treatment, as well as construction and mining. Emissions projections for future years were limited to those sources over which the County maintains jurisdiction; thus, the sectors of mining and construction equipment, as well as stationary sources, were excluded from emissions projections.[42] Due to the exclusion of the foregoing sectors, the County's CAP did not include reduction measures specifically related to mining or mining equipment; rather the County relied on State imposed measures for that sector given state authority. These are discussed further below. Although the County's CAP did not include measures specifically related to construction or mining equipment, the County's CAP does contain measures that would affect GHG emissions related to energy generation and consumption throughout the County as well as measures related to reducing emissions from agricultural activities.

With regard to energy resources, Measure E-1 of the County's CAP directs the County to establish a Community Choice Aggregation (CCA) Program. The benefits of a CCA, as articulated in Measure E-1, are local control over the energy sources used by a community, the ability to provide customers with lower cost electricity, and an increased use of renewable energy for electricity

[42] Yolo County. *Yolo County Climate Action Plan: A Strategy for Smart Growth Implementation, Greenhouse Gas Reduction, and Adaptation to Global Climate Change* [pgs. 14-15]. March 15, 2011.

production. In fulfillment of Measure E-1, the County, together with several of its cities, has established the VCE, which has begun providing electricity to customers within unincorporated portions of Yolo County. While Teichert's existing electricity demand at the Woodland Plant is met through Direct Access Providers, the remaining electricity demand, principally the electricity consumed at the Esparto Plant, is provided by VCE.

Following the proposed reclamation of the Shifler project site, agricultural activities would be anticipated to resume within the site. The County's CAP includes six specific measures, as well as multiple supporting measures to reduce direct emissions from agricultural activities within the County and increase carbon sequestration. Implementation of the County's CAP measures during future agricultural activity within the Shifler site would contribute to the GHG emissions reductions identified within the County's CAP.

The County's CAP acknowledges that even in the sectors where the County does not have direct control, such as emissions from construction and mining equipment, actions of other entities would contribute to GHG emissions reductions. For instance, the County's CAP notes that YSAQMD has jurisdiction over stationary-sources, and YSAQMD is charged with implementing statewide emissions reductions programs including those programs intended to reduce GHG emissions. Furthermore, CARB has implemented various rules and regulations, such as the Heavy-Duty Vehicle Idling Emission Reduction Program and the In-Use Off-Road Diesel Vehicle Regulation, which would result in reductions of criteria pollutant emissions as well as GHG emissions. Compliance with the rules and regulations implemented by YSAQMD and the CARB would contribute to emissions reductions that would aid attainment of the GHG reductions goals presented in the County's CAP.

4.3.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to air quality, GHG emissions, and energy. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, applicable policies and regulations of Yolo County, and recommendations of YSAQMD. An air quality, GHG emission, or energy impact is considered significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;

- Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to air quality, GHG emissions, or energy.

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) did not identify any impacts to be less than significant.

Criteria Pollutant Emissions and TAC Emissions

In order to evaluate air pollutant emissions from development projects, the YSAQMD has established significance thresholds for emissions of ROG, NO_X, and PM_{10}. Table 4.3-8 below presents the YSAQMD's recommended thresholds of significance, which are expressed in tons/yr for ROG and NO_X and pounds per day (lbs/day) for PM_{10}. If net emissions from the proposed project would exceed the pollutant thresholds presented in Table 4.3-8, the project could have a significant effect on air quality, the attainment of federal and State AAQS, and could conflict with or obstruct implementation of the applicable air quality plan.

Table 4.3-8
YSAQMD Thresholds of Significance

Pollutant	Construction Threshold	Operational / Cumulative Threshold
ROG	10 tons/yr	10 tons/yr
NO_X	10 tons/yr	10 tons/yr
PM_{10}	80 lbs/day	80 lbs/day

Source: YSAQMD. Handbook for Assessing and Mitigating Air Quality Impacts. July 11, 2007.

In addition to the thresholds of significance presented above for criteria air pollutants, YSAQMD has also developed thresholds for potential exposure of the public to TACs from new stationary sources. Exposure of the public to TACs from new stationary sources in excess of the following thresholds would be considered a significant impact:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) equals to 10 in one million or more; and
- Ground-level concentrations of non-carcinogenic TACs would result in a Hazard Index equal to 1 for the MEI or greater.

The nearby SMAQMD and Bay Area Air Quality Management District (BAAQMD) also recommend the industry standard thresholds of an increased cancer risk of 10 in one million and a Hazard Index greater than 1 for project-level TAC impacts from stationary sources. Although the YSAQMD has established thresholds for exposure to TACs from new stationary sources, a threshold for exposure of the public to mobile TAC emissions does not currently exist. In the absence of a specified threshold for assessing impacts of mobile sources of TACs on a sensitive land use, the industry standard is to use the stationary source threshold of an increase in cancer risks of 10 in one million and a Hazard Index greater than 1, which is the standard that has been used throughout the State for similar health risk analyses. Off-road mining equipment and haul trucks would be considered a potential mobile source of TAC emissions. Accordingly, this analysis utilizes the YSAQMD stationary source TAC emissions thresholds listed above for the purposes

of determining cancer risk of exposing sensitive receptors and other sensitive land uses to construction-related mobile source TAC emissions.

The YSAQMD recommends the use of screening thresholds to assess a project's potential to create an impact through the creation of CO hotspots. A violation of the CO standard could occur if either of the following criteria is true of any street or intersection affected by the mitigated project:[43]

- The project would reduce peak-hour level of service (LOS) on one or more streets or at one or more intersections to an unacceptable LOS (typically LOS E or F); or
- The project would increase a traffic delay by 10 or more seconds on one or more streets or at one or more intersections in the project vicinity where a peak hour LOS of F currently exists.

If either or both of the above criteria are met by the mitigated project, YSAQMD recommends performing a full CO Protocol Analysis. If the results of the CO Protocol Analysis indicate a potential impact related to CO could occur, such as in instances where a project would worsen operations at a signalized intersection operating at LOS E or LOS F, YSAQMD directs Lead Agencies to perform CO dispersion modeling analysis using a modeling program such as CALINE-4. The CALINE-4 dispersion model can estimate local CO concentrations at intersections based on traffic estimates and lane configurations. Once the CO concentrations at affected intersections are estimated, the CO concentration must then be compared to the one hour and eight-hour AAQS for CO. If the local CO concentration estimated using CALINE-4 exceeds either the one or eight-hour AAQS for the affected intersection, then a significant impact would result; however, if the localized CO concentrations are shown to be below the applicable AAQS, the project would not result in an impact related to localized CO concentrations.

GHG Emissions

The YSAQMD, in their *Handbook for Assessing and Mitigating Air Quality Impacts*, acknowledges that new emissions generated by development projects could potentially conflict with existing GHG emissions reductions targets, and thus, a need for development of GHG emissions thresholds exists. However, the YSAQMD has not yet established or adopted any such thresholds. The YSAQMD is currently recommending GHG analysis consistent with SMAQMD's adopted thresholds of significance. While SMAQMD recognizes that emissions from a single project cannot be determined to substantially impact overall GHG emissions levels in the atmosphere, an emissions threshold is useful to trigger further project review and assess mitigation. As such, SMAQMD designed emissions thresholds to ensure that 90 percent of new GHG emissions related to land use projects and new stationary sources would be reviewed and assessed for mitigation. Thus, projects exceeding SMAQMD's thresholds would constitute the vast majority of GHG emissions, and exceedance of the thresholds would allow for further project review contributing to the emissions reductions goals of AB 32, SB 32, the Scoping Plan, and relevant Executive Orders. SMAQMD has established a GHG emissions threshold for both construction and operations of stationary sources of 10,000 $MTCO_2e$/yr, and construction of land use projects of 1,100 $MTCO_2e$/yr.

Considering the nature of the proposed relocation of Moore Canal and modification of Magnolia Canal, the SMAQMD threshold of 1,100 $MTCO_2e$/yr for construction phases of proposed project

[43] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts* [p. 21]. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

is appropriate for use in analyzing the emissions that would result from the relocation of Moore Canal and modification of Magnolia Canal.

Whereas SMAQMD's stationary source threshold is typically applied to non-mobile pieces of equipment such as an emergency generator or industrial boiler, the proposed project involves a variety of sources of GHG emissions including mobile sources. Thus, SMAQMD's 10,000 $MTCO_2e$/yr is not considered applicable to the proposed project. In the absence of YSAQMD adopted thresholds or SMAQMD thresholds appropriate for mining activities, the recently Certified CCAP Update FEIR was consulted to determine the appropriate threshold of significance for use in analyzing potential impacts from the proposed project. The CCAP Update FEIR conservatively considered any net increase in GHG emissions occurring as a result of the CCAP to constitute a significant impact. Consequently, if the project would result in a net increase in GHG emissions as compared to the environmental baseline conditions, the proposed project would be considered to result in a significant impact. A no net increase approach to emissions analysis, similar to the approach applied in the CCAP Update EIR, has previously been taken with regard to other proposed mining an reclamation activities within the County, for instance in the EIR prepared for the Granite Esparto Mining and Reclamation Project.[44]

Energy

Because quantitative thresholds for the analysis of energy related impacts have not been adopted by the County or any other local, regional, or statewide agency, the analysis of potential impacts related to energy that is presented in this EIR is primarily qualitative. Nevertheless, where estimates of existing and future energy demand exist, the quantified level of energy demand is presented and analyzed within this EIR.

Method of Analysis

The analysis protocol and guidance provided by the YSAQMD's *Handbook for Assessing and Mitigating Air Quality Impacts* was used to analyze the air quality impacts of the proposed project, including screening criteria and pollutant thresholds of significance. Details regarding the methodology and assumptions used for the analysis are provided below.

For the purposes of analyzing air quality and energy impacts, the key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project. In addition to the foregoing components of the project, for the purposes of analyzing air quality, GHG emissions, and energy, it is also necessary to consider several other factors. Specifically, the Shifler project site is currently used for agricultural production and agricultural production would continue to occur in a phased manner during mining, and would resume on portions of the site following mining and reclamation. In addition to the on-going and phased agricultural activity on-site, consideration of Teichert's existing mining and processing activity within the CCAP area is warranted. As noted above, the project would include transferring

[44] Yolo County. *Granite Esparto Mining and Reclamation Project Final Environmental Impact Report. SCH# 2009022033*. October 25, 2010.

tonnage from the Teichert Esparto and Teichert Schwarzgruber sites to the Teichert Woodland Plant and Shifler site.

The analysis presented within this chapter seeks to incorporate consideration of all of the foregoing project-related activities and existing conditions to represent a comprehensive approach to analysis. Thus, existing emissions and energy demand from on-site agricultural activities, as well as operations at Teichert Esparto, the Teichert Woodland Plant, and Schwarzgruber are considered to comprise the environmental baseline for analysis. This environmental baseline is used as a whole or in part for the analysis (as described below) of criteria pollutant emissions, TAC emissions, GHG emissions, and energy consumption. Emissions and energy use from implementation of the proposed project would replace emissions and energy use at Teichert Esparto and Teichert Schwarzgruber, and a portion of the emissions associated with agricultural activity within the project site. To represent a worst-case approach to emissions analysis, emissions from project operations were quantified for the most intensive phase of on-site mining activity, which was assumed to include disturbance of the entire site either for mining or reclamation activities. Emissions from the most intensive phase of construction were then compared to the environmental baseline conditions to determine what the net change would be in emissions and energy demand as a result of the project. In practice, the most intensive phase of on-site mining activity would occur for only a portion of the life of the project, while other phases of the project would include reclamation, agricultural production, and future parkway and passive open space uses on portions of the project site, which are generally less emissions intensive activities when compared to mining. Consequently, the majority of the emissions and energy demand figures presented within this chapter represent the most-intensive period of project activity.

Details regarding the methods used to quantify existing and proposed emissions, energy demand, and potential health risks are presented below. Accordingly, emissions related to relocation of the canal could occur simultaneous to emissions related to on-site mining.

Relocation of Moore Canal and Modification of Magnolia Canal

The project proposes relocation of Moore Canal and modification of Magnolia Canal, which would require short-term, construction activities. Emissions from such activities were quantified using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software, which is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the ITE Manual, vehicle mix, trip length, average speed, etc. Assumptions regarding the construction activity related to the relocation of Moore Canal were provided to ESA by the project applicant. In particular, construction activities were anticipated to occur over two weeks, and an equipment mix of two-633 Scrapers, a D8 Dozer, a Water Truck, and a Blade 14H with a total of 45 hours usage per piece of equipment was assumed. The anticipated construction activity has not changed since the preparation of the analysis by ESA, but CalEEMod has been updated. Consequently, the construction emissions modeling was updated with the most recent version of CalEEMod, using the same assumptions as previously applied by ESA. Considering the existing and proposed alignments of Moore Canal and Magnolia Canal, the majority of the work would be associated with relocation of Moore Canal, while Magnolia Canal would only need limited amounts of construction-type work to create the new point of connection. Due to the scope of work proposed, the equipment used for work on Moore Canal would also be used for work on Magnolia



Canal, and modification of Magnolia Canal would represent a relatively limited amount of the overall short-term related emissions.

Mining of the project site would commence in the northwest corner of the site. Relocation of the canal would occur prior to the commencement of mining within 50 feet of the canal.

Operational Emissions

Operation of the proposed project was assumed to consist of mining and subsequent throughput at the maximum requested annual amount of 2.6-million tons mined at the Shifler project site and processed with 2.2-million tons of aggregate sold at the Woodland Plant. The baseline conditions for the project were formed by combining the actual mined tonnage from both plants and averaging the sum for a period of 10 years. The average combined throughput over the 10-year averaging at the Esparto and Woodland plants equated to approximately 1,137,265 tons of aggregate mining and throughput. With implementation of the proposed project, mining and throughput operations from the Esparto Plant would be transferred to the project site. In addition to existing emissions from the Esparto and Woodland plants as well as emissions from existing mining activity at the Esparto and Schwarzgruber mining sites, the Shifler site is currently used for agricultural purposes, which is also a source of emissions, primarily related to the operation of agricultural equipment. Because emissions are currently released at the Shifler site, as well as the Esparto and Woodland plants and the Esparto and Schwarzgruber mines, the environmental baseline conditions for analysis in this EIR include existing emissions levels from all of the foregoing sources. Consequently, the focus of the analysis presented in this EIR is the net emissions resulting from implementation of the proposed project (i.e., project emissions minus existing emissions). The proposed project would be considered to result in a significant impact if net emissions resulting from project implementation would exceed the applicable thresholds of significance.

Information pertaining to existing operations at the Esparto and Woodland plants was provided to ESA and Raney by the project applicant. The results of the net operational emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. All modeling results are included in Appendix D to this EIR.

The last step in operations at all sites would be reclamation. While the purpose of reclamation is to return the mined sites to a state that can be used for other purposes, for instance as habitat, open water lake, passive recreation, or agricultural, the process of reclaimation involves similar emissions sources as excavation. For instance, off-road equipment would be used to establish proper slopes on the site and to grade portions of the site as needed. The use of off-road equipment for the aforementioned purposes would be similar to the use of equipment and trucks for other phases of project operations. In general, however, the reclamation activity would be less intense than the mining activity, and would require fewer pieces of equipment (for example, crushing and sorting equipment would no longer be needed during reclamation). The emissions analysis prepared for this EIR provides estimates of the worst-case, maximum annual and daily emissions that would result from implementation of the project and average existing baseline operations. Because reclamation activity would be less intense than the proposed and existing mining activity, actual emissions related to reclamation of the project site would be expected to be less than the maximum annual and daily emissions assumed for the analysis presented within this EIR. Post-reclamation recreation, parkway, and passive open space uses on the site would also be less intense than mining and reclamation activities.

The proposed project would reclaim 116.7 acres within the project site to agricultural uses. Ongoing agricultural uses after completion of reclamation would continue to generate emissions. However, the total amount of reclaimed agriculture would be smaller than what currently occurs on-site. In addition, the reclaimed open water lake and surrounding habitat, as well as the Shifler In-Channel property, reclaimed Schwarzgruber property, and reclaimed Woodland Plant site, would be dedicated to the County for public recreation and passive open space uses. Generally, public recreation and passive open space uses would result in emissions equal to or less than agricultural production. Thus, after reclamation is complete, emissions would be reduced relative to existing conditions.

Operational emissions from the existing Esparto and Woodland plants, the Esparto and Schwarzgruber mines, as well as existing on-site agricultural activities and the proposed project would originate from various sources. For the purposes of this analysis, major sources of operational emissions were considered to be off-road equipment related to mining activities (e.g., excavators, haul trucks, etc.), on-road haul trucks, existing agricultural activities at the Shifler site, and fugitive dust emissions from grading, material processing, and travel over unpaved and paved roads. Emissions related to the use of off-road equipment at the existing Esparto and Woodland mines and plants as well as in relation to the proposed project were calculated using the Version 8.0 of the SMAQMD's Construction Mitigation Tool.[45] Emissions from on-road haul trucks at the Esparto and Woodland plants as well as in relation to the proposed project were calculated using the CARB's Mobile Emission Factor (EMFAC) 2017 Model.[46] Emissions related to existing agricultural operations at the project site were modeled by ESA using the CARB's OFFROAD 2007 emissions model.[47] The US EPA's AP-42 emission factors were used to estimate the amount of dust released from travel over unpaved and paved roads.[48] While dust released from mining activity was calculated based on emissions factors contained within the Final EIR prepared for the CCAP.[49] Emissions related to energy consumption at the Esparto Plant were calculated based on VCE emission factors.[50]

Electricity at the Woodland Plant is purchased through a Direct Access Purchaser. Direct Access Purchasers acquire electricity from Electric Service Providers registered with the California Public Utilities Commission. Unlike with investor-owned utilities information related to the exact source of electricity from Electric Service Providers is not readily available. Nevertheless, Direct Access Purchasers are required to meet state mandated RPS. As such, at least 33 percent of the electricity purchased by Teichert in the year 2020 must come from renewable sources, with the required percentage increasing beyond 2030, in which year a total of 60 percent of electricity must be purchased from renewable sources. Although the proportion of renewable energy sources

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45 Sacramento Metropolitan Air Quality Management District and Ramboll Environ. *Construction Mitigation Tool Version 8.0.* April 2018.

46 California Air Resources Board. *EMFAC 2017 Web Database Version 1.0.2*. Available at: https://www.arb.ca.gov/emfac/2017/?_ga=2.255973128.2097862100.1570128607-371863815.1546447283. Accessed August 2019.

47 California Air Resource Board. *MSEI – Documentation – OFFROAD – Diesel Equipment*. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad-0. Accessed August 2019.

48 U.S. Environmental Protection Agency. *Air Emissions Factors and Quantification; AP-42: Compilation of Air Emissions Factors*. Available at: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors#Proposed/. Accessed August 2019.

49 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

50 Parks, Jim, Director, Customer Care and Marketing, Valley Clean Energy. Personal communication [email] with Jacob Byrne, Senior Associate/Air Quality Technician, Raney Planning and Management, Inc. June 22, 2020.

required to be included in the electricity purchased by Teichert through the Direct Access Purchasers is known, the exact method of generating the required 33 percent renewable electricity or remaining 67 percent of electricity demand is not known. That is, the renewable electricity could be generated by wind, geothermal, solar, or qualifying hydro-electric, while the remaining 67 percent of electricity provided to the Woodland Plant may be generated by any available source of electricity, whether renewable or non-renewable. Potential sources of non-renewable electricity include coal, natural gas, oil, and nuclear power. The importance of the method used to generate electricity consumed at the Woodland Plant is that the generation of electricity from non-renewable sources (excluding nuclear power), releases GHGs. Thus, the exact breakdown of electricity sources providing electricity to the project site is necessary to quantifying the level of GHG emissions attributable to operations at the Woodland Plant.

Based on the above, without detailed information related to the exact breakdown of electricity generation sources used by the Direct Access Provider for the Woodland Plant, a project-specific emissions factor for each unit of electricity consumed on-site cannot be determined with certainty. In the absence of a project-specific emissions factor, several sources of data were consulted to determine an applicable emission factor. The U.S. Energy information Administration (EIA) publishes data related to electricity generation and emission in each state. For California, the EIA reports that in 2018, the most recent year for which data is available, electricity production in the state resulted in average emission of 491 pounds of CO_2 per megawatt hour (lbs CO_2/MWh). During 2018, the emissions rate per unit of electricity provided by PG&E was below the statewide average, resulting in approximately 349 lbs CO_2/MWh.[51] Another nearby utility provider, the Sacramento Metropolitan Utility District (SMUD) reported that in 2016, the most recent year for which data was readily available, SMUD's emission rate was 492.91 lbs CO_2/MWh.[52] Reductions in energy emission intensity beyond the foregoing levels are possible and have been demonstrated by VCE, which generated electricity at an emission factor of 144 lbs CO_2/MWh in the year 2018 and 224 lbs CO_2/MWh in the year 2019.[53] Comparing the statewide average emissions intensity per unit of electricity to the emissions intensities of local utilities is informative because it demonstrates the emission rate at which local utility providers are able to provide electricity to customers in the vicinity of the project site and the state as a whole. Considering that local utility companies have produced electricity with an emission factor similar to or less than the statewide average, it can be assumed that electricity provided to the Woodland Plant by the Direct Access Provider would achieve the emissions levels equivalent to the statewide average. Although the statewide average emission rate per unit of electricity has probably decreased from the 2018 level of 491 lbs CO_2/MWh, and would continue to decline into the future due to mandated compliance with the RPS, for the purposes of this analysis, electricity provided to the Woodland Plant is assumed to be produced with an emission rate equal to the statewide average in the year 2018 making it a more conservative analysis.

As noted in the Regulatory Context section above, the federal government has recently limited California's ability to establish limitations on vehicle fuel economy standards, and is anticipated to roll back previously adopted fuel economy standards for passenger vehicles. The CARB's EMFAC emissions model is predicated on California's ability to set fuel economy standards, and those standards that were previously adopted by the federal government. Thus, the federal

[51] Bruso, Xantha, Pacific Gas & Electric Company. *Greenhouse Gas Emission Factors Info Sheet*. Last Updated April 8, 2011.

[52] Woodard, Brittany, Sacramento Metropolitan Utility District. Personal communication [email] with Jacob Byrne, Senior Associate/Air Quality Technician, Raney Planning and Management. June 12, 2018.

[53] Parks, Jim, Director, Customer Care and Marketing, Valley Clean Energy. Personal communication [email] with Jacob Byrne, Senior Associate/Air Quality Technician, Raney Planning and Management. June 22, 2020.

government's recent actions to limit California's ability to establish limitations on vehicle fuel economy standards could result in a need to update the fuel economy standards used in the EMFAC model. The EMFAC model allows users to estimate emissions from historic, current, and future vehicle fleets in California. Changes to the vehicle fuel efficiency standards would reduce improvements in vehicle fuel efficiencies through the model year 2025 and beyond, but would not affect the existing emissions rates of vehicles on the road currently. Consequently, the federal government's proposed roll back of vehicle fuel efficiency standards would have the greatest effect on the accuracy of the EMFAC emissions estimations in future years. However, because the federal government actions are subject to legal challenge, the ultimate effect on the accuracy of the EMFAC emissions estimations remains uncertain, and EMFAC may remain accurate if the judicial proceedings are decided against the federal government.

Despite the uncertainty resulting from the judicial proceedings involving the federal government's actions with regard to vehicle emissions standards, the CARB has released off-model adjustment factors that may be used to compensate for discrepancies in the anticipated rate of future emissions. However, there are two important limitations to the off-model adjustment factors. First, because the fuel economy standards concerned light duty vehicles, the adjustment factors released by the CARB are only intended for use in light duty vehicles. Second, the CARB has determined that emissions rates would be impacted starting in the year 2021, and extending to the latest model year available: 2050.[54] To provide a conservative analysis, on-road emissions were estimated based on 2020 emissions. Due to the use of data from the year 2020, changes to vehicle emissions standards would not result in changes to the estimated levels of emissions presented in this EIR. Furthermore, the majority of existing and project-related emissions originate from off-road equipment and heavy-duty haul trucks that would not be affected by the federal government's actions in this case. Consequently, the emissions estimates prepared for this analysis would remain accurate regardless of the outcome of the aforementioned judicial proceedings.

Operational Health Risks

As discussed below, the proposed project would have the potential to result in the emissions of various TACs. In particular, potential health risks could occur due to emissions of DPM, as well as respirable silica from mining activities. As a result, potential health risks posed to nearby existing receptors were analyzed based on existing operations at the Woodland Plant as well as operations of the proposed project. Health risks due to exposure to DPM and respirable silica are dependent upon the amount of pollutant exposure experienced by individual receptors. Local and regional winds serve to disperse and dilute pollutants, and, as a result, the concentrations of pollutants typically decreases with increased distance from the source of a TAC. In the context of the existing and proposed mining and processing activities, sensitive receptors and other sensitive land uses that are closer to a mining or processing site would be expected to experience a higher potential health risk as compared to receptors that are further away from that site. The Esparto and Woodland operations are located in excess of six miles from each other; thus, receptors located close enough to the Woodland Plant, the Schwarzgruber mining site or the Shifler mining site to experience potential health risks from those activities, would be located far enough away from the Esparto Plant and mine that the receptors would not be anticipated to experience any substantial health risks related to the Esparto activities. Furthermore, because the proposed project would involve the cessation of mining activity at the Esparto Plant, the project

[54] California Air Resources Board. *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One*. November 20, 2019.

would reduce existing potential health risks at that location. As such, potential health risks related to existing operations at the Esparto Plant were not included in the operational health risk analysis.

The estimation of potential health risks from the aforementioned TACs was completed in a three-step process. First, the total emissions of each pollutant were estimated under existing and proposed conditions. Methods for directly estimating DPM and respirable silica for the proposed operations do not currently exist; therefore, emissions of both pollutants were determined through the use of proxy pollutants. DPM is considered a subset of $PM_{2.5}$ emissions, thus, the estimated concentration of $PM_{2.5}$ was used as a proxy to represent emissions of DPM. Project activities anticipated to result in the emission of DPM include the operation of mobile equipment, such as graders, excavators, backhoes, and forklifts, both in the mining pit and at the Woodland Plant, as well as travel of haul trucks along area roadways. Similarly, respirable silica represents a portion of total PM_{10} emissions. Therefore, a fraction of the total estimated PM_{10} emissions was assumed to represent the total emissions of respirable silica. Silica emissions were assumed to occur from mining activities within the mining pits, as well as material processing at the Woodland Plant. Information related to the emission of DPM and respirable silica was derived from several sources. DPM emissions were determined based on the equipment usage information provided by the project applicant, as well as the trip generation estimates prepared for the proposed project and the existing Woodland Plant. Emissions of respirable silica were determined based on the anticipated area of disturbance, as well as emissions rates derived from information contained in the USEPA's *Compilation of Air Pollutant Emission Factors* known as AP-42,[55] and the CCAP Update Final EIR.[56]

Once the emissions of each pollutant were determined, the concentration of each pollutant at nearby receptors was then estimated using the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD) dispersion model. Finally, the associated cancer risk and non-cancer hazard index were calculated using the CARB's Hotspot Analysis Reporting Program Version 2 (HARP 2) Risk Assessment Standalone Tool (RAST), which calculates the cancer and non-cancer health impacts using the risk assessment guidelines of the 2015 Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual for Preparation of Health Risk Assessments.[57] The modeling was performed in accordance with the USEPA's User's Guide for the AMS/EPA Regulatory Model – AERMOD[58] and the 2015 OEHHA Guidance Manual. Because emissions of DPM would occur from two distinct types of sources (i.e., off-road equipment and on-road haul trucks), and would occur in geographically separated locations, concentrations of DPM from off-road equipment was modeled in AERMOD separately from concentrations of DPM from haul trucks. Because respirable silica is considered a subset of PM_{10}, unlike DPM which is a subset of $PM_{2.5}$, concentrations of respirable silica were modeled separately as well. The maximum annual average and maximum one-hour average concentrations from each of the aforementioned AERMOD runs were applied to HARP 2 RAST to calculate the cancer risk and non-cancer hazard index, respectively, to the maximally exposed individuals in each scenario. The exposure period in HARP 2 RAST was adjusted depending on

55 U.S. Environmental Protection Agency. *Compilation of Air Pollutant Emission Factors (AP-42), Fifth Edition*. January 1995.

56 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

57 Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-18]. February 2015.

58 U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD).* December 2016.

the existing permit conditions, and the maximum operating times that would be allowed under the proposed permitting conditions.

In order to determine the location of existing residences, aerial images of the surrounding area were used to identify individual residences. Receptor locations were then input into AERMOD using either a single receptor point to represent a single residence, or a grid of receptor points to represent more dense or clustered housing areas. Receptors meeting Yolo County's General Plan definition of sensitive receptors are depicted in Figure 4.3-1. However, following consultation with YSAQMD, the concentration of TACs was calculated at all other sensitive land uses nearby, including farm dwellings, as well as the sensitive receptor locations depicted in Figure 4.3-1.

Due to the dispersed nature of existing residences, and the differing locations of where emissions occur under the existing or proposed scenario (e.g., dust emissions under existing conditions occur at the Schwarzgruber site, but dust emissions under project conditions would only occur at the Shifler site), the location exposed to the highest pollutant concentration under existing settings may not be the same location that is exposed to the highest pollutant concentration under the proposed project. Moreover, the location exposed to the highest pollutant concentration for each source of DPM, may not be the same location exposed to the highest pollutant concentration for respirable silica. As a result, no single receptor would be exposed to the highest concentration of DPM and respirable silica under existing or proposed conditions. Nevertheless, to provide a conservative approach to analysis, the potential health risks experienced by the maximally exposed receptor for each pollutant were summed, under the existing and proposed conditions separately, to represent a worst-case scenario. In practice, the potential health risks experienced by nearby receptors would likely be less than the risks presented in this EIR.

All emissions analyses are included as Appendix D to this EIR.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to air quality, GHG emissions, and energy is based on implementation of the proposed project in comparison with the standards of significance identified above.

4.3-1 Conflict with or obstruct implementation of the applicable air quality plan. The impact would be *less than significant*.

The following discussion presents analysis of potential impacts related to short-term, construction-related impacts due to the relocation of Moore Canal and modification of Magnolia Canal, and, separately, a discussion of long-term impacts due to the proposed mining and reclamation at the project site and processing at the Woodland Plant.

Relocation of Moore Canal and Modification of Magnolia Canal

Implementation of the proposed project would result in short-term emissions related to the relocation of Moore Canal and modification of Magnolia Canal within the Shifler project site. Emissions related to the relocation would be generated from construction equipment, vegetation clearing and earth movement activities, construction workers' commute, and material hauling for the entire period of construction for the relocated canal. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Relocation of

Moore Canal and modification of Magnolia Canal would also result in emissions of fugitive dust, which includes PM emissions. As relocation of Moore Canal and modification of Magnolia Canal would generate emissions of criteria air pollutants, including ROG, NO_X, and PM_{10}, intermittently within the site and in the vicinity of the site, until all relocation and modification activity has been completed, construction is a potential concern, as the proposed project is located in a nonattainment area for ozone and PM.

The maximum unmitigated emissions resulting from relocation of Moore Canal and modification of Magnolia Canal have been estimated using CalEEMod for the proposed project. The modeling assumptions are described in the Method of Analysis section above. The estimated emissions are presented in Table 4.3-9.

As shown in the table, the project's associated short-term emissions related to relocation of Moore Canal would be below the applicable YSAQMD thresholds of significance. Therefore, the short-term emissions resulting from implementation of the proposed project would not result in a significant contribution to the region's nonattainment status of ozone or PM and would not violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Table 4.3-9
Maximum Unmitigated Short-Term Emissions Related to Relocation of Moore Canal and Modification of Magnolia Canal

	ROG	NO_X	PM_{10}
Project Emissions	0.01 tons/yr	0.11 tons/yr	4.45 lbs/day
YSAQMD Significance Threshold	*10 tons/yr*	*10 tons/yr*	*80 lbs/day*
Exceeds Threshold?	**NO**	**NO**	**NO**

Source: CalEEMod, September 2019 (see Appendix D).

All projects within the YSAQMD, including the proposed relocation of Moore Canal, are required to comply with all YSAQMD rules and regulations for construction, including Rule 2.1 (Control of Emissions), Rule 2.28 (Cutback and Emulsified Asphalts), Rule 2.5 (Nuisance), Rule 2.14 (Architectural Coatings), and Rule 2.11 (Particulate Matter Concentration). The CalEEMod software does not fully capture the emissions reductions that would occur due to implementation of aforementioned rules and regulations; therefore, compliance with the YSAQMD rules listed above were not included in the project-specific modeling. In addition, YSAQMD encourages all projects to implement best management practices to reduce dust emissions and avoid localized health impacts. The YSAQMD's best management practices for dust include the following:

- Watering of all active construction sites at least twice daily;
- Maintenance of at least two feet of freeboard in haul trucks;
- Covering of all trucks hauling dirt, sand, or loose materials;
- Application of non-toxic binders to exposed areas after cut and fill operations and hydroseeding of area, as applicable and/or necessary;



- Application of chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days), as applicable and/or necessary;
- Planting of vegetative ground cover in disturbed areas as soon as possible;
- Covering of inactive storage piles;
- Sweeping of streets if visible soil material is carried out from the construction site; and
- Treatment of accesses to distance of 100 feet from the paved road with a six- to 12-inch layer of wood chips, mulch, or gravel.

Compliance with the aforementioned rules and regulations related to construction, as well as implementation of best management practices for dust, would help to minimize emissions generated during construction activities. Section 10-4.414 of the OCSMO requires mining and reclamation projects to implement dust control measures. In compliance with the requirements of the OCSMO, the project applicant currently implements dust control practices, including the use of water trucks to suppress dust from disturbed areas, throughout existing mining operations, and the applicant would continue to implement such measures during relocation of Moore Canal and modification of Magnolia Canal. Nevertheless, it is recommended that the County include, as a Condition of Approval for the proposed project, the requirement that all relevant YSAQMD best management practices for dust suppression be implemented during relocation of Moore Canal and modification of Magnolia Canal. Considering implementation of the dust mitigation measures required by YSAQMD and the OCSMO, emissions of dust (represented as PM_{10} in Table 4.3-9) would be reduced from the levels presented in Table 4.3-9.

As noted previously, the YSAQMD has adopted separate thresholds of significance for construction activities and project operations. Construction-related emissions are a one-time release, whereas operational emissions continue throughout the lifetime of a project. In the case of the proposed project, relocation of Moore Canal and modification of Magnolia Canal would be considered one-time construction activities and, therefore, the YSAQMD construction threshold is the appropriate threshold of significance. For comparison, the ongoing mining activities proposed as part of the project would be considered long-term operational activities and, thus, emissions associated with such activities shall be compared to the YSAQMD operational thresholds of significance.

Due to the anticipated phase timing, construction emissions related to relocation of Moore Canal and modification of Magnolia Canal could occur simultaneously with mining-related operation emissions during the first mining phase of the proposed project. However, such activities shall be considered separately in this analysis and compared to the appropriate thresholds (i.e., construction threshold or operational threshold) depending on the activity type.

Conclusion

Because relocation of Moore Canal and modification of Magnolia Canal would result in short-term emissions below the applicable thresholds of significance, short-term implementation of the proposed project would result in a less-than-significant impact to air quality. Nevertheless, it is recommended that the County include a Condition of

Approval to ensure that relocation of Moore Canal and modification of Magnolia Canal comply with applicable YSAQMD rules, regulations, and best management practices for dust.

Operational Criteria Pollutant Emissions

As discussed above, due to the nonattainment designations of the area, the YSAQMD has developed plans to attain the State and federal standards for ozone and particulate matter. The currently applicable air quality plan is the 2013 Ozone Attainment Plan. Adopted YSAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with the applicable air quality plan. Thus, if a project's operational emissions exceed the YSAQMD's mass emission thresholds for operational emissions of ROG, NO_X, or PM_{10}, a project would be considered to conflict with or obstruct implementation of the YSAQMD's air quality planning efforts.

The existing mining operations at Esparto and the Schwarzgruber site as well as the existing processing activity at Esparto and Woodland generate ROG, NO_X, and PM_{10} from both mobile and stationary sources. Emissions related to existing and proposed operations are primarily sourced from the use of off-road equipment, the use of on-road haul trucks, ground disturbing activity associated with mining activities, vehicle travel on unpaved roads, and dust emissions from material processing. Emissions resulting from existing mining operations at Esparto and the Schwarzgruber site as well as the existing processing activity at Esparto and Woodland form part of the environmental baseline for the analysis presented in this EIR. Consequently, it is appropriate to consider the level of existing emissions as a baseline for the environmental analysis of the proposed project. Therefore, the analysis included in this EIR will focus on the net new emissions that would result from implementation of the proposed project. In order to determine the net new emissions, emissions from the existing operations as well as the proposed project are presented and compared in Table 4.3-10 below. In addition, Table 4.3-10 compares the net new emissions resulting from project operations to the YSAQMD's thresholds of significance.

Table 4.3-10
Maximum Controlled Net New Operational Emissions

	ROG (tons/yr)	NO_X (tons/yr)	PM_{10} (lbs/day)
Existing Emissions (Esparto mine and plant, Woodland Plant, Schwarzgruber mine, and on-site Agricultural Activities)	2.59	45.43	345.82
Proposed Project	2.39	43.75	422.82
Net New Emissions	**-0.19**	**-1.68**	**77.00**
YSAQMD Significance Threshold	*10*	*10*	*80.0*
Exceeds Threshold?	**NO**	**NO**	**NO**
See Appendix D for all emissions calculations.			

Because existing and future operations would be subject to the dust control requirements of Section 10-4.414 OCSMO, the emissions presented in Table 4.3-10 represent the levels of emissions that would occur with incorporation of dust suppression and control techniques. Dust suppression techniques currently include

watering unpaved roads and storage piles, the use of sprayers at conveyors, as well as seeding and revegetation, among other methods.

Emissions of ROG and NO_X presented in Table 4.3-10 are based primarily on the type of off-road equipment and on-road haul trucks used with the various operations, while the PM_{10} emissions are a result of land disturbance, travel over unpaved surfaces, and material storage. Although the emissions presented in Table 4.3-10 reflect the use of all feasible dust suppression techniques as required by Section 10-4.414, the emissions estimates also include the conservative assumption that mining in the existing and proposed conditions occurs in dry conditions. In practice, mining in the Cache Creek area often occurs below the water table through dredging or other means that extract material from below the surface of a lake within the mining pit. Extraction of material from below the water surface eliminates dust emissions (PM_{10}) from the mining process; however, dust emissions from handling and storage would continue. Mining at the Shifler site would eventually occur beneath the water table, which would reduce emissions from the levels presented in Table 4.3-10. Nevertheless, mining completed above the water surface would occur and would occur in combinations with emissions from processing, which would result in the maximum lbs/day and tons/yr of emissions as presented in Table 4.3-10.

As shown in the table above, the proposed project would result in a net decrease in operational emissions of ROG and NO_X during the proposed mining activities. In contrast, implementation of the project would result in an increase in PM_{10} emissions. Although PM_{10} emissions would increase with implementation of the proposed project, the net increase would not exceed the YSAQMD's thresholds of significance. Upon completion of mining activities, the project site would be reclaimed to agriculture, habitat, lake, and open space uses including future recreational use as dedicated properties are deeded to the County. While agricultural uses have the potential to generate criteria pollutant emissions, the total amount of reclaimed agriculture (116.7 acres) would be smaller what currently occurs on-site. Thus, after reclamation is complete, criteria pollutant emissions would be reduced relative to existing conditions.

Considering the above, the proposed project would not result in an increase in emissions in excess of the YSAQMD's thresholds of significance, and long-term operational emissions associated with project implementation would not conflict with or obstruct implementation of the applicable air quality plans, resulting in a ***less-than-significant*** impact.

Although the project has been determined to result in less-than-significant impacts, based on comments received during the NOP scoping period for the project, various potential mitigation measures or conditions of approval were considered that could further reduce emissions from operations of the project. The mitigation measures recommended by commenters are discussed below.

The use of hybrid electric mining equipment or renewable diesel was recommended for the project as a means of reducing emissions. Hybrid electric mining equipment is not yet commercially available and is not considered a feasible option. Although renewable diesel is available, the use of renewable diesel does not eliminate criteria

pollutant emissions, and in some cases may not reduce emissions of NO_X.[59] However, a proven method of reducing criteria pollutant emissions from off-road equipment is by using equipment engines that meet higher engine tier standards. Teichert is required to comply with CARB regulations, such as the In-Use Off-Road Diesel Vehicle Regulation, which require fleet owners and operators to retrofit or replace low tier engines with higher tier engines that are comparatively less polluting. Teichert is in compliance with all existing fleet standards, and continued compliance will be ensured by YSAQMD and the CARB through registration requirements for equipment operated at the Shifler site. Consequently, the suggested mitigation measure would not reduce criteria pollutant emissions beyond the reductions anticipated to occur through Teichert's existing progress towards fleet retrofit and turnover.

Another suggested measure includes the use of rail to ship processed material, under the assumption that shipping by rail would result in fewer emissions as compared to emissions that would occur with the use of on-road haul trucks. As demonstrated in the vehicle miles travelled (VMT) analysis prepared for the project by Fehr and Peers, the average trip length for haul trucks is between 26.4 and 28.9 miles per trip. The relatively short distance of the average haul truck trip indicates that most of the material processed under the existing and proposed conditions would be used locally. Use of the mined material locally would make the use of rail inefficient, as the ultimate length of travel by truck would not be significantly reduced through the use of rail. Consequently, requiring the use of rail would not be considered a feasible means of reducing criteria pollutant emissions, or emissions of GHGs, which are discussed further below.

Mitigation Measure(s)
None required.

4.3-2 Expose sensitive receptors to substantial pollutant concentrations. The impact would be *less than significant*.

The major pollutants of concern are localized CO emissions and TAC emissions, which are addressed below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Implementation of the proposed project would increase traffic volumes on streets near the project site; therefore, the project would be expected to increase local CO concentrations. Concentrations of CO approaching the ambient air quality standards are only expected where background levels are high, and traffic congestion levels are high. The YSAQMD's preliminary screening methodology for localized CO emissions provides a conservative indication of whether project-generated vehicle trips would result in the generation of CO emissions that would contribute to an exceedance of AAQS. Per the YSAQMD screening methodology, if either of the following results at any street or intersection affected by

[59] California Air Resources Board. *CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California*. October 2011.

a project, after implementation of mitigation,[60] the project has the potential to result in localized CO emissions that could violate CO standards:

- Degrade the peak hour LOS on one or more streets or at one or more intersections in the project vicinity from an acceptable LOS (i.e., LOS A, B, C, or D) to an unacceptable LOS (i.e., LOS E or F); or
- Increase a traffic delay by 10 or more seconds on one or more streets or at one or more intersections in the project vicinity where a peak hour LOS of F already exists.

See Chapter 4.12, Transportation and Circulation, of this EIR. The proposed project would result in the degradation of two intersections from an acceptable to an unacceptable LOS, and would add vehicle traffic to intersections that are already experiencing a peak hour LOS of F. Although the project would add vehicle traffic to intersections that are already experiencing a peak hour LOS of F, the project would not increase a traffic delay by 10 or more seconds. Thus, the project would not have the potential to cause a localized CO impact at intersections already anticipated to operate unacceptably.

With regard to the degradation of LOS from an acceptable to unacceptable level, the degradation of LOS would occur at two the intersections along State Route (SR) 16; specifically, the intersection of SR 16 with County Road 94B and the intersection of SR 16 with County Road 96. In terms of potential impacts related to CO emissions, similarities exist at both intersections. Both intersections are side street stop controlled, with stop signs controlling the northbound and southbound approaches to both intersections. The LOS reported in Chapter 4.12 of this EIR is reported for the worst approach to each intersection, which, for both intersections, is the northbound approach. For both intersections, the remaining approaches operate at acceptable LOS during the peak hour. That is, while vehicles approaching each intersection from the south heading north, would experience levels of delay in excess of the applicable standards, vehicles approaching the intersection from all other approaches would experience acceptable levels of delay. Thus, only a fraction of the total number of vehicles using each intersection during the peak hour would experience extended delay times. In terms of the creation of excess concentrations of CO, high levels of CO occur where large numbers of vehicles are idling for extended periods of time. Although delay times are considered unacceptable under the intersection thresholds being applied, delay times of 74 seconds and 37 seconds, at the intersections of SR 16 and County Road 94B and 96 respectively, are not considered to be substantial periods of idling from a CO emissions standpoint.

In addition to the total idling time being considered insubstantial from a CO emissions perspective, the volume of vehicles idling for that amount of time is also considered insufficient to represent a potentially substantial source of CO emissions. For the intersection of SR 16 and County Road 94B a total of 1,158 vehicles would pass through the intersection during the AM peak hour, while the intersection of SR 16 and County Road 96 would experience 1,029 vehicles during the AM peak hour. The number of vehicles using the impacted approaches to each intersection (i.e.,

[60] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts* [pg. 21]. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

northbound vehicles approaching from the south of each intersection) is only a fraction of the foregoing total vehicle traffic at each intersection, with 120 vehicles and 16 vehicles accessing the affected intersection approaches at SR 16 and County Road 94B and SR 16 and County Road 96, respectively. For perspective, the nearby BAAQMD recommends CO screening thresholds for intersections experiencing vehicle volumes in excess of 44,000 vehicles per hour under normal conditions, or 24,000 vehicles per hour where air mixing is limited due to features such as bridges, tunnels, or below-grade roadways.[61] Both intersections in question experience vehicle volumes far below the BAAQMD's screening criteria, which indicates that vehicle volumes at both intersections would not be substantial enough to result in substantial CO emissions.

Considering the above, although the project would result in the degradation of two intersections from acceptable to unacceptable LOS, the intersections would not experience vehicle delays or volumes sufficient to result in the creation of localized impacts related to CO. Consequently, the proposed project would not expose sensitive receptors or other sensitive land uses to substantial concentrations of localized CO.

TAC Emissions

As stated above, the proposed project would have the potential to result in increased health risks due to proposed activities. Consequently, a project-specific health risk assessment was prepared. In particular, the proposed project could result in emissions of DPM and respirable silica, both of which are TACs. DPM would be emitted from off-road equipment at existing and proposed mining sites, as well as from the Woodland Plant under both existing and proposed conditions. Under both existing and proposed conditions, haul trucks would access the Woodland Plant, resulting in emission of DPM on roadways in the project area. Respirable silica would be emitted from the existing and proposed mining sites as well as from material stored at the Woodland Plant under both existing and proposed conditions. Potential health risks resulting from the foregoing sources are discussed in the sections below. Results of the health risk analyses prepared for the proposed project are presented in Appendix D.

Health Risk from Off-Road Equipment DPM

Off-road equipment is currently used within the Woodland Plant and at the Schwarzgruber site. With implementation of the proposed project, activity at the Schwarzgruber site would cease following mining and final reclamation, but mining activity at the Shifler project site would subsequently occur. The Shifler project would include relocation of equipment currently operating at the Esparto Plant to the Woodland Plant. Equipment at the Esparto Plant is generally more efficient than the equipment located at the Woodland Plant, and relocation of the Esparto Plant equipment would involve replacement of existing, less-efficient equipment, with more efficient equipment currently operated at the Esparto Plant. The net effect would be increased efficiency of operations at the Woodland Plant and reduced DPM emissions.

The Schwarzgruber site is located northeast of the Woodland Plant, while the Shifler project site is located southwest of the Woodland Plant. As a result, the nearest receptor to each mining site is different, and the maximum pollutant concentrations

[61] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pgs. 3-3 and 3-4]. May 2017.

would be experienced by different receptors under existing and proposed conditions. To provide a consistent analysis, the potential health risk experienced at the maximally exposed receptor under each project condition (i.e., existing or proposed) has been compared to determine the potential impacts that could result from implementation of the project. Potential health risks related to implementation of the project is presented in Table 4.3-11.

Table 4.3-11
Maximum Cancer Risk and Hazard Index Associated With DPM from Off-Road Equipment

Project Condition	Cancer Risk (per million persons)	Chronic Hazard Index	Acute Hazard Index
Existing Operations	78.26	0.00	0.03
Proposed Project	63.90	0.00	0.01
Difference	**-14.36**	**0.00**	**-0.01**
Thresholds of Significance	*10*	*1.0*	*1.0*
Exceeds Thresholds?	**NO**	**NO**	**NO**

Note: Differences may not sum due to rounding.

Sources: AERMOD, and HARP 2 RAST, April 2020 (see Appendix D).

As shown in Table 4.3-11, the proposed project would result in a reduction in potential health risks experienced by the maximally exposed individual. The reduction in health risks would primarily be attributable to the replacement of less efficient equipment at the Woodland Plant with more efficient equipment relocated from the Esparto Plant. As noted above, the maximum health risks resulting from existing operations and the proposed project would not be experienced by the same receptor. In fact, the maximally exposed receptor under existing conditions could be a receptor located near the Schwarzgruber site, while the maximally exposed receptor for the proposed project would be a receptor nearer to the Shifler site. Another important distinction is that the health risk presented for the proposed project is due to an assumed exposure to the maximum concentration of pollutants over the next 30-years, whereas the health risks presented for existing operations is a result of exposure to pollutants over the remaining life of the existing Woodland Plant permit, which is linked to the cessation of mining at the Schwarzgruber site. For the purposes of this analysis the remaining life of the existing Woodland Plant permit was assumed to be eight years. The health risks for the proposed project presented in Table 4.3-11 are likely an overestimate, as the health risks calculations assume that nearby receptors would be exposed to a constant rate of emissions over the next 30-years. In practice, emissions from off-road equipment at the project site and at the Woodland Plant would decrease into the future as older machinery is replaced or re-powered with modern cleaner running equipment and engines to maintain compliance with the In-Use Off-Road Diesel Vehicle Regulation. Thus, not only would the use of more efficient equipment from the Esparto Plant result in a reduction in health risks compared to the existing Schwarzgruber and Woodland Plant operations, but the ultimate health risks experienced by nearby

receptors would likely be less than the levels analyzed within this EIR as equipment becomes less emitting into the future.

With or without consideration of future emissions reductions resulting from on-going compliance with the In-Use Off-Road Diesel Vehicle Regulation, Table 4.3-11 demonstrates that the proposed project would not result in increased health risks due to off-road equipment as compared to existing conditions.

During the public comment period for the NOP released for this EIR, members of the public noted that planting of vegetation along the boundaries of the proposed mining site and the Woodland Plant site could be used to reduce DPM emissions from leaving the project site and affecting nearby receptors. Understanding of the use of vegetation to screen receptors from sources of DPM is evolving, but in general, if properly planted, vegetation is considered to be useful in reducing exposure of receptors located near sources of DPM such as roadways. The proposed project does not involve installation of a roadway, but rather operation of a mine and continued operation of the Woodland Plant. The dynamics of emissions from mines and a processing plant are drastically different from the dynamics of emissions from a roadway, and scientific studies showing that vegetation would be useful to reduce emissions from mines and processing plants was not available during preparation of this EIR. While vegetation could allow for capture of some DPM emissions within the foliage of the vegetation, vegetation screens can also serve to slow wind speeds. Slower wind speeds could result in a reduced rate of dispersion of pollutants, which would subject nearby receptors to heightened pollutant concentrations as more pollutants remain closer to the mining and processing sites. The health risks presented in Table 4.3-11 reflect the dispersion of pollutants under historic wind conditions as measured in the region of the project site. Because health risks were demonstrated to be below the YSAQMD's thresholds of significance under existing and proposed conditions mitigation in the form of vegetation is not required, and in the absence of widely available research demonstrating the efficacy in vegetation reducing emissions exposures for mines and processing plants, this EIR does not present conclusions related to the use of vegetation to screen emissions from leaving the project site.

Health Risk from Haul Truck DPM

Haul trucks currently access the Woodland Plant by way of the existing roadway network. Operation of haul trucks results in emissions of DPM along the routes travelled by the trucks both on- and off-site. Implementation of the proposed project would be anticipated to increase the number of haul trucks accessing the Woodland Plant as the total throughput at the Woodland Plant would increase through a commensurate reduction in throughput at the Esparto Plant. The reallocation in throughput would divert trips that currently access the Esparto Plant to the Woodland Plant instead. Although the total number of haul trucks accessing the Woodland Plant would likely increase, the designed haul routes used to transport material from the Woodland Plant would remain unchanged. The number of haul trucks accessing the site under existing and proposed conditions, as well as the distribution of haul trucks along the existing roadway network was determined based on information provided in the Traffic Impact Analysis prepared for the proposed project by Fehr & Peers.

Because the Woodland Plant would continue to be the destination for haul trucks, unlike the health risk analysis prepared for off-road equipment presented above, the same receptors would be exposed to health risks under the existing and proposed project conditions. Table 4.3-12 presents the health risks to the maximally exposed individual under existing and project conditions.

Due to the increased volume of haul trucks accessing the Woodland Plant under the proposed project, the cancer risk for the maximally exposed individual would increase by 4.8 cases per million persons, as shown in Table 4.3-12. The health risks presented for existing operations occur over the remaining permitted life of the Woodland Plant (8 years), while the health risks presented for the proposed project would occur over the assumed 30-year project lifespan. Haul trucks used over the next 30-years are anticipated to result in fewer emissions over time as the fleet of on-road haul trucks turns over through replacement of engines and vehicles and on-road vehicles become less emissions intensive through implementation of the statewide LCFS and CARB regulations. Although the federal government has recently taken actions to curtail California's ability to regulate tail pipe emissions from passenger vehicles, the LCFS and relevant CARB regulations affecting emissions from on-road diesel trucks, such as the Truck and Bus Regulations, are not affected by federal actions. Therefore, even in the event that the federal government's actions are upheld and California's ability to regulate tail pipe emissions from passenger vehicles is limited, all existing regulations related to on-road diesel haul trucks and the LCFS would remain in effect.[62] Reductions in haul truck emissions would directly correspond to reductions in health risks; therefore, the increased health risks experienced by nearby receptors could be less than the levels presented within Table 4.3-12. Nonetheless, as shown in Table 4.3-12 the proposed project would not result in an increased health risk in excess of the YSAQMD's thresholds of significance being applied in this analysis.

Table 4.3-12
Maximum Cancer Risk and Hazard Index Associated With DPM from Haul Trucks

Project Condition	Cancer Risk (per million persons)	Chronic Hazard Index	Acute Hazard Index
Existing Operations	2.54	0.00	0.00
Proposed Project	7.38	0.00	0.00
Difference	**4.84**	**0.00**	**0.00**
Thresholds of Significance	*10*	*1.0*	*1.0*
Exceeds Thresholds?	**NO**	**NO**	**NO**

Note: Differences may not sum due to rounding.

Sources: EMFAC 2017, AERMOD, and HARP 2 RAST, April 2020 (see Appendix D).

62 California Air Resources Board. *The Truck Stop: The Trump Administration and the California EPA*. Available at: https://ww3.arb.ca.gov/msprog/truckstop/azregs/waiver.htm. Accessed September 2020.

Health Risk from Respirable Silica

Dust is created during both mining and material processing activities. Accordingly, both the existing mining at the Schwarzgruber site and the material processing at the Woodland Plant produce dust. With implementation of the proposed project, dust emissions would occur at the Shifler project site and would continue at the Woodland Plant. Sources of dust emissions related to mining include the movement of mined materials, land disturbance, and the movement of off-road equipment over disturbed surfaces. Activities at the Woodland Plant that produce dust include material screening, crushing, and conveyor transport, as well as material storage, and the movement of off-road equipment and vehicles over unpaved surfaces. The project applicant currently controls dust in accordance with Section 10-4.414 of the Mining Ordinance which requires control measures be implemented for stockpiled soils, watering of unpaved roads and disturbed soils, and stabilizing of inactive portions of the site. In addition, the project applicant currently implements additional measures such as dust suppressors on conveyors and in crushing and sorting machinery; however, some level of dust emissions is unavoidable. Although dust emissions in general are considered a nuisance, rather than a direct health hazard, dust containing respirable silica does pose a hazard to human health and respirable silica is considered a TAC. Respirable silica represents only a fraction of the total dust emissions. Therefore, while the project may result in a significant amount of dust emissions, the ultimate increase in health effects related to dust emissions may be more limited. To determine the potential health effects resulting from emissions of respirable silica, the concentration of respirable silica at nearby receptors was estimated. Similar to the discussion of health risks related to DPM from off-road equipment, the nearest receptor to each mining site is different, and the maximum pollutant concentrations would be experienced by different receptors under existing and propose conditions. To provide a consistent analysis, the potential health risk experienced at the maximally exposed receptor under each project condition (i.e., existing or proposed) has been compared to determine the potential impacts that could result from implementation of the project. Potential health risks related to implementation of the project is presented in Table 4.3-13.

Table 4.3-13
Maximum Cancer Risk and Hazard Index Associated With Respirable Silica

Project Condition	Cancer Risk (per million persons)	Chronic Hazard Index	Acute Hazard Index
Existing Operations	0.00	0.00	0.03
Proposed Project	0.00	0.00	0.04
Difference	**0.00**	**0.00**	**0.01**
Thresholds of Significance	*10*	*1.0*	*1.0*
Exceeds Thresholds?	**NO**	**NO**	**NO**

Sources: AERMOD, and HARP 2 RAST, April and July 2020 (see Appendix D).

As shown in Table 4.3-13, the proposed project would result in an increase in the acute hazard index for the maximally exposed receptor; however, the increase in acute

hazard index would not exceed the applicable YSAQMD threshold of significance. Furthermore, the proposed project would not result in appreciable cancer or chronic hazards related to the exposure of receptors to respirable silica.

Health Risk to Animals

Comments received on the scope of the EIR identified concern for animal health, including livestock such as horses, resulting from project-related emissions. The CARB's and OEHHA's quantitative methodologies for assessing potential health risks are intended for use in humans, not animals. However, some of the underlying data used to determine health risks to humans is based on laboratory studies of health risks to animals.[63] Although data from health risks to animals was used in determining the potential health risks of some TACs to humans, the methodologies suggested for use in analyzing human health risks by the CARB and OEHHA do not necessarily apply to the analysis of health risks to animals. Animals would not be considered sensitive receptors under the definition of sensitive receptors typically used for air quality assessments or as defined in Yolo County's General Plan. Furthermore, a threshold for health risks to animals does not exist. As discussed in the Biological Resources Chapter of this EIR, a wide variety of animals inhabit the project area and region. The health risks to each type of animal, whether livestock or wildlife, would be unique to each species, and sufficient data does not exist to provide a quantitative analysis for potential health risks. Consequently, analysis of potential health risks to animals from proposed operations is neither required by CEQA nor technically feasible.

Conclusion

The proposed project would not meet the YSAQMD's screening criteria for CO, and, thus, would not result in the exposure of receptors to substantial concentrations of CO. The potential for the proposed project to result in substantial increases in health risks relative to existing mining activity has been further analyzed through the preparation of detailed, project-specific health risk assessments for DPM and respirable silica. As discussed above, the proposed project would not result in substantial increases in health risks related to either of the foregoing pollutants. Consequently, the proposed project would not result in the exposure of receptors to substantial pollutant concentrations, and implementation of the proposed project would result in a ***less-than-significant*** impact.

Mitigation Measure(s)

None required.

4.3-3 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. The impact would be *less than significant*.

Emissions of pollutants have the potential to adversely affect receptors in the project area. Pollutants of principal concern include emissions leading to odors, visible emission (including dust), or emissions considered to constitute air pollutants. Air

[63] Office of Environmental Health Hazard Assessment. *Part B: Health Risk Assessment for Diesel Exhaust*. May 1998.

pollutants have been discussed in Impacts 4.3-1 and 4.3-2 above. Therefore, the following discussion focuses on emissions of odors and visible emissions.

Odors

According to the YSAQMD, common types of facilities that are known to produce odors include, but are not limited to, wastewater treatment facilities, chemical or fiberglass manufacturing, landfills, composting facilities, food processing facilities, refineries, dairies, and asphalt or rending plants.[64] The existing Woodland Plant includes operation of an asphalt plant.

Odors are generally regarded as an annoyance rather than a health hazard and are often addressed qualitatively rather than quantitatively. The YSAQMD regulates objectionable odors through Rule 2.5 (Nuisance), which prohibits any person or source from emitting air contaminants or other material that result in any of the following: cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; endanger the comfort, repose, health, or safety of any such persons or the public; or have a natural tendency to cause injury or damage to business or property. Rule 2.5 is enforced based on complaints.

YSAQMD has identified one complaint made in 2011 for the existing asphalt plant at the Woodland Plant site. Through investigation by YSAQMD staff, it was determined that the complaint was related to short-term nighttime operation of the existing asphalt plant under special contract with the California Department of Transportation. The 2011 complaint was subsequently closed after investigation by YSAQMD staff and discussion with the complainant.[65]

Although the proposed project would include increased throughput of aggregates at the Woodland Plant, the operations and capacity of the asphalt plant would not be altered with implementation of the proposed project. Because operations of the asphalt plant would not be altered, and existing operations have resulted in only a single complaint, which was resolved, the proposed project would not result in any new or more substantial impacts related to odors from the existing asphalt plant. Notwithstanding the low likelihood of complaints occurring, should complaints occur in the future, YSAQMD has a process for vetting complaints, investigating the complaint, and determining solutions to abate any identified sources of substantial odors.

Diesel fumes from mining equipment and other off-road equipment may be found to be objectionable. However, odors from such equipment would only be produced intermittently, while equipment is actively in use. Proposed mining activity would be limited to the operating hours ultimately permitted by the County, which would limit the duration during which odors from equipment could be emitted. The applicant is requesting that the proposed project be allowed to operate under the same operational hours as the hours currently allowable for the Woodland Plant and the Schwarzgruber mining site, which are defined in the Project Description chapter of this EIR. Also, while the proposed project site is approximately 319 acres in size, the mining boundary is

64 Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts* [pg. 14]. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

65 Obrien, Lacey, Administrative Assistant, Yolo-Solano Air Quality Management District. Personal communication [email] with Jacob Byrne, Senior Associate/Air Quality Technician. May 5, 2020.

277 acres, and mining equipment would be operated over the defined phases of the mining site at any given time. Emissions from diesel engines are highly dispersive, meaning they readily dissipate through air currents and with increased distance from the source; thus, equipment operating on locations of the Shifler mining site that are separated from nearby receptors would be unlikely to result in noticeable odors. Separation of sources of odors from sensitive receptors and other sensitive land uses is recommended by YSAQMD as an effective measure to reduce the potential for projects to expose receptors to odors.[66] In addition, all off-road equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation. Off-road equipment operated at the project site would be required to comply with all applicable YSAQMD rules and regulations, particularly associated with permitting of air pollutant sources. These regulations would help to minimize air pollutant emissions, as well as associated odors related to operation of off-road equipment. Considering the scheduled downtime for operation of the mining equipment, the dispersive nature of diesel emissions, and the strict regulation of off-road equipment, diesel powered mining equipment is not anticipated to result in exposure of receptors to substantial odors.

Visible Emissions

Visible emissions may result from the use of internal combustion engines, such as smoke from diesel fueled equipment, the burning of vegetation, or the upset and release of soil as dust. YSAQMD Rule 2.3 prohibits any person from discharging visible emissions of any air contaminant for a period or periods aggregating to more than three minutes in any one-hour time. All mining equipment and any other off-road equipment would be required to meet the visible emissions standards of Rule 2.3, and, considering the regulated nature of off-road equipment, would not be anticipated to result in substantial visible emissions. YSAQMD Rule 2.8 prohibits open burning of vegetation in most situations and the proposed project would not be anticipated to result in visible emissions, such as smoke, related to vegetation burning. Compliance with OCSMO Section 10-4.414 and 10-4.415 would ensure that visible emissions from dust and equipment would be minimized and further aid in compliance with Rule 2.3.

Considering the above, implementation of the proposed project would not be anticipated to result in substantial visible emissions during project construction or operations.

Conclusion

Implementation of the project would not result in substantial emissions of visible pollutants, and project operations would not result in other emissions (such as those leading to odors), which could adversely affect a substantial number of people, therefore this impact would be ***less-than-significant***.

Mitigation Measure(s)

None required.

[66] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts* [pgs 30-31]. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

4.3-4 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. The impact would be *less-than-significant*.

The proposed mining and processing activities, as well as canal relocation activities, would require the consumption of energy in the forms of fossil fuels and electricity. Operational activities that would require the consumption of fossil fuels would include the operation of machinery, such as excavators, graders, and forklifts, as well as the operation of on-road haul trucks to transport processed material. Electricity would be consumed by on-site equipment such as the proposed material conveyor, as well as crushers, sorters, and other such machinery. Consumption of fossil fuels and electricity represent an on-going cost to the project applicant, which creates an incentive for the applicant to minimize the use of energy on-site through efficient operations. The proposed project would allow for efficient operations by relocating equipment currently operated at the Esparto Plant to the Woodland Plant, and replacement of existing equipment at the Woodland Plant that is relatively less efficient than the equipment used at the Esparto Plant. Thus, the applicant would be able to achieve increased operational efficiency through the use of more efficient equipment. The efficiency gained through relocation and replacement of the existing equipment can be seen by comparing the existing level of diesel fuel consumption with the level of consumption that would occur following implementation of the proposed project. Table 4.3-14 demonstrates that implementation of the proposed project would result in a net reduction in annual fuel consumption.

Table 4.3-14
Fuel Consumption – Woodland Plant

Project Condition	Gallons of Diesel Fuel Consumed per Year
Existing Operations	258,028
Proposed Project	212,942
Difference	**-45,086**

See Appendix D.

All of the off-road equipment operated as part of the project would be subject to the In-Use Off-Road Diesel Vehicle Regulations, which require strict emissions reductions into the future. Emissions reductions are often achieved through the re-powering of equipment with higher tier engines, which emit fewer emissions, partially through increased fuel efficiency. For instance, Tier 4 engines consume approximately five percent less fuel than standard equipment.[67] As such, operational energy demand would diminish into the future as off-road equipment is upgraded to meet increasingly stringent emissions standards.

With regard to electricity, the project applicant has previously installed a photovoltaic renewable energy system at the Woodland Plant, which would continue to provide electricity to the Woodland Plant with implementation of the proposed project. The

[67] Empire Cat. *Tier 4 Emissions Technology*. Available at: http://www.empire-cat.com/Power_Systems/Emissions_Solutions/Tier_4_Technology.aspx. Accessed June 2020.

provision of on-site renewable energy systems represents an efficient means of meeting the project's electricity demand. Moreover, per OCSMO 10-4.407, the proposed conveyor system would be electrically powered, which would provide a more efficient source of energy as compared to diesel powered conveyor systems. Nevertheless, demand for electricity would increase under the proposed project, as presented in Table 4.3-15.

Table 4.3-15
Electricity Consumption – Woodland Plant

Project Condition	Electricity Consumed per year (MWh)
Existing Operations	6,253.95
Proposed Project	9,544.83
Difference	**+3,290.88**
See Appendix D.	

An increase in electricity consumption does not necessarily mean that the project would result in an inefficient or wasteful use of energy. Rather, increased electricity consumption on-site is likely due to increased equipment and throughput within the site. Furthermore, the increase in electricity consumption is balanced with the decrease in consumption of fossil fuels. Considering that fossil fuels are a non-renewable resource, increased consumption of electricity in-lieu of increased consumption of fossil fuels could be considered an efficient means of providing additional energy to the project.

One component of the electricity consumption discussed above is the electricity demand from operation of the existing structures within the Woodland Plant. The electricity demand from the existing structures would be relatively limited compared to the electricity demand from the existing and proposed machinery. Furthermore, the proposed project does not include any proposed changes to the existing buildings or the construction of new buildings within the Woodland Plant; consequently, the project would not result in a net change in electricity demand from the existing buildings. During the NOP comment period for this EIR members of the public noted that new structures should be required to adhere to the tier 1 or tier 2 requirements of the California Green Building Code. However, because renovation of existing buildings or construction of new buildings is not included in the project, a tier 1 or tier 2 requirement would not be applicable to the proposed project.

Based on the above information, the proposed operations would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and a ***less-than-significant*** impact would result.

Mitigation Measure(s)

None required.

4.3-5 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The impact would be *less-than-significant*.

Yolo County has not adopted a dedicated renewable energy or energy efficiency plan. However, the Yolo County CAP does include various measures related to increasing energy efficiency and decreasing GHG emissions related to energy production and consumption. The majority of the energy-related measures within the County's CAP are related to increasing the efficiency of new and existing structures. Existing structures within the Woodland Plant are limited, and the proposed project does not include any substantial changes to the existing structures. In addition to the measures related to building energy efficiency, Measure E-1 of the CAP directed the County to establish a CCA, which was fulfilled through the formation of VCE.

Grid-supplied electricity for Teichert's existing operations is bought either through a Direct Access Provider or from VCE. A photovoltaic energy system has been installed at the Woodland Plant, which off-sets some of the demand of Teichert's existing operations at the Woodland Plant. The existing photovoltaic energy system at the Woodland Plant would be maintained with implementation of the proposed project. The on-site photovoltaic system would continue to support the County's CAP goal of reducing GHG emissions from electricity through increased reliance on renewable energy. In addition, electricity purchased through Direct Access Providers is required to attain the renewable content requirements specified in RPS. For instance, in the year 2020, Direct Access Providers must supply electricity with a renewable content of 33 percent, and that requirement will increase to 60 percent by the year 2030. Compliance with the RPS would ensure that grid-supplied electricity, independent of the on-site photovoltaic systems, would be generated by an increasing proportion of renewable sources.

Teichert has considered the possibility of installing further renewable energy systems to provide the electricity needed to meet the additional electricity demand resulting from project implementation. However, several impediments exist to installation of additional renewable energy systems. With regard to wind power, according to the project applicant, the project site does not experience sufficient wind to make the use of a wind turbine feasible. Installing solar panels at the Shifler site was considered; however, the amount of land needed to install a solar array that would provide an appreciable amount of solar power is prohibitive. For instance, because the Shifler site would experience farming, mining, and reclamation in phases, there would not be sufficient undisturbed space that could be used for solar power generation at any given time. Installation of panels at an off-site location would increase the area disturbed by implementation of the project, which could increase environmental impacts to other areas, such as cultural and tribal cultural resources or biological resources. Accordingly, the project applicant has not included installation of additional renewable energy systems at this time.

Based on the above information, the proposed operations would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and a ***less-than-significant*** impact would result.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

CEQA Guidelines, Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that adversely affect the environment. "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, Section 15355). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects" (CEQA Guidelines, Section 15355, subd. [a]). "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines, Section 15355, subd. [b]).

The need for cumulative impact assessment reflects the fact that, although a project may cause an "individually limited" or "individually minor" incremental impact that, by itself, is not significant, the increment may be "cumulatively considerable," and, thus, significant, when viewed together with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines, Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). Accordingly, particular impacts may be less than significant on a project-specific basis but significant on a cumulative basis if their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable. However, it should be noted that CEQA Guidelines, Section 15064, Subdivision (h)(5) states, "[…] the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, even where cumulative impacts are significant, any level of incremental contribution is not necessarily deemed cumulatively considerable. The lead agency should define the relevant geographic area of inquiry for each impact category (id., Section 15130, subd. [b][3]). The geographic context for the cumulative air quality analysis includes Yolo County and surrounding areas within the portion of the SVAB that is designated nonattainment for ozone and PM_{10}.

Climate change occurs on a global scale, and emissions of GHGs, even from a single project, contribute to the global impact. However, due to the highly regulated nature of GHG emissions within California specifically in a concerted effort to address the issue at a state level through CARB, for the purposes of this analysis the geographic context for the analysis of GHG emissions presented in this EIR is California.

In addition to the focus on the SVAB for cumulative air quality impacts and California for GHG impacts, to maintain consistency with the approach to analysis presented in Chapter 5, Cumulative Impacts and Other Required Sections, of this EIR, the issues of air quality, GHG emissions, and energy are also considered within the context of the CCAP, and the analysis presented within the CCAP Update FEIR.

Further information related to the analysis of cumulative impacts is presented in Chapter 5, Cumulative Impacts and Other Required Sections, of this EIR.

4.3-6 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard. The project's incremental contribution to this significant cumulative impact would be *less than cumulatively considerable*.

The proposed project is within an area currently designated as nonattainment for Ozone, PM_{10}, and $PM_{2.5}$. Air pollution is largely a cumulative impact. Thus, the proposed project, in combination with other proposed and pending projects in the region would significantly contribute to air quality effects within the SVAB, resulting in an overall significant cumulative impact. However, any single project is not sufficient enough in size to, alone, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's incremental impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, YSAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the significance thresholds, as identified by the YSAQMD and shown in Table 4.3-8 above, that project's emissions would be cumulatively considerable, resulting in a significant adverse air quality impact to the region's existing air quality conditions.[68] As discussed above, under Impact 4.3-1, short-term emissions related to the relocation of Moore Canal and modification of Magnolia Canal would be below the applicable thresholds of significance. Because the environmental baseline for the proposed project includes emissions from mining at the Esparto and Schwarzgruber sites, as well as processing at the Esparto and Woodland plants, the proposed project would result in a continuation of emissions within the County from mining and processing activity. As shown in Table 4.3-10, the relocation of equipment from the Esparto Plant to the Woodland Plant would contribute to a net decrease in operational emissions of ROG and NO_X. As further illustrated in Table 4.3-10, implementation of the proposed project would result in increased emissions of PM, but the increase in emissions would be below the YSAQMD's threshold of significance. Moreover, the anticipated level of dust emissions presented in Table 4.3-10 represents the level of emissions that would occur during dry mining of the Shifler site. Once mining at the Shifler site extends below the water table and wet mining begins to occur at the Shifler site, dust emissions at the Shifler site would decrease from the levels presented in Table 4.3-10.

Upon completion of mining activities, the proposed project would reclaim 116.7 acres within the project site to agricultural uses. Ongoing agricultural uses (and to a lesser extent recreation, parkway, and open space uses) after completion of reclamation would continue to generate emissions. However, the total amount of reclaimed agriculture would be less than what currently occurs on-site. Anticipated recreation, parkway, and open space uses associated with future use of dedicated lands would

[68] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts* [pg. 7]. July 11, 2007. Available at: http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed June 2020.

emit criteria pollutants which are anticipated to be minimal. Thus, after reclamation is complete, emissions would be reduced relative to existing conditions.

The YSAQMD is part of the Sacramento Federal Nonattainment Area (SFNA) for ozone. The YSAQMD, in concert with other air districts within the SFNA, has adopted a regional 8-hour Ozone Attainment and Regional Further Progress Plan to demonstrate the region's attainment of the 2008 federal ozone standard. The plan relies on growth estimates based on various sources of data, including City and County general plans, as well as existing activities and trends within the region. As determined in the CCAP Update FEIR, operations of aggregate mining within the Cache Creek area represent a cumulatively considerable source of criteria pollutants,[69] and, emissions from such activities would have been included in the emissions inventories produced as part of the 8-hour Ozone Attainment and Regional Further Progress Plan. Inclusion of aggregate mining activities in the project area within the 8-hour Ozone Attainment and Regional Further Progress Plan would ensure that cumulative emissions from aggregate mining were considered and addressed as part of the regional strategy to achieve attainment of criteria pollutant CAAQS and NAAQS.

Because the proposed project would result in an overall decrease in ozone precursor emissions (i.e., emissions of ROG and NO_X), the proposed project would contribute to the ozone precursor emissions reductions identified in the 8-hour Ozone Attainment and Regional Further Progress Plan. The FEIR for the CCAP Update found that on a cumulative basis, continued mining operations within the CCAP area would result in increases of emissions within the CCAP area. The proposed project would result in a net decrease in ROG and NO_X emissions, and although emissions of PM_{10} would increase, the net increase in PM_{10} emissions would be below the YSAQMD's thresholds of significance and would decline in the future with wet mining. Consequently, the project would not be expected to result in the creation of a conflict with $PM_{2.5}$ Implementation/Maintenance Pan and Resignation Request for the SFNA in the cumulative setting.

Cumulative Health Risks from TACs

As discussed previously, existing and proposed operations would present several sources of potential health risks to nearby receptors. In particular, mining operations result in the emission of DPM from off-road equipment at mining sites and processing plants, as well as from on-road haul trucks. Additionally, mining activities result in the emission of dust, which can represent a health risk where respirable silica is contained within the dust. Considering the potential sources of TAC emissions related to mining operations, detailed health risk assessments were prepared for the described sources of health risks from existing and proposed activities. Table 4.3-16 below presents a comparison of the cumulative health risks between existing and proposed conditions.

Again, it is important to note that the health risks presented above would not necessarily be experienced by the same receptors under existing and proposed project conditions. For instance, receptors closer to the existing Schwarzgruber mining site may experience the highest risk from existing mining activity, while receptors near the Shifler project site may experience the highest risk from proposed project activities.

[69] Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

Similarly, receptors experiencing risks from dust or haul truck emissions would not necessarily be the same receptors as those experiencing health risks due to off-road equipment. Thus, the subtotal health risks presented in Table 4.3-16 would not be anticipated to be experienced by any single receptor (including, but not limited to, those receptors presented in Figure 4.3-1).

As shown in Table 4.3-16, implementation of the proposed project would reduce health risk as compared to the existing mining activity at the Woodland Plant and Schwarzgruber site. However, because the proposed increase in material throughput would result in increased emissions of fugitive dust, which contains respirable silica, the proposed project could result in comparatively increased health risks related to respirable silica. The net increase in health risks due to silica would not exceed YSAQMD's thresholds of significance for acute health risks from new sources of TACs.

Table 4.3-16
Cumulative Health Risk

Project Condition	Source	Cancer Risk (per million persons)	Acute Hazard Index	Chronic Hazard Index
Existing Operations	DPM From Equipment	78.26	0.00	0.03
	DPM From Hauling	2.54	0.00	0.00
	Respirable Silica	0.00	0.00	0.03
	Subtotal	*80.80*	*0.00*	*0.06*
Proposed Project	DPM From Equipment	63.90	0.00	0.01
	DPM From Hauling	7.38	0.00	0.00
	Respirable Silica	0.00	0.00	0.04
	Subtotal	*71.28*	*0.00*	*0.06*
	Difference	**-9.52**	**0.00**	**0.00**

Note: Differences and subtotals may not sum due to rounding.
DPM = Diesel Particulate Matter

Sources: AERMOD, and HARP 2 RAST, April and July 2020 (see Appendix D).

Health Risks from Criteria Pollutants

Recent rulings from the California Supreme Court (including the *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 case regarding the proposed Friant Ranch Project) have underscored the need for analysis of potential health impacts that could result from the emission of criteria pollutants during operation of proposed projects. Although methodologies for the analysis of project-level health risks related to the emission of CO and TACs have been developed and implemented over a long period of time under CEQA, the project-level analysis of health impacts due to criteria pollutant emissions is a relatively new field that has been under development since the Supreme Court's ruling. The analysis of potential health impacts resulting from criteria pollutant emissions has long been focused on a regional or air basin wide level rather than a project-level. The reason for a wide geographic focus on health impacts from criteria pollutants is that criteria pollutants act on a large, regional scale, whereas TACs and CO act on a more localized level. For instance, according the CARB's *Air Quality and*

Land Use Handbook: A Community Health Perspective, health impacts related to many common sources of TACs are experienced within the first 500 to 1,000 feet from a source of emissions.[70] The localized nature of impacts from TACs allows for dispersion modeling of TACs to be undertaken with a detailed scope of focus and high degree of confidence. In contrast, health risks from criteria pollutants occur over entire air basins, such as the SFNA for ground-level ozone, which encompasses all of Sacramento and Yolo counties, and portions of Placer, El Dorado, Solano, and Sutter counties.

In many cases, the concern regarding health risks from criteria pollutants is not related to the specific pollutant itself, such as ROG or NO_X, but the potential for the pollutant to undergo reactions within the atmosphere and form secondary pollutants, such as ozone. In such cases, the secondarily formed ozone is the pollutant of concern related to health risk, rather than the pollutant ROG or NO_X itself. The formation of ozone is dependent upon various regional factors, including the presence or absence of chemicals and elements in the atmosphere, geography of the given area, the presence of solar energy, as well as meteorological and climatological conditions. In addition, while PM can be emitted directly to the atmosphere by projects, PM can also be formed secondarily by precursor emissions. Thus, the formation of PM can similarly be dependent on regional atmospheric chemistry, geography, weather, and climate. The complex reactions and conditions that lead to the formation of ozone and PM in the atmosphere can also result in the transport of pollutants over wide areas. The potential for criteria pollutant emissions to be transported over wide areas means that the emissions of ozone precursor pollutants, such as ROG and NO_X, from a single project does not necessarily translate directly into a specific concentration of ozone, or a specific level of health risk, in that area.

Although YSAQMD has not yet released guidance related to addressing the analysis of health risks due to criteria pollutant emissions, in December of 2019, SMAQMD released the *Draft Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* (Draft Guidance) for the analysis of criteria emissions in areas within the District's jurisdiction.[71] A revision to the draft guidance was released in May and June of 2020 to address issues raised during the public comment period for the Draft Guidance.[72] The Draft Guidance represents SMAQMD's effort to develop a methodology that provides a consistent, reliable, and meaningful analysis in response to the Supreme Court's direction on correlating health impacts to a project's emissions. As part of SMAQMD's efforts to provide guidance on the issue, the district developed tools that could be used within a five-Air District Region, which includes Sacramento and Yolo counties, and portions of Placer, El Dorado, Solano, and Sutter counties. Thus, while YSAQMD has not yet published guidance related to the analysis of health risks resulting from criteria air pollutants, YSAQMD staff did contribute to the SMAQMD Draft Guidance and SMAQMD's Draft Guidance is intended to aid the analysis of potential impacts of criteria pollutant emissions within the five-Air District Region. Given the regional nature of health impacts from criteria pollutants discussed

70 California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
71 Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*. January 31, 2020.
72 Sacramento Metropolitan Air Quality Management District. *CEQA Guidance & Tools*. Available at http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools. Accessed June 2020.

above, relying on SMAQMD's guidance that is intended for use throughout region is a reasonable approach to analysis in this context.

The Draft Guidance recommends the use of SMAQMD's Strategic Area Project Health Effects Tool for large projects within the five-Air District Region. Based on SMAQMD's draft guidance and the estimated emissions for the existing and proposed mining activity, the operational emissions outputs prepared for the project were input into SMAQMD's Strategic Area Project Health Effects Tool.[73] SMAQMD's Strategic Area Project Health Effects Tool allows for health risks to be estimated for projects in proximity to "Strategic Area Locations," which are distributed throughout the SFNA. Strategic Area Locations were selected by air district personnel based both on historic development trends and prospective planning for likely areas of growth within the SFNA. In order for health risks to be calculated, a Strategic Area Location must be selected. SMAQMD's Strategic Area Project Health Effects Tool includes two Strategic Area Locations within YSAQMD's jurisdiction, one in Woodland and one in Vacaville. The Woodland Strategic Area Location is located on the eastern side of the City of Woodland. The Woodland location represents conditions most similar to the project site and has been used in this analysis.

SMAQMD's Strategic Area Project Health Effects Tool requires that the user input a project's emissions in units of lbs/day.[74] Table 4.3-17 below presents the existing health risks from operations of the combined Woodland and Esparto plants while Table 4.3-18 presents the health risks that would result from implementation of the proposed project. Health risks are presented over the five-Air District Region considered by SMAQMD.

Based on Table 4.3-17 and Table 4.3-18, implementation of the proposed project would increase potential health risks related to $PM_{2.5}$, but decrease health risks related to ozone, as compared to the existing project conditions. Overall, health risks resulting from existing or proposed operations would represent a small fraction of the background rate of health incidences due to cumulative development in region.

YSAQMD has adopted thresholds of significance for health effects from the emission of TACs in terms of increased cancer risk and health indices. However, neither YSAQMD, SMAQMD, nor any other air district in California has yet adopted thresholds of significance for the health risks presented in Table 4.3-17 and Table 4.3-18. Due to the absence of quantitative thresholds for health risks related to criteria pollutants, the health risks presented in Table 4.3-17 and Table 4.3-18 are provided primarily for informational purposes, rather than for the purpose of reaching a quantitative conclusion regarding the significance of the potential health risks. From a qualitative perspective, the project has been shown to result in a net reduction in ROG and NO_X emissions as compared to the environmental baseline. Thus, the project would not contribute to an increase in health risks related to ozone. Although the project would result in a net increase in emissions of PM_{10}, the level of emissions would be below the YSAQMD's thresholds of significance.

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73 Sacramento Metropolitan Air Quality Management District. *Strategic Area Project Health Effects Tool*. January 28, 2020.

74 Ramboll. *Instructions for Sac Metro Air District Minor Project and Strategic Area Project Health Effects Screening Tools*. January 28, 2020.

Table 4.3-17
Draft SMAQMD Health Effects Tool: Existing Conditions

Health Endpoint	Age Range[1]	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year)[2] (Mean)	Percent of Background Health Incidences Across the 5-Air-District Region[3] (%)	Total Number of Health Incidences Across the 5-Air-District Region (per year)[4]
Respiratory $PM_{2.5}$				
Emergency Room Visits, Asthma	0-99	0.34	0.0018	18,419
Hospital Admissions, Asthma	0-64	0.021	0.0012	1,846
Hospital Admissions, All Respiratory	65-99	0.11	0.00056	19,644
Cardiovascular $PM_{2.5}$				
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65-99	0.057	0.00024	24,037
Acute Myocardial Infarction, Nonfatal	18-24	0.000028	0.00075	4
Acute Myocardial Infarction, Nonfatal	25-44	0.0024	0.00079	308
Acute Myocardial Infarction, Nonfatal	45-54	0.0058	0.00078	741
Acute Myocardial Infarction, Nonfatal	55-64	0.0097	0.00078	1,239
Acute Myocardial Infarction, Nonfatal	65-99	0.035	0.00070	5,052
Mortality PM2.5				
Mortality, All Cause	30-99	0.72	0.0016	44,766
Respiratory Ozone				
Hospital Admissions, All Respiratory	65-99	0.12	0.00060	19,644
Emergency Room Visits, Asthma	0-17	0.67	0.011	5,859
Emergency Room Visits, Asthma	18-99	1.1	0.0084	12,560
Mortality Ozone				
Mortality, Non-Accidental	0-99	0.076	0.00025	30,386

1 Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.
2 Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects are shown for the 5-Air-District Region.
3 The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, the background incidence rates cover the 5-Air-District Region (estimated 2035 population of 3,271,451 persons). Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.
4 The total number of health incidences across the 5-Air-District Region is calculated based on the modeling data. The information is presented to assist in providing overall health context.

Source: SMAQMD, Draft Strategic Area Project Health Effects Tool. Published June 2020.

Table 4.3-18
Draft SMAQMD Health Effects Tool: Project Conditions

Health Endpoint	Age Range[1]	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year)[2] (Mean)	Percent of Background Health Incidences Across the 5-Air-District Region[3] (%)	Total Number of Health Incidences Across the 5-Air-District Region (per year)[4]
Respiratory $PM_{2.5}$				
Emergency Room Visits, Asthma	0-99	0.48	0.0026	18,419
Hospital Admissions, Asthma	0-64	0.030	0.0016	1,846
Hospital Admissions, All Respiratory	65-99	0.15	0.00079	19,644
Cardiovascular $PM_{2.5}$				
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65-99	0.079	0.00033	24,037
Acute Myocardial Infarction, Nonfatal	18-24	0.000040	0.0011	4
Acute Myocardial Infarction, Nonfatal	25-44	0.0034	0.0011	308
Acute Myocardial Infarction, Nonfatal	45-54	0.0082	0.0011	741
Acute Myocardial Infarction, Nonfatal	55-64	0.014	0.0011	1,239
Acute Myocardial Infarction, Nonfatal	65-99	0.050	0.00098	5,052
Mortality PM2.5				
Mortality, All Cause	30-99	1.0	0.0023	44,766
Respiratory Ozone				
Hospital Admissions, All Respiratory	65-99	0.11	0.00058	19,644
Emergency Room Visits, Asthma	0-17	0.65	0.011	5,859
Emergency Room Visits, Asthma	18-99	1.0	0.0081	12,560
Mortality Ozone				
Mortality, Non-Accidental	0-99	0.073	0.00024	30,386

1 Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.
2 Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects are shown for the Reduced Sacramento 4-km Modeling Domain and the 5-Air-District Region.
3 The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, the background incidence rates cover the 5-Air-District Region (estimated 2035 population of 3,271,451 persons). Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.
4 The total number of health incidences across the 5-Air-District Region is calculated based on the modeling data. The information is presented to assist in providing overall health context.

Source: SMAQMD, Draft Strategic Area Project Health Effects Tool. Published June 2020.

Because net emissions resulting from project implementation would not exceed the YSAQMD's thresholds of significance, and a quantitative threshold for potential health risks related to criteria pollutants has not been adopted, the proposed project's incremental contribution to health risks from criteria pollutants would be less than significant.

Conclusion

Implementation of the proposed project would result in a net decrease in ozone precursor emissions, including ROG and NO_X, and a net increase in emissions of PM_{10}. The net decrease in ozone precursor emissions would aid in the attainment of CAAQS and NAAQS for the region, and the net increase in PM_{10} emissions would be below YSAQMD's thresholds of significance, indicating that the increase in PM_{10} emissions would not interfere with attainment of the CAAQS and NAAQS. The CCAP Update FEIR determined that implementation of the CCAP would result in a cumulatively considerable impact related to criteria pollutant emissions. However, because the net emissions occurring with project implementation would not exceed the YSAQMD's thresholds of significance, the project's incremental contribution to this impact would be considered ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

4.3-7 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The project's incremental contribution to this significant cumulative impact would be *cumulatively considerable*.

Implementation of the proposed project would result in short-term GHG emissions related to the relocation of Moore Canal and modification of Magnolia Canal, as well as long-term GHG operational emissions.

Short-Term GHG Emissions

Relocation of Moore Canal and modification of Magnolia Canal would involve the use of off-road equipment, which would likely be fossil-fuel powered, most likely through the use of diesel fuel. As such, relocation of the Moore Canal and modification of Magnolia Canal would result in short-term GHG emissions. Potential emissions resulting from relocation of Moore Canal and modification of Magnolia Canal were quantified using CalEEMod, and determined to equate to 11.84 $MTCO_2e$ for the entire relocation process. As noted previously, YSAQMD has not yet established or adopted any GHG thresholds, and is instead recommending analysis of GHGs consistent with SMAQMD's adopted thresholds of significance. For typical land use projects, SMAQMD recommends use of a construction threshold of 1,100 $MTCO_2e$/yr threshold of significance to determine whether construction would result in the generation of GHG emissions sufficient to result in a significant impact on the environment. Emissions from relocation of the Moore Canal and modification of Magnolia Canal would be well below SMAQMD's applicable threshold, and, as such, the relocation of Moore Canal and modification of Magnolia Canal would not be considered to result in

generation of GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Long-Term GHG Emissions

Existing mining operations at the Esparto and Schwarzgruber sites, as well as processing activity at the Esparto and Woodland plants, currently result in emissions of GHGs from various sources that are primarily the result of combustion of fossil fuels and the consumption of electricity. Electricity is provided from solar power and the electrical grid. Emissions of GHGs occur on-site due to the use of off-road equipment, as well as off-site due to the off-site generation of energy and hauling of material. Operation of the proposed project would result in similar sources of GHG emissions.

According to CEQA Guidelines Section 15064.4(b), the extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting should be considered when assessing the significance of impacts from GHG emissions on the environment. Therefore, in accordance with CEQA Guidelines Section 15064.4(b), to determine the significance of project-related GHG emissions, Table 4.3-19 presents the net GHG emissions that would result from implementation of the project as compared to GHG emissions occurring due to existing agricultural and mining activities. Due the absence of YSAQMD adopted thresholds of significance for GHG analysis, and considering the conservative approach to analysis recently applied in the CCAP Update FEIR and the Granite Esparto Mining and Reclamation Certified FEIR, any net increase in GHG emissions would be considered a significant impact.

Table 4.3-19
Net New Operational GHG Emissions

	GHG Emissions ($MTCO_2e$/yr)
Existing Emissions (Esparto, Woodland, and on-site Agricultural Activities)	11,601.01
Proposed Project	13,489.45
Net New Emissions	**1,887.84**
See Appendix D for all emissions calculations.	

As shown in Table 4.3-19, the proposed project would result in a net increase in GHG emissions of approximately 1,887.84 MTCO2e/yr. Upon completion of reclamation, the proposed 116.7 acres of reclaimed agricultural land, as well as recreation, parkway, and open space uses of dedicated lands, would generate GHG emissions. However, given that the total acreage of agricultural land would be smaller than what currently exists on-site, agriculture-related GHG emissions would be reduced relative to existing conditions. GHG emissions associated with future recreational, parkway, open space uses are also expected to be minimal because the Cache Creek Parkway will fulfill area demand for open water and passive recreation opportunities not available locally and currently filled elsewhere in the region, primarily outside the County.

Because emissions are anticipated to increase with implementation of the proposed project, the project would result in a *cumulatively considerable* contribution to the significant cumulative impact analyzed in the CCAP Update FEIR.

Mitigation Measure(s)

Implementation of Mitigation Measure 4.3-7 would ensure that operational GHG emissions are reduced to levels that are equal to or less than existing emissions. By ensuring that implementation of the proposed project would not result in a net increase in GHG emissions, the incremental contribution of the project to the significant cumulative impact identified in the CCAP Update FEIR would be *less than cumulatively considerable*.

4.3-7 *Prior to initiation of mining activity at the Shifler mining site, the project applicant shall submit, for review and approval, a Greenhouse Gas Reduction Plan (GHGRP) to the Yolo County Department of Community Services. In order to demonstrate that implementation of the proposed project would not result in a net increase in GHG emissions from baseline conditions, the GHGRP shall demonstrate how operational emissions of the proposed project would be reduced by at least 1,887.84 $MTCO_2e$/yr. Strategies to achieve emissions reductions may include, but are not limited to, the following:*

- *Replacement of existing fossil fueled equipment with hybrid or electrically powered equipment;*
- *Installation of additional renewable energy systems on-site;*
- *Purchase of an increased proportion of electricity from renewable sources;*
- *Purchase carbon credits to offset Project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB, YSAQMD, or Yolo County.*

If purchase of off-site mitigation credits is selected as a means of meeting the requirements of this mitigation measure, purchase of off-site mitigation credits shall be negotiated with the County and YSAQMD at the time that credits are sought. Off-site mitigation credits purchased as part of this mitigation measure shall be real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Such credits shall be based on protocols that are consistent with the criteria set forth in subdivision (a) of Section 95972 of Title 17 of the California Code of Regulations, and shall not allow the use of offset projects originating outside of California, except to the extent that the quality of the offsets, and their sufficiency under the standards set forth herein, can be verified by Yolo County and/or the YSAQMD. The credits must be purchased through one of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the CAPCOA GHG Rx and the YSAQMD.

4.3-8 Conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. The project's incremental contribution to this significant cumulative impact would be *cumulatively considerable*.

The emissions inventory prepared for the Yolo County CAP included existing emissions levels due to mining activity within the County. However, because Yolo County does not maintain control over the equipment used in mining activities, which is a principal source of mining-related emissions, the County's CAP did not include emissions from mining-related equipment in the emissions forecasts prepared as part of the County's CAP. Rather, the County's CAP acknowledges that state, federal, and YSAQMD regulations and permitting requirements would serve to reduce emissions from mining equipment into the future. In particular, the LCFS, the In-Use Off-Road Diesel Vehicle Regulation, and the statewide RPS requirements would serve to reduce emissions from mining activity associated with implementation of the proposed project. The LCFS would reduce emissions related to the consumption of diesel fuel on-site as well as the consumption of fuel in employee vehicles and haul trucks. The In-Use Off-Road Diesel Vehicle Regulations includes requirements for retrofitting and repowering low tier engines to achieve emissions reductions. Emissions reductions for higher tier engines can be achieved through increased fuel efficiency which reduces both criteria pollutant emissions as well as GHG emissions. Finally, the State's RPS requirements would ensure that any grid-supplied electricity provided to the project site would be composed of an increasingly greater proportion of renewably supplied electricity.

Although emissions related to mining equipment were not included in the County's CAP, emissions associated with transportation-related activity were included in other sectors analyzed under the County's CAP. With regard to the proposed project, transportation-related emissions would include employee commutes to and from the project site as well as material hauling through the use of on-road haul trucks.

Considering the approach to emissions projections and reductions taken in the County's CAP, several aspects of the County's CAP relate to the proposed project or can be supported by implementation of the project. In particular, consolidation of the existing mining activities at the Esparto Plant to the Woodland Plant would allow for the use of more efficient equipment currently located at the Esparto Plant at the Woodland Plant. The increased efficiency achieved by consolidation of the existing operations to the Woodland Plant has been demonstrated through anticipated reductions in ozone precursors, as presented in Table 4.3-10.

Although the emissions modeling presented in this chapter represents operations of the proposed project at the maximum permitted capacity, a project-specific analysis of the VMT considered multiple operational scenarios. As discussed further in the VMT analysis, if production levels under the proposed project equal the existing production levels at the Esparto and Woodland Plant (which would represent a continuation of the existing level of demand for aggregate material, rather than an increase in aggregate demand to the maximum permitted levels as analyzed in this section of the EIR), the consolidation of aggregate mining at the Woodland Plant would result in an overall

reduction in VMT.[75] Reducing VMT would directly result in reduced GHG emissions through a decrease in consumption of fossil fuels. Thus, despite the increase in production assumed for this analysis, the GHG emissions per unit of aggregate produced would decrease with implementation of the project, as the production and distribution process would become more efficient as a result of the project. Given that the CCAP Update FEIR determined that the CCAP is consistent with the County's CAP, and the proposed project is consistent with the CCAP, the proposed project would likewise not conflict with the County's CAP.[76]

Yolo County's CAP identifies increased energy efficiency within the industrial sector as a supporting means of achieving the CAP's reduction goals.[77] Furthermore, the County's CAP seeks to reduce embodied energy content of construction materials as a means of reducing lifecycle emissions related to development within the County. Continued provision of a local source for aggregate material, as would be provided with implementation of the project, would support the County's goal of using local materials, and could support the County in any effort to establish requirements for locally made or extracted materials in new developments. Thus, while emissions related to mining and material extraction are assumed to be addressed through state regulations and not expressly included in the County's CAP projections, the proposed project would support measures within the County's CAP by providing a more efficient, local source of aggregate materials.

Based on the above, the proposed project would be generally consistent with the applicable portions of the County's CAP. Nevertheless, additional steps could be taken to ensure that the proposed project does not inhibit the emissions reductions goals established in the County's CAP, and/or contributes to further reductions.

For instance, while the project would result in reduced GHG emissions per unit of aggregate processed, the project would continue to result in the generation of GHG emissions related to transportation. Commenters on the NOP released for this EIR noted that transportation-related emissions could be reduced through the following means: provision of a Class I bicycle route to the site, installation of electric vehicle charging stations, provision of electric power to any truck rest areas, and support of renewable energy systems through on-site installations of renewable energy systems or purchase of renewably sources electricity from utility providers. The foregoing comments are addressed in further detail below.

Between 30 and 50 employees would work at the project site and Woodland Plant with implementation of the project. Considering the location of the project site, few if any future employees would be anticipated to commute by bicycle to the project site even if a Class I bicycle route was provided. As shown in the project-specific VMT analysis, the VMT per unit of material processed would decrease with implementation of the proposed project; consequently, the project would not result in an impact related to VMT or transportation-related GHG that would necessitate the construction of

75 Fehr & Peers. *Shifler Mining Project Vehicle Miles Traveled Impact Evaluation*. February 4, 2020.

76 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069* [pg 4.7-14]. December 2019.

77 Yolo County. *Yolo County Climate Action Plan: A Strategy for Smart Growth Implementation, Greenhouse Gas Reduction, and Adaptation to Global Climate Change* [pg. 61]. March 15, 2011.

additional bicycle infrastructure. Also, the *County of Yolo Bicycle Transportation Plan* does not identify the need for a Class I bicycle path to the project site.[78]

Although the use of bicycles to commute to the project site is speculative, future employees could use electric passenger vehicles to access the project site. The proposed project does not currently include the installation of electric vehicle charging infrastructure at either the Woodland Plant or the Shifler mining site. Installation of electric vehicle charging infrastructure would support the use of electric vehicles by employees or visitors to the project site and would contribute to reductions in transportation-related GHG emissions within the County associated with the project.

Currently, provision of on-site electrical power for haul trucks is only needed where long-haul trucks are used. Long-haul trucks typically include accessories that require either use of an on-board diesel generator or hook-ups to supplemental electrical power. The existing mining and processing operations as well as the proposed project would primarily serve the aggregate material needs of nearby project sites. Consequently, long-haul trucks would be atypical at the project site and would not be anticipated to be used in the future. Due to the lack of use of long-haul trucks, installation of infrastructure to supply electrical power to long-haul trucks would be an inefficient use of resources. Although electrical power for long-haul trucks may not be needed at the project site, the CARB has recently adopted regulations requiring that truck manufacturers transition from diesel trucks and vans to electric zero-emissions trucks beginning in 2024, with all new trucks sold in California being zero-emission vehicles by the year 2045.[79] Given the anticipated lifespan of the proposed project, trucks accessing the Woodland Plant in the future may require electric vehicle charging infrastructure.

An existing photovoltaic system exists at the Woodland Plant, and would be retained with implementation of the proposed project. Installation of additional renewable energy systems has been investigated by the project applicant but was determined to be infeasible or impractical. Because the Woodland Plant is currently served by a renewable energy system, further mitigation is not considered necessary with regard to on-site electricity generation.

Conclusion

Because the project, as currently proposed, does not include electric vehicle charging infrastructure, the project would not reduce transportation-related emissions to the maximum extent possible, and may be considered to conflict with the County's CAP, which is the applicable plan adopted for the purpose of reducing the emissions of GHGs. Thus, the project would be considered to result in a ***cumulatively considerable*** impact.

Mitigation Measure(s)

Implementation of the following mitigation measure would ensure that the proposed project would comply with the County's CAP to the fullest extent possible. In order to ensure compliance with the County's CAP, the County may wish to condition the

[78] Yolo County. *Bicycle Transportation Plan, Bicycle Routes and Priorities* [Figure 4]. March 2013.

[79] California Air Resources Board. *California takes bold step to reduce truck pollution*. Available at: https://ww2.arb.ca.gov/news/california-takes-bold-step-reduce-truck-pollution. Accessed September 2020.

project to require appropriate infrastructure to provide charging capacity for at least one employee, and, at the discretion of the Yolo County Department of Community Services at the time that the plan is submitted for review and approval, may also include infrastructure to provide for charging of electric haul trucks or machinery. Thus, following implementation of the mitigation measure, and similar to the conclusions of the CCAP Update FEIR, the proposed project would result in a *less than cumulatively considerable* impact.

4.3-8 Within the first three years of initiation of mining activity at the Shifler Project site, the project applicant shall submit to the County an Electric Vehicle Parking Plan for the Woodland Plant, that shall specify the number and location of electric vehicle charging installations.

4.3-9 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to air quality, GHG emissions, and energy. This impact would be *less than significant*.

Table 4.3-20 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to air quality, GHG emissions, and energy.

As shown in the table, the proposed project is anticipated to be generally consistent with applicable standards related to air quality, GHG, and energy. Thus, a ***less-than-significant impact*** would occur.

Table 4.3-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy CI-4.4 Support and encourage low emission or non-polluting forms of transportation.	Mitigation Measure 4.3-8 requires that the project applicant develop and implement an electric vehicle charging program. The electric vehicle charging program is intended to provide infrastructure necessary to support the use of electric vehicles for employee or hauling uses. Thus, with implementation of Mitigation Measure 4.3-8, the project would comply with this measure.
Goal ED-5.4 Economic Sustainability. Support sustainable economic development. Encourage local industry to adapt to the expected effects of climate change and minimize greenhouse gases and other emissions.	See Impact 4.3-1. The proposed project would result in net reductions in ROG and NO_X emissions. Although the project would be anticipated to increase emissions of PM_{10}, compliance with Dust Control requirements in the Mining Ordinance would reduce these emissions to the greatest feasible extent. See also Impact 4.3-7. The project would provide a continued local source of building aggregates, which would be considered to support the County's CAP. Therefore, the project would be consistent with this policy.

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Policy ED-5.4 Encourage businesses to exceed clean air standards, whenever possible.	See Impact 4.3-1. The proposed project would result in net reductions in ROG and NO_X emissions. Although the project would be anticipated to increase emissions of PM_{10}, compliance with Dust Control requirements in the Mining Ordinance would reduce these emissions to the greatest feasible extent.
Policy CO-6.6 Encourage implementation of YSAQMD Best Management Practices, such as those listed below, to reduce emissions and control dust during construction activities: • Water all active construction areas at least twice daily. • Haul trucks shall maintain at least two feet of freeboard. • Cover all trucks hauling soil, sand, and other loose materials. • Apply non-toxic binders (e.g. latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area. • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days). • Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land. • Plant vegetative ground cover in disturbed areas as soon as possible. • Cover inactive storage piles • Sweep streets if visible soil material is carried out from the construction site • Treat accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips or mulch. • Treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.	Section 10-4.414 of the OCSMO requires mining and reclamation projects to implement dust control measures. Furthermore, it is recommended that the County include, as a Condition of Approval for the proposed project, the requirement that all relevant YSAQMD best management practices for dust suppression be implemented during relocation of Moore Canal and modification of Magnolia Canal. Therefore, the proposed project would be consistent with this policy.
Goal CO-8 Climate Change. Reduce greenhouse gas emissions and plan for adaptation to the future consequences of global climate change.	Mitigation Measure 4.3-7 requires that GHG emissions reductions strategies be implemented sufficient to ensure that implementation of the proposed project would not result in a net increase in emissions. Accordingly, direct operations of the project would not result in increases to GHG emissions that could conflict with this goal. The purpose of the project is to provide a local source of aggregate materials. Aggregate materials are used in a wide variety of applications, and provision of a local source of such materials reduces the need for aggregate materials to be hauled into the area from other more distant locations. Thus, the project supports the provision of aggregate material with a low level of imbedded GHG emissions (i.e., aggregate material provided by the project would

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	result in a relatively lesser amount of GHG emissions per unit of material as compared to material hauled in from a more distant source). Accordingly, the project would be consistent with this goal.
Policy CO-8.2 Use the development review process to achieve measurable reductions in greenhouse gas emissions.	Mitigation Measure 4.3-7 requires the project to achieve a total reduction in GHG emissions of 1,887.84 $MTCO_2e$/yr, as compared to estimated unmitigated project operations. The inclusion of Mitigation Measure 4.3-7 within this EIR would result in a measurable reduction in GHG emissions, thus fulfilling this policy.
Policy CO-8.4 Encourage all businesses to take the following actions, where feasible: replace high mileage fleet vehicles with hybrid and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emissions reductions and reusable materials; and increase recycling.	The Woodland Plant currently features an installation of renewable energy systems to provide solar energy to existing operations. The fleet of off-road equipment operated within the project site is subject to statewide regulations such as the In-Use Off-Road Diesel Vehicle Regulation, which required off-road equipment fleets to meet stringent emissions standards. Accordingly, the proposed project would comply with this policy.
Policy CO-8.5 Promote GHG emission reductions by supporting carbon efficient farming methods (e.g. methane capture systems, no-till farming, crop rotation, cover cropping); installation of renewable energy technologies; protection of grasslands, open space, oak woodlands, riparian forest and farmlands from conversion to other uses; and development of energy-efficient structures.	The Woodland Plant includes on an existing solar system that generates power for a portion of the plant's electricity demand. The solar system would remain in use with implementation of the proposed project. Reclamation activities would allow for agricultural activities to resume on 117 acres of the project site, following the cessation of mining activities. The remaining portions of the site would be reclaimed as an open water lake, which would include riparian woodland along the fringes/shoreline. Thus, the project would comply with this policy.
Off-Channel Mining Plan	
None applicable.	
Off-Channel Surface Mining Ordinance	
Sec. 10-4.407 Wherever practical and economically feasible, portable or movable conveyor systems shall be used to transport raw materials and overburden.	On-site conveyor systems would be electrically powered. Thus, the project would comply with this requirement.
Sec. 10-4.414. Dust Control. Unless superseded by newer more effective standards, the following measures shall be implemented in order to control fugitive dust: (a) All stockpiled soils shall be enclosed, covered, or have sufficient moisture to control fugitive dust at all times. Inactive soil stockpiles should be vegetated or adequately watered to create an erosion-resistant outer crust.	Existing operations at the Woodland Plant comply with the applicable dust control measures, and implementation of the proposed project would involve continued implementation of all such measures. Furthermore, it is recommended that the County include, as a Condition of Approval for the proposed project, the requirement that all relevant YSAQMD best management practices for dust suppression be implemented during relocation of Moore Canal and modification of Magnolia Canal. Therefore, the proposed project would be consistent with this regulation.

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(b) During operating hours, all disturbed soil and unpaved roads shall be adequately watered to keep soil moist. (c) All disturbed but inactive portions of the site shall either be seeded or watered until vegetation is grown or shall be stabilized using methods such as chemical soil binders, jute netting, or other Yolo-Solano Air Quality Management District approved methods.	
Section 10-4.415 All internal combustion engine driven equipment and vehicles shall be kept tuned according to the manufacturer's specifications and properly maintained to minimize the leakage of oils and fuel. No vehicles or equipment shall be left idling for a period of longer than is required by law, recommended by the Air District, or ten (10) minutes, whichever is shorter.	Off-road equipment used during implementation of the proposed project would be required to comply with the In-Use Off-Road Diesel Vehicle Regulation, which includes restrictions on idling time as well as standards for reducing emissions from off-road equipment. One means of reducing emissions is to keep equipment tuned according to the manufacturer's specification. Furthermore, the proposed mining and reclamation activities would comply with OCSMO standards related to fueling and maintenance of equipment in the vicinity of the proposed mining pit. Thus, the project would comply with this measure.
Section 10-4.429 All off-channel surface mining operations shall comply with the following setbacks: (a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented.	Based on submitted plans for the project, all material stockpiles would be located in compliance with the requirements of this section (see Figure 3-10, Proposed Stockpile Locations, in Chapter 3, of this EIR).
Section 10-4.433 Topsoil, subsoil, and subgrade materials in stockpiles shall not exceed forty (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles, other than aggregate stockpiles, shall be seeded with a native vegetative cover to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Director. Slopes on stockpiled soils shall be graded to 2:1 (horizontal:vertical) for long-term storage to prevent use by bank swallows. At no time during the active breeding season (May 1 through July 31) shall slopes on stockpiles exceed a slope of 1:1, even on a temporary basis. Stockpiles shall be graded to a minimum 1:1 slope at the end of	The applicant must comply with these requirements as a standard condition of approval. Compliance with this section would reduce the potential for windborne erosion of stockpiled material, which would be considered a source of PM emissions.

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each work day where stockpiles have been disturbed during the active breeding season.	

4.4 Biological Resources

4.4 BIOLOGICAL RESOURCES

4.4.1 INTRODUCTION

The Biological Resources chapter of the EIR evaluates the biological resources known to occur or potentially occur within the proposed project site. The Biological Resources chapter describes potential impacts to those resources and identifies measures to eliminate or substantially reduce those impacts to a less-than-significant level. Existing plant communities, wetlands, wildlife habitats, and potential for special-status species and communities are discussed for the project area. The information contained in the analysis is primarily based on the Biological Resources Assessment (see Appendix E) prepared by Teichert Materials[1] and revised with an errata prepared by EcoSynthesis, Scientific & Regulatory Services, Inc. (EcoSynthesis), the Biological Resources Assessment Peer Review prepared by Live Oak Associates, Inc. (LOA) (see Appendix E),[2] a Wetland Delineation for the project site prepared by ECORP Consulting, Inc. (ECORP) (see Appendix F),[3] an Aquatic Resources Delineation prepared for the project site by EcoSynthesis (see Appendix F),[4] and the Reclamation Plan prepared for the proposed project by Teichert Materials (see Appendix C).[5] Further information was sourced from the Yolo County General Plan[6], the Yolo County General Plan EIR,[7] and the Cache Creek Area Plan (CCAP) Update EIR.[8]

In response to the NOP, the County received comments related to biological resources from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- The presence of listed rare, threatened, endangered, locally unique, and special-status species (California Department of Fish and Wildlife);
- Potential impacts to wildlife habitat on the project site (California Department of Fish and Wildlife);
- Potential impacts to rivers, streams, lakes, or other waterways in the area (California Department of Fish and Wildlife);
- Potential impacts to migratory birds and birds of prey that may be present in the project area (California Department of Fish and Wildlife);
- Impacts to wildlife movement corridors and migratory species (Resident); and
- Negative impacts to Cache Creek Nature Conservancy (Resident).

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1 Teichert Materials. *Biological Resources Assessment, Teichert Shifler Mining Project*. January 2020.
2 Live Oak Associates, Inc. *Biological Resources Assessment Peer Review for the Shifler project, located in Yolo County, California (PN 2338-01).* October 17, 2019.
3 ECORP Consulting, Inc. *Wetland Delineation for Shifler Property.* May 18, 2012.
4 EcoSynthesis, Scientific & Regulatory Services, Inc. *Memorandum: Shifler Project Site Aquatic Resources Delineation*. July 5, 2020.
EcoSynthesis, Scientific & Regulatory Services, Inc. *Teichert Shifler Project Determination of Waters of the U.S.* December 5, 2019.
5 Teichert Materials. *Shifler Mining and Reclamation Plan, Yolo County, California*. June 2018.
6 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
7 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034.* April 2009.
8 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and is reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following terms are used throughout this section and have important bearing upon properly evaluating biological resources within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

"Habitat" refers to the environment that supports an animal or plant. Factors that affect the habitat of an animal or plan include biotic factors such as the other plants and animals present in the habitat, and abiotic factors, such as the average temperature and presence or absence of surface water.

"Riparian" is a term used to describe something, often habitat, that is situated on the banks of a river. For instance, a riparian forest would be a forest that grows along the banks of a river and is heavily influenced by the presence of the river.

"Special-status species" are species that have been listed as "threatened" or "endangered" under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), or are of special concern to federal resource agencies, the State, or private conservation organizations. A species may be considered special-status due to declining populations, vulnerability to habitat change, or restricted distributions.

A description of the criteria and laws pertaining to special-status classifications is described below. Special-status plant species may meet one or more of the following criteria:

- Plants listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species);
- Plants that are candidates for possible future listing as threatened or endangered under the FESA (64 FR 205, October 25, 1999; 57533-57547);
- Plants listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5);
- Plants that meet the definitions of rare or endangered species under the California Environmental Quality Act (CEQA) (CEQA Guidelines, Section 15380); or
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered" in California (Lists 1A, 1B, 2A, 2B, and 3 species in CNPS [2001]).

Special-status wildlife species may meet one or more of the following criteria:

- Wildlife listed as threatened or endangered, or proposed or candidates for listing by the United State Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) under the FESA (50 CFR 17.11 for listed wildlife and various notices in the Federal Register for proposed species);



- Wildlife listed or proposed for listing by the State of California as threatened and endangered under the CESA (14 CCR 670.5);
- Wildlife that meet the definitions of rare or endangered species under the California Environmental Quality Act (CEQA Guidelines, Section 15380);
- Wildlife identified as Medium or High priority species by the Western Bat Working Group (WBWG);
- Wildlife species of special concern (SSC) to the California Department of Fish and Wildlife (CDFW) (Remsen [1978] for birds; Williams [1986] for mammals); and/or
- Wildlife species that are fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Several species of plants and animals within California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the State's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described below, State and federal laws have provided the CDFW and the USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to the State. A number of native plants and animals have been formally designated as threatened or endangered under State and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFW. In addition, the CNPS has developed a set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as "special-status species."

"Take" is a specifically defined term by both the CESA and FESA. FESA defines take as removing, harming, killing, or harassing any listed species, while CESA does not include the terms harm or harass.

"Waters of the U.S." As described in the Wetland Delineation prepared for the Shifler site, potential waters of the U.S., including wetlands, which may be regulated by the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 Code of Federal Regulations (CFR) 328.3(b), 51 FR 41250, November 13, 1986]. Wetlands can be perennial or intermittent, and isolated or adjacent to other waters.

"Other waters" are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses [33 CFR 328.3(a), 51 FR 41250, November 13, 1986]. The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the "ordinary high water mark". The ordinary high water mark is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 CFR 328.3(e), 51 FR 41250, November 13, 1986]. The bank-to-bank extent of the channel that contains the water-flow during a normal rainfall year generally serves as a good first approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the ordinary high water mark is no longer perceptible.



4.4.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to biological resources.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands, ornamental landscaping, and scattered native vegetation.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

As a part of California's Central Valley, the area experiences a Mediterranean climate characterized by hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 39 degrees Fahrenheit (°F) in December to a high of 94°F in July and August. Average annual precipitation is approximately 21.38 inches, with the greatest amount of precipitation typically occurring in January.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. A small oak woodland stand is located north of where the Moore Canal meets the Magnolia Canal, with additional scattered oaks occurring along the northern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site.



Ruderal/annual grassland vegetation is present along agricultural borders and roads and along the northern portion of the project site paralleling Cache Creek. As discussed in greater detail further below, aquatic resources are also present on the site. Site topography is relatively flat, with surface elevations ranging from approximately 98 to 112 feet above mean sea level (MSL). The predominant soil type within the project site is Yolo silt loam, which is a fine-silty series of Mollic Xerofluvents. Other soil types include Loam alluvial land; Brentwood silty clay, 0 to 2 percent slopes; and Sehorn-Balcom complex, 2 to 15 percent slopes. All such soil types are classified as well drained and non-hydric. The soils are non-saline, though some may be very slightly saline at their most extreme.[9]

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), rural residential, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The aggregate mining operations to the north consist of Teichert's Storz mining site to the northwest and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

Aggregate produced at the proposed mine would be processed at the nearby existing Woodland Plant, and the proposed project would include relocation of processing equipment from the Esparto Plant to the Woodland Plant. The Woodland Plant is currently used as an active plant site and, thus, is heavily disturbed. In addition, the project would not alter the type of processing operations at the Woodland Plant from what currently occurs. Thus, the existing setting described below focuses on the proposed mine site and does not specifically address existing conditions at the Woodland Plant.

California Wildlife Habitats and Terrestrial Plant Communities

Below is a summary of the habitat communities and vegetation types present on-site, based on the land cover and natural communities classes provided in Chapter 2 of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) (see Figure 4.4-1).

Cultivated Land

The majority of the project site consists of agricultural land (i.e., cultivated land), totaling approximately 282.993 acres.[10] Crops planted at the site over the past decade have included grain/hay crops (e.g., wheat), alfalfa, truck/berry crops (e.g., tomatoes, and cucumbers), canola, field crops (e.g., sunflowers), and safflower. Ruderal plants are common along agricultural borders and roads, including pigweed (*Amaranthus albus*, *A. blitoides*, and *A. retroflexus*), lamb's quarters (*Chenopodium album*), mallow (*Malva parviflora* and *M. leprosa*), bindweed (*Convolvulus arvensis*), devil's claw (*Proboscidea louisianica* and *P. lutea*), puncture vine (*Tribulus terrestris*), common knotweed (*Polygonum aviculare* subsp. *depressum*), bermuda grass (*Cynodon dactylon*), and Johnson grass (*Sorghum halepense*).

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9 U.S. Department of Agriculture, Natural Resource Conservation Service, Regents of the University of California (Agricultural Experiment Station). *Soil Survey of Yolo County, California.* 1972.

10 The exact area considered agricultural land in this chapter differs slightly from the area considered Farmland in other chapters of this EIR, for instance Chapter 4.2, Agricultural Resources, for several reasons. The principal difference is that field surveys and detailed aerial imagery was used to delineate the habitat types present. Mapping of Farmland uses a large scale that is not dependent on small variations within a given area. Mapping of habitat types would include differentiation of a small drainage ditch or outcropping of oaks from the overall cultivated land habitat type.

Grassland

The northern portion of the project site paralleling Cache Creek supports approximately 9.894 acres of grassland. The majority of the grasslands are separated from the agricultural area by a conveyor system and access/maintenance road. The remainder of the grasslands are south of the conveyer in incidental areas left fallow. Common grassland species include filaree (*Erodium botrys*, *E. cicutarium*, and *E. moschatum*), common fiddleneck (*Amsinckia intermedia*), ripgut brome (*Bromus diandrus*), soft-chess (*Bromus hordeaceus*), wild oat (*Avena barbata* and *A. fatua*), hare wall barley (*Hordeum murinum*), and six-weeks fescue (*Festuca myuros*). Disturbed areas also support dense stands of ruderal vegetation, including milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), mallow, and perennial mustard (*Hirschfeldia incana*).

Valley Oak Woodland

Approximately 1.671 acres projecting south from the northeastern portion of the project site supports a valley oak woodland stand. Most of the oaks are associated with a segment of the earthen-lined Magnolia Canal just north of the Moore Canal. Common understory vegetation includes poison oak, horehound (*Marrubium vulgare*), Italian thistle, and ripgut brome.

Wetlands and Potential Waters of the U.S./State

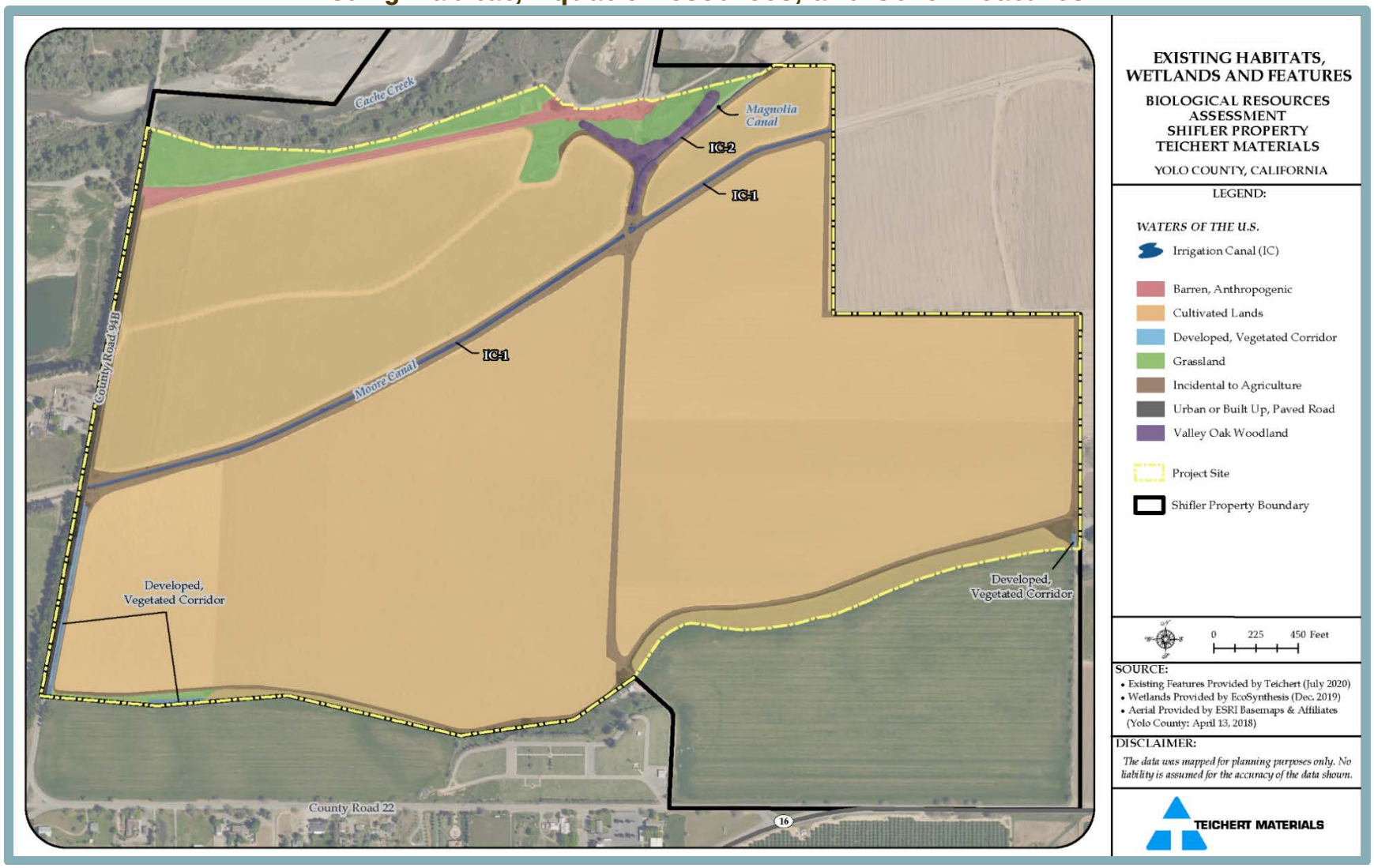
A delineation of wetlands and other waters of the U.S. was prepared for the project site by ECORP. The USACE issued a preliminary jurisdictional determination (PJD) in July 2012. Subsequent to the USACE PJD, EcoSynthesis provided a new wetland delineation of the Shifler site using up-to-date methodologies and equipment. EcoSynthesis submitted the findings of the updated wetland delineation to the USACE, which issued a PJD on June 3, 2020 concurring with the findings of EcoSynthesis. Based on the updated delineation efforts prepared for the project, the project site contains a total of 2.205 acres of potentially jurisdictional waters of the U.S. – which would also be considered waters of the State. The potentially jurisdictional waters on-site consist of Moore Canal and Magnolia Canal (see Figure 4.4-1).

Previous wetland delineations prepared by ECORP for the project site identified other features on-site that were considered potentially jurisdictional at the time ECORP prepared the site delineation. As further explained in the Aquatic Resources Delineation memorandum prepared by EcoSynthesis on July 5, 2020, all potential aquatic resources within the site other than Moore Canal and Magnolia Canal have been determined not to be aquatic resources. In addition, the USACE confirmed to EcoSynthesis that the on-site irrigation ditches (such as the Moore Canal and Magnolia Canal) are not considered jurisdictional. The USACE's PJD issued on June 3, 2020 is considered the definitive determination of potentially jurisdictional features on-site. Given the conclusions of the USACE, the project site does not contain any aquatic features that would be considered jurisdictional waters by the USACE.

Moore Canal and Magnolia Canal

Both the Moore Canal and Magnolia Canal, collectively totaling 2.205 acres, appear on the USGS 7.5-minute series "Woodland, California" quadrangle as a dashed blue line feature. The Moore Canal is an approximately 19.8-foot-wide concrete-lined irrigation water conveyance system operated by the YCFCWCD. Moore Canal enters the project site from underneath County Road 94B and flows in a west to east direction. A gate structure exists near the northeastern portion of the project site, which allows water from the Moore Canal to be diverted into the Magnolia Canal.

Figure 4.4-1
Existing Habitat, Aquatic Resources, and Other Features



Source: Teichert Materials, 2020.

The Magnolia Canal is an approximately six-foot-wide earthen-lined canal that starts at the gate structure and flows in a northeasterly direction.

Both canals are continuously maintained, and vegetation is usually absent. The earthen-lined Magnolia Canal supports some vegetation, which can vary between years depending on the availability of water allocations. When the canal is operating and flowing, predominant vegetation includes nutsedge (*Cyperus esculentus* var. *leptostachyus* and *C. eragrostis*), Bermuda grass, rye grass (*Festuca perennis*), bearded sprangletop (*Leptochloa fusca* subsp. *fascicularis*), common barnyard grass (*Echinochloa crus-galli*), and Johnson grass (*Sorghum halepense*). In drought years when the canal is not operating, vegetation generally consists of ruderal plants including milk thistle, perennial mustard, orach (*Atriplex* sp.), Bermuda grass, and rye grass.

The USACE confirmed that both Moore Canal and Magnolia Canal meet the CFR's definition of irrigation ditches. Per the Section 404(f) exemption found in 33 CFR 323.4(a)(3), permits from USACE are not required for construction and maintenance of irrigation ditches as irrigation ditches are not considered waters of the U.S. Nevertheless, the irrigation ditches may be considered to be waters of the State.

Other Disturbed Areas

Other areas within the site include an existing conveyor system and associated graveled maintenance road (approximately 3.564 acres) along the northern portion of the project site, which transports aggregate material from Teichert's adjacent Storz site to the west to the Woodland Plant to the northeast. Features incidental to agriculture (approximately 15.927 acres) are present throughout the project site. Landscape plantings consisting of oleanders (*Nerium oleander*) are present along County Road 94B and the southeastern portion of the project site (approximately 0.782 acres).

Special-Status Species

A comprehensive literature review, based on the professional experience of contributing biologists within the region and elsewhere in California, was conducted to identify special-status plant and wildlife species known to occur in the project region. Sources consulted included the CNDDB; the USFWS official list of federal candidate, proposed, threatened, and endangered species; the CNPS Online Inventory of Rare and Endangered Plants of California; the eBird online bird database, and Appendix A: Covered Species Accounts of the Yolo HCP/NCCP. In addition, multiple field surveys were conducted between June 18, 2012 and July 2016. Surveys focused on rare plants and existing habitats, but also included incidental observations of wildlife use and nesting species. During follow-up site visits conducted in September 2019, LOA confirmed that the site conditions described in the 2012 and 2016 surveys remained valid. An additional protocol-level rare plant survey was conducted in 2018.

The study area was extended beyond the project site boundary to ensure all areas within 165 feet (50 meters) of the proposed limits of disturbance were examined to address potential indirect impacts to other biological resources (i.e., elderberry shrubs), consistent with Yolo HCP/NCCP guidelines. The survey area is referred to hereafter as the "study area". The study area is generally inclusive of the project site, with the exception of a narrow strip along the northern project site boundary. The strip of land along the northern project site boundary was excluded after careful review of the plan to relocate Moore Canal, the mining plan, and the reclamation plan. Because none of the foregoing plans depicted disturbance north of the existing conveyor, survey and analysis of the area along the northern boundary of the project site was not deemed necessary

or essential to the analysis of potential impacts resulting from project implementation. The study area also does not include the Woodland Plant site, as the site is currently used as an active processing plant and is heavily disturbed as a result. The proposed project would include pumping of groundwater from the proposed mining area to the adjacent Woodland Plant, which would require installation of new water pipe infrastructure alongside the existing conveyor belt alignment. However, installation of the pipe would not require trenching in areas that have not already been subject to substantial prior disturbance associated with the conveyor belt. Thus, the portion of the proposed pipe alignment lying outside of the project site and within the existing alignment of the conveyor was not included in the study area.

The potential for special-status plants and animals, as well as other bird species protected under the Migratory Bird Treaty Act (MBTA), depends largely on the presence of specific habitat types on the project site. Habitat types identified in previous documents and recent field assessments were evaluated with known habitat requirements for each species with potential to occur in the regional area. The potential for each species to occur on the project site was assessed and ranked as one of the following:

- Known to Occur – Taxon was observed at the project site during recent surveys.
- Likely to Occur – Taxon previously reported within or immediately adjacent to the site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the project site.
- Could Occur – Suitable habitat is available at the site; however, other indicators that the taxon might be present are minimal or nonexistent.
- Unlikely to Occur – Taxon is unlikely to be present due to poor habitat quality or known restricted current distribution that does not include the project area.
- No Habitat Present – Taxon's distribution is within or close to the project site; however, taxon requires specific habitat type not present in project area.

Table 4.4-2, presented at the end of this Chapter, provides a summary of all special-status species known or potentially known to occur in the project region, along with specific information for each of the species, including federal and State designations, biological and distribution information, survey (blooming or activity) period, and likelihood of occurrence on the project site. In addition, the table includes select species that are not considered special-status but are protected under the MBTA.

Special-Status Plants

As shown in Table 4.4-2, of the 24 special-status plant species known to occur in the project region, 23 have habitat requirements that are not met on the project site. Only one species, Sanford's arrowhead (*Sagittaria sanfordii*), has the potential to occur on the project site based on habitat requirements.

Sanford's Arrowhead (Sagittaria sanfordii)

Sanford's arrowhead is not listed pursuant to either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP; however, the species is listed as a California Rare Plant Rank (CRPR) 1B.2 species by the CNPS. Sanford's arrowhead is a rhizomatous, herbaceous perennial associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the

species, although it appears to tolerate a wide range of freshwater marsh environments. Flowering typically occurs between May and August.

The species is widely distributed throughout the Central Valley between zero and 2,200 feet in elevation. Sanford's arrowhead is documented from 93 occurrences and is presently known from Shasta to Tulare County, with the majority of records occurring in Sacramento County. A disjunct population also occurs near Crescent City in Del Norte County. The species is presumed to have been extirpated from much of its historic range in southern California (Orange and Ventura counties). The nearest documented occurrence of Sanford's arrowhead is approximately 20 miles east of the project site (CNDDB Occurrence Number 73) in Sacramento County.

Field surveys for Sanford's Arrowhead were conducted within the study area over five years, between 2012 and 2016, along with a focused rare plant survey in 2018. Individuals of Sanford's arrowhead were not found in or immediately adjacent to the project site. Therefore, Sanford's arrowhead is not expected to occur at the project site.

Special-Status Wildlife and Protected Birds

The sections below further describe wildlife species with potential to occur on the project site based on the presence of suitable habitat and the results of field surveys conducted within the study area. The sections below do not discuss species included in Table 4.4-2 which do not have any significant potential to occur on-site for lack of suitable habitat. For example, California tiger salamander (*Ambystoma californiense*) is a federal and State listed species but is restricted to vernal pools, which do not occur on-site, and therefore the salamander is not discussed below. Similarly, special-status fish are also not discussed below, as the habitat provided by the Moore and Magnolia canals is not suitable for any of the special-status fish included in Table 4.4-2, and Cache Creek is outside of the limits of proposed disturbance.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) is listed as threatened by the FESA. The species is also a covered species under the Yolo HCP/NCCP. The VELB is entirely dependent upon its host plant, elderberry (*Sambucus* spp.). The elderberry shrub is primarily associated with riparian areas, but also occurs in grasslands, dredge tailings, and as isolated roadside shrubs. Most records indicate that the VELB occupies elderberry shrubs in association with other riparian vegetation. Figure 4.4-2 presents the existing VELB shrubs in the vicinity of the project site.

The Yolo HCP/NCCP does not identify the project site as modeled habitat for VELB; however, modeled riparian habitat is located immediately north of the project site. The nearest occurrence record for the species is approximately 0.25-mile (1320 feet) northwest of the project site (CNDDB Element Occurrence Number 81), described as being located on elderberry shrubs within riparian habitat along the south bank of Cache Creek, just west of County Road 94B (see Figure 4.4-3). In addition, numerous exit holes associated with VELB have been documented just north of Cache Creek as part of the Haller VELB mitigation area and mine reclamation site. Numerous elderberry shrubs were observed within the Cache Creek riparian corridor just north of the project site, in addition to shrubs with exit holes. Some of the shrubs occur within the project site, but all are located beyond 165 feet (50 meters) from the limits of disturbance and, therefore, are considered avoided by the project under both the Yolo HCP/NCCP and current USFWS Guidance.

Figure 4.4-2
Location of Existing Elderberry Shrubs

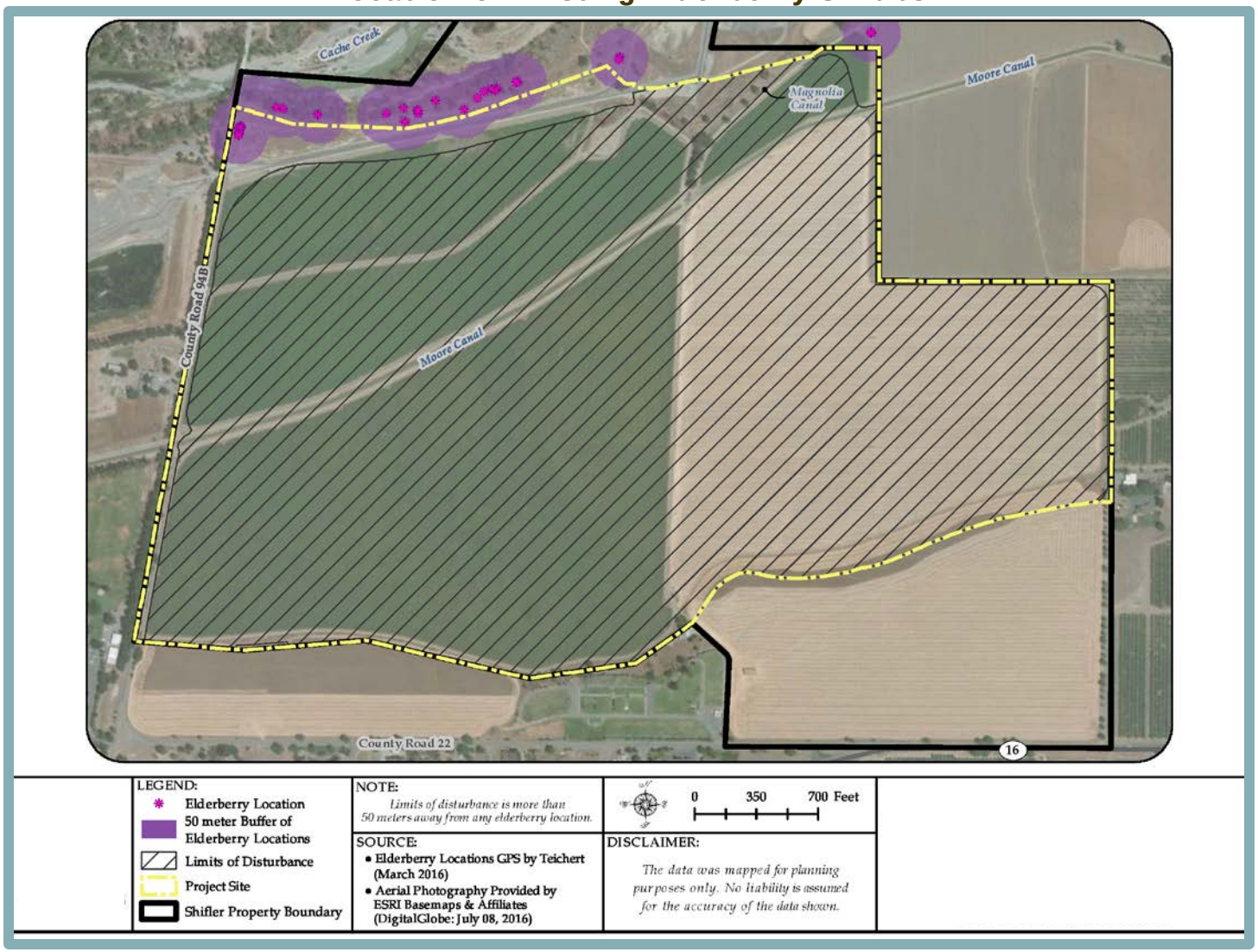
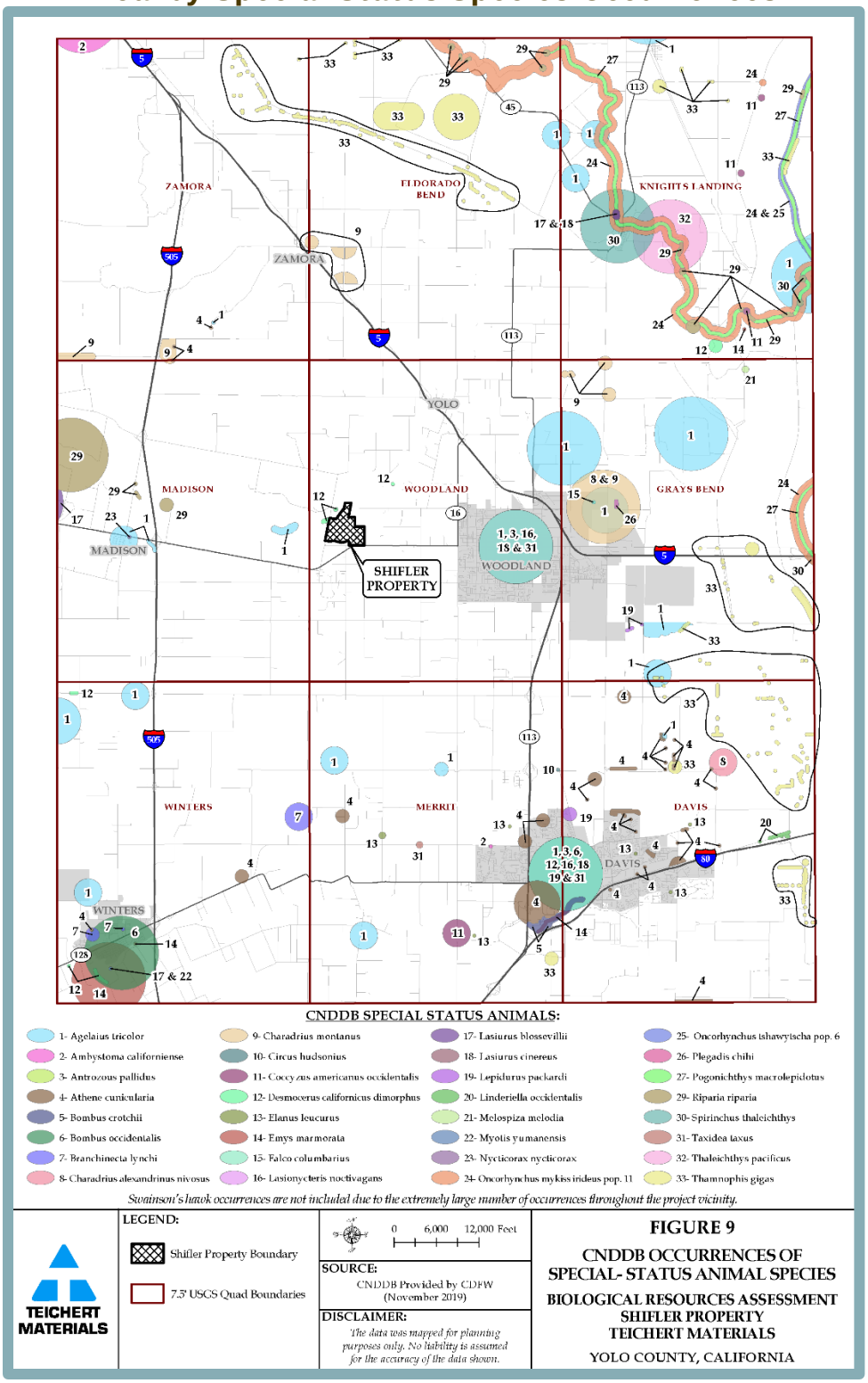


Figure 4.4-3
Nearby Special Status Species Occurrences



Note: Nearest VELB occurrence located to the northwest of the project site.

Western Pond Turtle

Western pond turtle is not listed pursuant to either the FESA or CESA, but is designated by the CDFW as a California Species of Special Concern and is a covered species under the Yolo HCP/NCCP. The species occurs in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams. Western pond turtles are typically active between March and November. Mating generally occurs from late April to early May and eggs are deposited between late April and early August (Jennings and Hayes 1994).

Eggs are deposited within excavated nests in upland areas, within substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats. The majority of nesting sites are located within 650 feet of the aquatic habitat. However, sites have been documented as far as 1,310 feet from aquatic habitat. Nests are typically located on a slope that is unshaded and at least partly south-facing. The slope of nest sites ranges up to 60 feet, but is typically less than 25 feet.

Western pond turtle is discontinuously distributed from western Washington State south to northwestern Baja California, but exists at numerous localities in the Central Valley of California. The nearest known occurrences for the species are approximately 12 miles south of the project site: one in Putah Creek near the City of Winters and the other in Putah Creek in the City of Davis (CNDDB Occurrence Numbers 441 and 362). Although occurrences of the species are not recorded in the CNDDB for the vicinity of the project site, the species has been regularly observed at locations in the upper reaches of Cache Creek (i.e., above Rumsey) and occasionally in the lower reaches of Cache Creek, including the Cache Creek Nature Preserve. Individuals could occur in the Moore and Magnolia canals given the canals' proximity to Cache Creek. While the Yolo HCP/NCCP identifies Moore Canal as modeled aquatic habitat for Western pond turtle, the Yolo HCP/NCCP also states that the model overestimates the extent of aquatic habitat provided by agricultural waterways which often do not provide suitable habitat. The Yolo HCP/NCCP does not identify any modeled "nesting and overwintering habitat" for Western pond turtle on the project site. Most of the upland habitat within the proposed limits of disturbance is unsuitable for nesting or overwintering, given that such land is in active agricultural use each year. However, the narrow strip of ruderal vegetation north of the conveyor belt could be used for nesting. Therefore, Western pond turtle could potentially occur within the study area.

Tricolored Blackbirds

Following an assessment guided by Appendix 1: Survey Protocol Provided to Volunteers of Results of the Tricolored Blackbird 2008 Census and AMM 21 of the Yolo HCP/NCCP, tricolored blackbirds were classified as "unlikely to occur" in Table A-1. Despite being considered "unlikely to occur," Tricolored blackbird is discussed herein because the species is a covered species under the Yolo HCP/NCCP, is the subject of a statewide census, and has a complex life-history which warrants in-depth analysis.

Tricolored blackbird (*Agelaius tricolor*) is listed as a threatened species under the CESA. The breeding season for the species generally extends from mid-April into late July. Prospecting (i.e., searching for and visiting potential nest sites) typically occurs between early April and early June in the Sacramento area. Nesting colonies vary in size from about 50 nests to over 20,000 nests. Historically, tricolored blackbirds were found nesting in large to very large colonies (some estimated at over 100,000 nests) in areas with cattail or tule marsh habitats. However, with the decline of such habitats, the species now also nests in other vegetation including Himalayan blackberry, grain fields (i.e. triticale), especially when weedy or associated with dairies, and

flooded woody riparian vegetation. Foraging habitats are generally associated with open grassland, fields, and farm lands that provide high densities of prey species, such as grasshoppers and butterfly larvae, during the nesting season. Such foraging habitats are typically within three miles or less of the nesting colony.

The nearest recorded CNDDB occurrence of tricolored blackbird, nesting or otherwise, is over 20 years old, located over 5,000 feet from the project site, and was destroyed by flooding in 1995 (CNDDB Element Occurrence Number 303). Many nearby CNDDB records are "Extirpated" or "Possibly Extirpated". Other CNDDB records are "Presumed Extant", yet known to be inactive through the results of the triennial statewide surveys for tricolored blackbird (e.g. Occurrence Numbers 303, 495, 498, 997). The Yolo HCP/NCCP does not identify the project site as containing modeled nesting habitat for tricolored blackbird. The nearest modeled nesting habitat, approximately 2,750 feet from the project site, is a marsh within the Cache Creek Nature Preserve. While parts of the marsh are dominated by tule and cattail, the marsh has never attracted tricolored blackbirds.

The absence of tricolored blackbirds from the project site and surrounding areas is well documented through the results of the triennial statewide surveys, the CNDDB, and local knowledge. Though tricolored blackbirds may forage in field and row crops and could use the site for nesting during years when certain grain crops are being grown, such foraging has never occurred and local conditions have not changed substantially to become more attractive for tricolored blackbird. As such, while the site represents potential foraging habitat for tricolored blackbird, the species is considered unlikely to occur in the study area.

Short-eared Owl

Short-eared owl is not listed in accordance with either the FESA or the CESA, and is not covered by the Yolo HCP/NCCP. However, the short-eared owl is designated as a California species of special concern by the CDFW (when nesting). Easier to see than most owls, the species lives in open terrain with limited numbers of scattered trees. However, the species requires dense cover (e.g., prairie, grasslands, vegetated dunes, meadows, irrigated pasture, and fresh or saltwater marsh) for roosting or nesting. The species nests on the ground in a depression concealed by vegetation. Nesting occurs from early March through late July.

Occurrences of the species have not been reported in the CNDDB for Yolo County. However, multiple eBird records exist documenting the presence of short-eared owls in Yolo County, approximately 3.75 miles from the project site, in January 2018. The species has only been confirmed as an occasional nesting species at the Hunt Wesson Hawk and Owl Reserve north of Davis. Individuals have been observed during the peak nesting season (i.e., June to July) at the Conaway Ranch and Yolo Basin Wildlife Preserve as recent as 2013. Consequently, the species is considered to have some potential, albeit low, to occur at the project site.

Ferruginous Hawk

Wintering ferruginous hawk is not listed in accordance with either the FESA or the CESA, but is currently tracked by the CNDDB. Ferruginous hawk is not covered by the Yolo HCP/NCCP.

Ferruginous hawks begin to migrate into California in August or September and return to their breeding habitat in late February or early March. Expansive, open grassland is the primary wintering habitat of the species. The nearest known CNDDB occurrence is located is 24.8 miles southeast from the study area (CNDDB Element Occurrence Number 7) near the Sacramento

Regional County Sanitation District Bufferlands. Though ferruginous hawks have not been reported within the project vicinity, multiple winter eBird occurrences for the species have been documented in Yolo County. Consequently, the species is considered to have potential to winter at the project site.

Swainson's Hawk

Swainson's hawk is listed as a threatened species pursuant to the CESA, and is a covered species under the Yolo HCP/NCCP. Swainson's hawk prefer open to semi-open habitats throughout much its range. In California, the nesting season for Swainson's hawk ranges from mid-March to late August. In the Central Valley, Swainson's hawks are known to nest within tall trees in a variety of wooded communities including, but not limited to, riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas.

Foraging habitat includes open grassland, savannah, low-cover row and field crops, and livestock pastures. The species is an opportunistic forager and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating. According to recent studies (Swolgaard, et al. [2008] as well as Fleishman et al. [2016][11]), the most frequently used foraging habitats within the Sacramento-San Joaquin Delta region are irrigated hay fields, ruderal areas, and dryland grain fields, with the heaviest usage immediately after mowing, likely due to a temporary increase in prey availability due to the loss of vegetative cover. The least frequently used habitats were oak woodland, irrigated field crops, urban environments, and riparian and lacustrine areas.

The majority of Central Valley nest sites for Swainson's hawk occur in Sacramento, Yolo, and San Joaquin counties. The Yolo HCP/NCCP identifies the project site as containing modeled Agricultural Foraging habitat for Swainson's hawk. Swainson's hawks have been observed on-site (flyover/foraging) during rare plant surveys conducted between 2012 and 2015. Though Swainson's hawk nests have not been documented on-site, nine nests have been reported to the CNDDB within two miles of the project site (Figure 4.4-4).

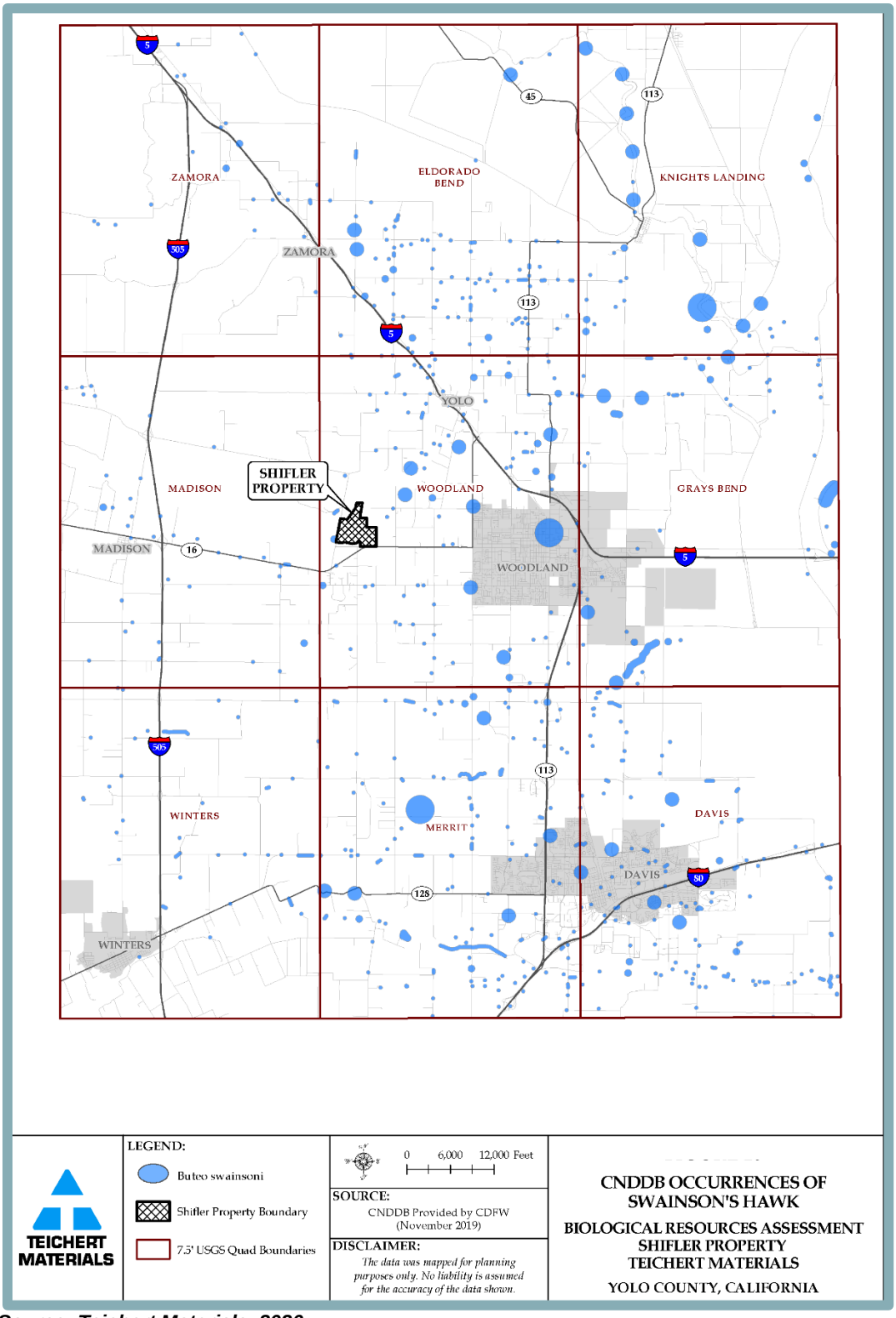
A pair of Swainson's hawk was observed nesting in a eucalyptus tree at Teichert's Woodland Plant site approximately 0.5 mile to the northeast in 2007 and 2008. Although the Yolo HCP/NCCP does not identify the project site as containing modeled nesting habitat for Swainson's hawk, tall trees (i.e., oaks, cottonwoods) along the northern boundary of the project site provide potential nesting habitat for the species, while the annual grassland/ruderal vegetation and agricultural land currently provide potential foraging habitat. Therefore, the species is likely to occur within or immediately adjacent to the project site.

Northern Harrier

Northern harrier is not listed in accordance with either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP. However, Northern harrier is designated as a California Species of Special Concern by the CDFW (when nesting). The species occurs in open habitats, including Arctic tundra, grasslands, open rangelands, desert flats, and marshes. Nesting usually occurs from April to September with peak activity occurring June through July. Nests are typically located on the ground in grassland, weedy fields, grain fields, or marshes.

[11] Fleishman, E., Anderson, J., Dickson, B. G., Krolick, D., Estep, J. A., Anderson, R. L., Bell, D. A. *Space Use by Swainson's Hawk (Buteo swainsoni) in the Natomas Basin, California*. 2016. Available at: http://doi.org/10.1525/collabra.35. Accessed June 2020.

Figure 4.4-4
CNDDB Occurrences of Swainson's Hawk



Source: Teichert Materials, 2020.

An occurrence of nesting Northern harrier in Yolo County was documented in the CNDDB in 2015. The species is known to regularly nest in small numbers throughout the lower elevation portions of Yolo County. The nearest eBird record during peak nesting season (i.e., June to July) is from 2019, approximately 1 mile west of the project site in Wild Wings Park. The species has also been observed foraging at the site on numerous occasions. Consequently, the species could potentially occur within the study area.

White-tailed Kite

White-tailed kite is not listed in accordance with either the FESA or CESA. However, the species is fully protected pursuant to Section 3511 of the California Fish and Game Code. The white-tailed kite is also a covered species under the Yolo HCP/NCCP. The species is commonly found in savanna, open woodlands, desert grassland, marshlands, and cultivated fields. In northern California, white-tailed kites typically nest from March through June. Nesting occurs in large, dense-topped trees within riparian, oak woodland, savannah, and agricultural communities that are near suitable foraging areas.

White-tailed kite has been observed regularly throughout the lower elevation portions of Yolo County, including the riparian areas adjacent to the project site. The Yolo HCP/NCCP identifies the project site as containing modeled “Secondary Foraging” habitat for white-tailed kite. The nearest occurrence of the species reported in the CNDDB is approximately 8.5 miles south of the project site, in a line of pine and eucalyptus trees bordered by fallow fields (CNDDB Occurrence Number 43).

The nearest eBird records are from immediately west of County Road 94B along Cache Creek at the Cache Creek Nature Preserve. Therefore, white-tailed kite is considered to have potential for nesting in trees within or immediately adjacent to the study area.

Merlin

Merlin is not listed in either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP, but the wintering distribution of this species is currently tracked by the CNDDB. The species breeds in rugged terrain that provides both trees for nests and open areas for hunting. In winter, suitable foraging habitat includes a wide range of open environments such as sea coast estuaries, desert, open grasslands, and semi-open woodlands within which the species can hunt from low perches. Consequently, annual grassland and ruderal vegetation and fallow agricultural land provide potential winter foraging habitat for the species.

The nearest CNDDB occurrence is reported approximately seven miles east of the project site, in a bare field in the northeast corner of the City of Woodland (CNDDB Element Occurrence Number 26). The species has occasionally been observed foraging in rangeland or agricultural fields throughout the lower elevation portions of Yolo County. The nearest eBird records are from immediately west of County Road 94B, along Cache Creek, at the Cache Creek Nature Preserve in 2014 and two sightings, one in 2017 and one in 2018, approximately one mile away from the project site at the YCFCWCD building. Therefore, the species is considered to have potential for wintering within the project site.

Loggerhead Shrike

The loggerhead shrike is not listed pursuant to either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP. The species is considered a California Species of Special Concern by the CDFW (when nesting). The species generally occurs in a variety of open

grassland, oak savannah, shrubland, and other similar habitats where it feeds primarily on large insects (e.g., grasshoppers). The species nests in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands. In addition, the species has been observed nesting in cattails. Nesting typically occurs during March to June, with young becoming independent during July or August. The nest is generally well-concealed on a stable branch in a densely-foliaged shrub or tree.

The nearest CNDDB record for the species is in Alameda County. Though nesting occurrences of loggerhead shrike have not been reported within the vicinity of the project site, the species has occasionally been observed in rangeland or agricultural fields throughout the lower elevation portions of Yolo County. The nearest eBird record is on the County Road 94B bridge, immediately northwest of the project site, in 2018. Additional eBird records exist immediately west of County Road 94B, along Cache Creek at the Cache Creek Nature Preserve, in 2014, and at Wild Wings Park, in 2015. Therefore, the species is considered to potentially nest within the project site.

Raptors and Nesting Migratory Birds

Raptors and nesting migratory birds, including species that are not considered special-status species, are protected under Section 3503.5 of the California Fish and Game Code, which provides protection to the nests, eggs, and individuals of raptor species. Raptor and migratory bird species that are not considered special-status species by CDFW but are known to occur in the vicinity of the project site include, but are not limited to, American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) in the order Falconiformes; great-horned owl (*Bubo virginianus*), western screech owl (*Otus kennicottii*), and barn owl (*Tyto alba*) in the order Strigiformes; and yellow-billed magpie (*Pica nuttalli)*. American kestrel, western screech owl, and barn owl are cavity or crevice nesters, whereas the other aforementioned raptor species build stick nests. Nonetheless, suitable nesting locations for each of the species are limited to the larger trees in and immediately adjacent to the project site, typically with a diameter at breast height (DBH) of larger than 15 inches. A barn owl was observed nesting in a barn owl box mounted to an oak tree near the northern portion of the project site. Furthermore, a large stick nest in a snag was also observed. Focused surveys for nesting raptors and migratory birds have not been conducted at the project site. However, given the presence of suitable nesting structures within and immediately adjacent to the project site and known occurrences of other nesting raptors within the site vicinity, raptor nesting migratory bird species are considered to have potential to nest at the site.

Silver-Haired Bat

The silver-haired bat is not listed pursuant to either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP. However, the species is currently tracked by the CNDDB. The silver-haired bat feeds primarily on insects in forested areas near streams and ponds, and roosts in tree and shrub foliage (i.e., snags, cavities, crevices, and exfoliating bark) as well as rock crevices, caves, mines, and buildings.

The nearest known CNDDB occurrence is located is 4.1 miles east from the study area (CNDDB Element Occurrence Number 89). The stand of oak trees located within and immediately adjacent to the northern project boundary may provide roosting habitat for the silver-haired bat. Therefore, the species is considered to have potential to occur within the project site.

Western Red Bat

Western red bat is not listed pursuant to either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP. The species is designated by the CDFW as a California Species of Special Concern. Western red bat prefers forest and woodland habitat with open spaces for foraging. The western red bat almost exclusively roosts in large trees (cottonwoods, sycamores, walnuts, and willows) and occasionally shrubs. The species breeds in August and September, and young are born in May through July.

Multiple occurrences of the western red bat have been documented in Yolo County. The closest to the project site is approximately nine miles to the west of the site, in a fig orchard near the town of Esparto (CNDDB Occurrence Number 92). The stand of oak trees located within and immediately adjacent to the northern project site boundary may provide roosting habitat for the western red bat along the Cache Creek riparian corridor. Therefore, the species is considered to have potential to occur within the project site.

Hoary Bat

The hoary bat is not listed pursuant to either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP. However, the species is currently tracked by the CNDDB. Preferred habitats are forests and woodlands along habitat edges or adjacent to riparian areas with large riparian trees species such as cottonwoods and willows. The species may also be found roosting in nut and fruit orchard trees and to a lesser extent caves or rock ledges.

Scattered occurrences have been recorded by CNDDB throughout Yolo County. The nearest known CNDDB occurrence is located is 4.1 miles east of the project site. The stand of oak trees located within and immediately adjacent to the northern project boundary may provide roosting habitat for the hoary bat. Therefore, the species is considered to have potential to occur within the project site.

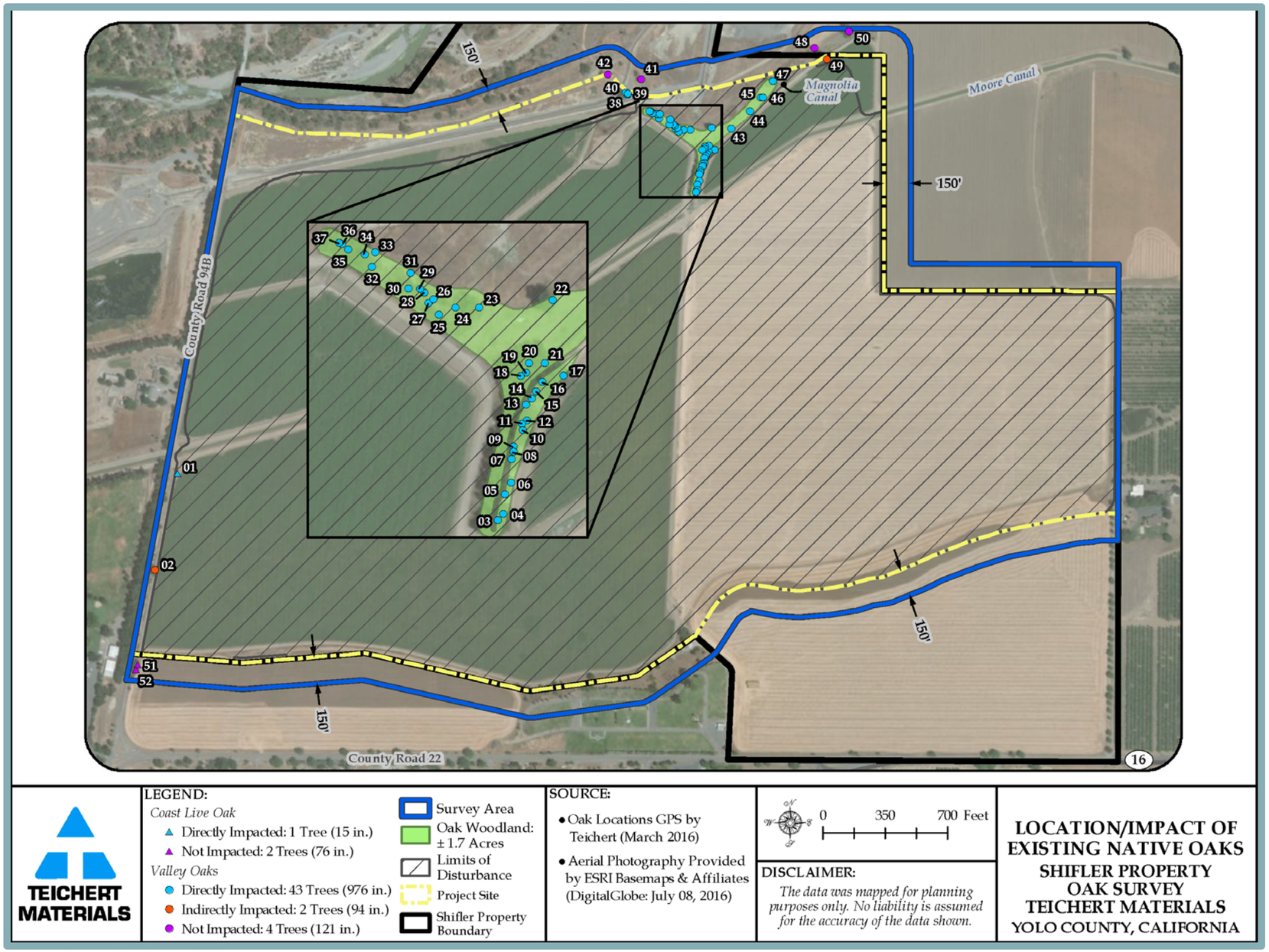
Wildlife Movement

The project site is bounded by County Road 22 to the south and County Road 94B to the west. Such roadways limit the unrestricted movement of terrestrial wildlife through the project site. In addition, the project site is currently used for agricultural production. Thus, the project site does not constitute a substantial established wildlife corridor or wildlife nursery site. However, wildlife may use Cache Creek to the north of the site as a movement corridor.

Trees

An initial tree survey within the study area was prepared on June 20, 2012. A follow-up tree survey was conducted on February 18 and March 22, 2016 in order to account for growth in interim years. Tree surveys consisted of identifying, measuring, and mapping all trees larger than six inches DBH within and immediately adjacent to the study area (i.e., within 100 feet of the project boundaries). The tree surveys identified a total of 52 trees within the survey area, including 49 valley oaks and three coast live oaks (see Figure 4.4-5). Six of the 52 trees were included in the survey area, but are located outside of the project site boundaries. During follow-up site visits conducted in September 2019, LOA confirmed that the site conditions described in the 2012 and 2016 surveys remained valid.

Figure 4.4-5
Tree Locations



Source: Teichert Materials, 2020.

The majority of trees were located along the banks of the Magnolia Canal. The concrete-lined Moore Canal, in contrast, was found to be virtually devoid of vegetation. Remaining mature oaks were found just north of the project site boundaries near the Cache Creek riparian corridor, or along the frontage to County Road 94B. Several smaller valley oak trees measuring less than six inches DBH (saplings) were observed in the understory of existing oaks along Magnolia Canal or within riparian vegetation along the Cache Creek bank, but were not recorded.

Most oak trees were determined to be mature, mid-sized, and in fair to good condition. A number of individuals were multi-trunked, contributing to sizable aggregate diameter measurements. Only one tree was recorded as a snag (#27). Due to the clustered nature of trees along Magnolia Canal, many exhibited poor structure as a result of competition for sunlight.

4.4.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of biological resources under the CEQA process.

Federal Regulations

The following federal regulations are relevant to biological resources.

Federal Endangered Species Act

The FESA protects plants and animals that are listed as endangered or threatened by the National Marine Fisheries Service (NMFS) and USFWS. In general, NMFS is responsible for the protection of listed marine species and anadromous fish species, while other listed species are under USFWS jurisdiction.

Section 9 of the FESA prohibits the taking of threatened or endangered wildlife, except as provided in Sections 6(g)(2) and 10 of FESA, where "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). Under Section 7 of the FESA, federal agencies are required to enter into formal consultation with the USFWS and/or NMFS on proposed federal actions (i.e., actions authorized, funded, or carried out by federal agencies) if their actions could adversely affect a listed (or proposed) species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species.

Section 10 of the FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed. The FESA prohibitions and requirements are different, however, for federally threatened or endangered plant species. For plants, the FESA prohibits the taking of threatened or endangered plants only from areas within federal jurisdiction, or if such take would result in a "knowing violation of any [State law or regulation]" (16 USC 1538). Therefore, in the absence of a federal nexus, a project does not require an incidental take permit pursuant to FESA for impacts to listed plants on private lands.

Section 10 requires the issuance of an "incidental take" permit before any public or private action may be taken that could take an endangered or threatened species. The permit requires preparation and implementation of an HCP that would offset the take of individuals that may occur, incidental to implementation of a proposed project, by providing for the protection of the affected

species. The Yolo HCP/NCCP effective January 2019 authorizes incidental take for five federally listed species. See discussion below under Local Regulations.

Migratory Bird Treaty Act

The MBTA implements international treaties between the U.S. and other nations devised to protect migratory birds. The MBTA makes it unlawful to take any of their parts, eggs, and nests as a result of activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit (i.e., rehabilitation, scientific collecting, etc.). The list of migratory birds (50 CFR 10.13) includes nearly all bird species native to the U.S.. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. The Yolo HCP/NCCP authorizes incidental take for seven migratory bird species. See discussion below under Local Regulations.

Clean Water Act

The USACE regulates discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for the construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2[f]). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

As defined in Title 40, Section 120.2 of the C.F.R. waters of the U.S. include a range of wet environments such as territorial seas including waters that are subject to the ebb and flow of the tied, waters currently or previously used in interstate or foreign commerce; tributaries; lakes, ponds, and impoundments of jurisdictional waters, and adjacent wetlands. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 C.F.R. §328.3[b]). Furthermore, jurisdictional waters of the U.S. can be defined by exhibiting a defined bed and bank and ordinary high water mark (OHWM). The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. §328.3[e]).

As part of its wetland delineation and verification process, the USACE determines whether wetlands and other features on a project site are considered waters of the U.S., and therefore regulated under Section 404 of the CWA. If a project would require the discharge of dredged or fill material into Waters of the U.S., the proponent must seek a permit from the USACE. The USACE can issue an individual permit (for projects resulting in substantial impacts) or a general permit (i.e., Nationwide Permit [for those that result in only minimal individual or cumulative adverse effects]). Pursuant to Section 404 (c) of the CWA, the EPA may "veto" or override a USACE permit if it finds that the proposed discharge will have unacceptable adverse effects on municipal water supplies, shellfish beds and fishery areas, wildlife or recreational areas.

Section 401 of the CWA requires any applicant seeking a Section 404 permit for activities resulting in a discharge into waters of the U.S. to obtain a water quality certification from the Regional Water Quality Control Board (RWQCB). The goal of this program is to protect waters of the U.S. by ensuring that waste discharged into these features meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit and because both programs are a part of the CWA, the definition of "Waters of the U.S." under Section 401 is identical to the definition used by USACE under Section 404 (above).

Executive Order 11990—Protection of Wetlands (May 24, 1977)

Executive Order 11990 provides for the protection of wetlands. The administering agency for the order is the USACE.

State Regulations

The following are the State regulations relevant to biological resources.

California Endangered Species Act

The CESA (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the FESA, but unlike the federal counterpart, CESA pertains to State-listed endangered and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

CESA requires state agencies to consult with the CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species, or result in destruction or adverse modification of essential habitat. CESA allows CDFW to authorize exceptions to the State's prohibition against "take" of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project or activity (Fish and Game Code Section 2081). The Yolo HCP/NCCP authorizes incidental take for seven state listed or candidate plant and wildlife species. See discussion below under Local Regulations.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the CDFW. The NPPA is administered by the CDFW and set forth in California Fish and Game Code Sections 1900-1913. The CESA (Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code. The Yolo HCP/NCCP authorizes incidental take for one state listed plant species. See discussion below under Local Regulations.

Natural Community Conservation Planning Act

The Natural Community Conservation Planning Act allows for the identification and provision of measures necessary to conserve and manage natural biological diversity within the plan area while allowing compatible use of the land. The purpose of natural community conservation planning is to sustain and restore those species and their habitat identified by CDFW that are necessary to maintain the continued viability of biological communities impacted by human changes to the landscape. A number of Natural Community Conservation Plans (NCCPs), which



function as an HCP, and more, have been established in various areas of the State. The Yolo HCP/NCCP became effective January 2019. See discussion below under Local Regulations.

California Species Preservation Act of 1970

The California Species Preservation Act (CFGC Sections 900-903) includes provisions for the protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California. The administering agency for the California Species Preservation Act is the CDFW.

California Fish and Game Code Section 1600 et seq.

Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement (SAA) be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW must be notified prior to any such activities and will review the proposed action(s). If necessary, the CDFW will propose measures to protect affected fish and wildlife resources. The SAA is comprised of the final mitigation measure(s) and condition(s) mutually agreed-upon by the CDFW and the Applicant. Often, projects that require a SAA also require a permit from the USACE under Section 404 of the CWA. In such instances, the conditions of the Section 404 permit and the SAA may overlap.

California Fish and Game Code Sections 1800–1802

Sections 1800 through 1802 of the California Fish and Game Code, administered by the CDFW, mandate that the "department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. The department, as trustee for fish and wildlife resources, shall consult with lead and responsible agencies and shall provide, as available, the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used in the California Environmental Quality Act (CEQA)."

California Fish and Game Code Section 3503

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nests or eggs of any bird, except as provided by this code or any regulation made pursuant thereto. Additionally, Subsection 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. Such stipulations are similar to the federal MBTA and serve to protect nesting native birds. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

California Fish and Game Code Sections 3511 and 5050

Sections 3511 and 5050 of the California Fish and Game Code prohibit the taking or possessing of birds, reptiles, or amphibians listed as "fully protected." The administering agency is the CDFW.

Surface Mining and Reclamation Act of 1975

Acceptable practices and performance standards have been developed as part of Surface Mining and Reclamation Act (SMARA) while providing protection to wildlife and the successful revegetation of mined lands. Per Section 2712 (b), "The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment." An additional 12 standards in the SMARA provide principles for the protection and restoration of wildlife habitats. The relationship of the SMARA to the Cache Creek Area Plan (CCAP) is discussed in Section 1.3 of the OCMP. For more detail, see Impact 4.9-2 of Chapter 4.9, Land Use and Planning, of this EIR.

Porter-Cologne Water Quality Act

The State Water Resources Control Board (SWRCB) and the local RWQCB have jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Act (Porter-Cologne). "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 [e]).

Porter-Cologne requires any person discharging waste, or proposing to discharge waste, that could affect the quality of waters of the State to file a Report of Waste Discharge with the RWQCB (Water Code 13260[a]). The RWQCB will either issue, or waive the issuance of, Waste Discharge Requirements (WDRs) for the proposed discharge which will include conditions on the discharge to ensure the protection of water quality. Through the WDR program, the RWQCB also regulates discharges to "isolated" water features which are not considered waters of the U.S. under the federal CWA.

Under the Porter-Cologne Water Quality Control Act (Cal. Water Code Section 13000-14920), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters. Therefore, even if a project does not require a federal permit (i.e., a Nationwide Permit from the USACE), the project may still require review and approval by the RWQCB, in light of the approval of new NWPs on March 9, 2000 and the Supreme Court's decision in the case of the Solid Waste Agency of Northern Cook County (SWANCC) vs. USACE. The RWQCB in response to the above case, issued guidance for regulation of discharges to "isolated" water on June 25, 2004. The guidance states:

> Discharges subject to Clean Water Act section 404 receive a level of regulatory review and protection by the USACE and are also subject to streambed alteration agreements issued by the CDFW; whereas discharges to waters of the State subject to SWANCC receive no federal oversight and usually fall out of CDFW jurisdiction. Absent of RWQCB attention, such discharges will generally go entirely unregulated. Therefore, to the extent that staffing constraints require the RWQCB to regulate some dredge and fill discharges of similar extent, severity, and permanence to federally-protected waters of similar value. Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of Porter-Cologne.

When reviewing applications, the RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the State. Generally, the RWQCB defines beneficial uses to include all of the resources, services and qualities of aquatic ecosystems and underground aquifers that benefit the State. In most cases, the RWQCB seeks to protect the beneficial uses by requiring the integration of water quality control measures into projects that will result in discharge into waters of the State. For most construction projects, RWQCB requires the use of construction and post-construction Best Management Practices (BMPs). In many cases, proper use of BMPs will speed project approval from RWQCB. Development setbacks from creeks are also requested by RWQCB as they often lead to less creek-related impacts in the future.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County 2030 General Plan

The relevant goals and policies from the Yolo County General Plan related to biological resources presented below:

Policy CO-1.22 Emphasize the use of native grasses, shrubs and trees as the primary focus of landscaping and restoration work within resource parks and other open spaces.

Goal CC-4 Project Design. Require project design that incorporates "smart growth" planning principles and "green" building standards that reflect the County's commitment to sustainable development (see also Goal CO-7).

Policy CC-4.32 Emphasize the use of regionally native drought tolerant plants for landscaping where appropriate.

Goal CI-4 Environmental Impacts. Minimize environmental impacts caused by transportation.

Policy CI-4.5 Roads and road-related structures (bridges, culverts, retaining walls, abutments, etc.) located in or near watercourses shall be placed, designed, built, and landscaped so as to minimize the impact to riparian corridors, including reducing erosion during and after construction, accommodating flood flows, and minimizing grading on slopes greater than 20 percent.

Goal CO-2 Biological Resources. Protect and enhance biological resources through the conservation, maintenance, and restoration of key habitat areas and corresponding connections that represent the diverse geography, topography, biological communities, and ecological integrity of the landscape.

Policy CO-2.9 Protect riparian areas to maintain and balance wildlife values.

Policy CO-2.10 Encourage the restoration of native habitat.

Policy CO-2.14 Ensure no net loss of oak woodlands, alkali sinks, rare soils, vernal pools or geological substrates that support rare endemic species. The limited loss of blue oak woodland and grasslands may be acceptable, where the fragmentation of large forests exceeding 10 acres is avoided and losses are mitigated to the extent feasible.

Policy CO-2.17 Emphasize and encourage the use of wildlife-friendly farming practices within the County's Agricultural Districts and with private landowners including:

- Establishing native shrub hedgerows and/or tree rows along field borders.
- Protecting remnant valley oak trees.
- Planting tree rows along roadsides, field borders, and rural driveways.
- Creating and/or maintaining berms.

- Winter flooding of fields.
- Restoring field margins (filter strips), ponds, and woodlands in non-farmed areas.
- Using native species and grassland restoration in marginal areas.
- Managing and maintaining irrigation and drainage canals to provide habitat, support native species, and serve as wildlife movement corridors.
- Managing winter stubble to provide foraging habitat.
- Discouraging the conversion of open ditches to underground pipes, which could adversely affect giant garter snakes and other wildlife that rely on open waters.
- Widening watercourses, including the use of setback levees.

Policy CO-2.29 Promote native perennial grass habitat restoration and controlled fire management in grazing lands to reduce invasive species cover and enhance rangeland forage.

Policy CO-2.30 Promote native perennial grass habitat restoration and controlled fire management in grazing lands to reduce invasive species cover and enhance rangeland forage.

Policy CO-2.32 Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.

Policy CO-2.34 Recognize, protect and enhance the habitat value and role of wildlife migration corridors for the Sacramento River, Putah Creek, Willow Slough, the Blue Ridge, the Capay Hills, the Dunnigan Hills and Cache Creek.

Policy CO-2.41 Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.

Policy CO-2.42 Projects that would impact Swainson's hawk foraging habitat shall participate in the Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County entered into by the CDFG and the Yolo County HIP/NCCP Joint Powers Agency, or satisfy other subsequent adopted mitigation requirements consistent with applicable local, State, and federal requirements.

Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social

values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Policy CO-5.8 Support efforts to reduce the accumulation of methyl mercury in fish tissue in Cache Creek and the Delta, as well as the consumption of fish with high levels of methyl mercury.

Off-Channel Mining Plan

The following goal and actions from the Biological Resources Element of the adopted Yolo County Off-Channel Mining Plan (OCMP) are applicable to the proposed project:

Goal 6.2-1 Provide for a diverse, native ecosystem within the OCMP area that is self-sustaining and capable of supporting native wildlife and invertebrate species.

Action 6.4-2 Provide for the development of shallow areas along reclaimed off-channel excavations that extend below the groundwater level, to create wetland and riparian habitat. (See Section 10-5.529 of the Reclamation Ordinance.)

Action 6.4-3 Mitigate for short-term and long-term loss of agricultural land and habitat pursuant to applicable County requirements and CEQA. Comply with the Yolo HCP/NCCP for species covered by that Plan. For non-covered species for which impacts may occur, ensure compliance with appropriate measures in site-specific biological assessments required under the OCMP and CCRMP, in compliance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations, plans and programs, as appropriate.

Action 6.4-5 Include provisions to enhance habitat for special-status species in restoration components of reclamation plans, where feasible. (See Section 10-5.523 of the Reclamation Ordinance.)

Action 6.4-7 Restore riparian habitat throughout the planning area, wherever appropriate. However, re-vegetative efforts should be primarily focused on implementing recommendations described in the Technical Studies and the subsequent Restoration Recommendations incorporated into the CCRMP. Integrate off-channel and in-channel revegetation plans with the goal of reducing fragmentation by expanding and connecting existing habitat patches, optimizing restoration planning in alignment with the Parkway Plan, and supporting future funding proposals. Ensure that elements such as soils, drainage, slopes, and habitat types complement one another in a coordinated effort.

Action 6.4-8 Include native-planted hedgerows and other vegetated buffers between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural

operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.

Yolo County Off-Channel Surface Mining Ordinance

Section 10-4.418 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding compliance with the Yolo HCP/NCCP:

> ### Section 10-4.418. Habitat Conservation Plan Compliance
> All surface mining operations shall be consistent with applicable components of the Yolo Habitat Conservation Plan/ Natural Community Conservation Plan (HCP/NCCP).

Section 10-4.429(f) of the Yolo County OCSMO states the following regarding setbacks from riparian vegetation:

> ### Section 10-4.429(f). Setbacks
> (f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation.

Section 10-4.436 of the Yolo County OCSMO states the following regarding protection of existing vegetation:

> ### Section 10-4.436. Vegetation Protection
> Existing vegetation and habitat to be retained shall be enclosed by temporary fencing to restrict access, protect against damage and/or provide buffers to reduce the impact of dust. Temporary fencing shall be a minimum of four (4) feet high. The disturbance of riparian forest or oak woodland vegetation, including identified off-channel vegetation, should be avoided if possible. Replacement habitat and plantings shall be established where complete avoidance is not possible, according to a habitat restoration plan prepared by a qualified biologist, consistent with the goals of this plan.

Section 10-4.440 of the Yolo County OCSMO states the following regarding preservation of wildlife habitat:

> ### Section 10-4.440. Wildlife Habitat
> Avoid disturbance to important wildlife habitat features such as bird nesting trees, colonial breeding locations, elderberry host plants for Valley Elderberry Longhorn Beetle, and mature riparian forest and oak woodland habitat. This shall include sensitive siting of haul roads, trails, and recreational facilities away from these features. Suitable habitat for special-status species shall be protected and enhanced, or replaced as a part of mitigation plans prepared by a qualified biologist where necessary, and through compliance with the Yolo HCP/NCCP for special-status species covered by that Plan. Mining and reclamation activities shall be performed in accordance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations to protect bird nests when in active use.
>
> Native-planted hedgerows and/or other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.

Section 10-4.502(b)(1) of the Yolo County OCSMO states the following regarding requirements applicable to the Biological Resources Assessment prepared for the proposed project.:

> Section 10-4.502(b)(1)
> A biological inventory and analysis to evaluate the on-site habitat value of the proposed mined area, as well as the potential impacts to special-status species and sensitive natural communities, both on-site and within the immediate area. The analysis shall propose appropriate measures to reduce any potential adverse impacts to special-status species or significant suitable habitat, and shall ensure compliance with the Yolo HCP/NCCP, California Fish and Game Code, Migratory Bird Treaty Act, and other applicable regulations, plans and programs. The analysis shall also include a wetland delineation study for any potential on-site wetlands, and shall provide adequate mitigation and appropriate authorizations from regulatory agencies, where required. If landscaping is proposed to screen the surface mining operations from adjoining public rights-of-way or public and private lands, the biological analysis shall include an evaluation of the feasibility of the species, weed control, and irrigation methods to be used;

Yolo County Surface Mining Reclamation Ordinance

Section 10-5.514 of the Yolo County Surface Mining Reclamation Ordinance (SMRO) states the following regarding compliance with the Yolo HCP/NCCP:

> Section 10-5.514. Habitat Conservation Plan Compliance
> All reclamation plans shall be consistent with applicable components of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP).

Section 10-5.515 of the Yolo County SMRO states the following regarding habitat restoration and mitigation plans:

> Section 10-5.515. Habitat Plan Referral
> Proposed habitat restoration or mitigation plans for lands within the OCMP area shall be sent to the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and other interested parties for review and comment through the CEQA process as applicable, to ensure that the projects do not conflict with other existing habitat enhancement efforts.

Section 10-5.523 of the Yolo County SMRO states the following regarding plantings proposed as part of site reclamation:

> Section 10-5.523. Planting Plans
> Site-specific planting plans shall be developed by a qualified biologist for proposed habitat reclamation projects. Restoration components of reclamation plans shall include provisions to enhance habitat for special-status species, where feasible.
>
> Native-planted hedgerows and other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.

Section 10-5.533 of the Yolo County SMRO states the following regarding reclamation to riparian and wetland habitat:

> Section 10-5.533. Wetland Habitat
> Off-channel excavations that are proposed to be reclaimed to permanent lakes shall include riparian and/or wetland habitat. The creation of riparian and or wetland habitat along the perimeter of permanent lakes shall include appropriate features such as: scalloped basin perimeters with extended peninsulas, islands, and stepped benches of various widths at approximately three (3) foot vertical intervals both above and below the groundwater level. Where wetlands are not proposed, either grassland and/or woodland habitat, or agricultural fields separated from the lake by a berm, shall be established using only native species in order to provide continuous habitat value around the permanent lakes.

Project consistency with the SMRO is discussed under Impact 4.4-14 below.

Yolo County Oak Woodland Conservation and Enhancement Plan

The Yolo County Oak Woodland Conservation and Enhancement Plan was prepared in 2007 by the Yolo County Parks and Natural Resource Division. The Plan is designed to promote the conservation and enhancement of the County oak woodlands through voluntary efforts of private land owners and public agencies, focusing on oak woodlands that cover one acre or more. The Plan also includes oak woodland conservation policy recommendations for the General Plan. The plan also includes a checklist to help determine the resource value of existing oak woodlands. A completed checklist for the valley oak (Quercus lobata) woodlands on-site is included as Attachment D to the Biological Resources Assessment (see Appendix E to this EIR).

Yolo Habitat Conservation Plan/Natural Community Conservation Plan

The Yolo HCP/NCCP is a 50-year countywide conservation plan that became effective in January of 2019. The HCP/NCCP protects endangered species and natural resources while allowing for orderly development in Yolo County consistent with local General Plans. The Yolo HCP/NCCP provides coverage for 12 special-status animal and plant species, as well as riparian and other wetland sensitive natural community types.

The process for participating in the Yolo HCP/NCCP includes a pre-application phase to confirm that the project is a covered activity, followed by a preliminary evaluation, and then a formal application. The formal application and coverage under the Yolo HCP/NCCP involves planning level surveys, payment of applicable fees based on quantified temporary or permanent impacts to land cover types for a particular site, and requires compliance with applicable preconstruction surveys and construction-related avoidance and impact minimization measures. An applicant can provide conservation land in lieu of paying a portion of the land cover fee or purchase mitigation credits from an approved mitigation bank in lieu of paying a portion of the fee.

4.4.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to biological resources. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A biological resources impact is considered significant if the proposed project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan;
- The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare or threatened species; or
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) did not identify any less-than-significant impacts related to biological resources.

Method of Analysis

The information contained in the analysis is primarily based on the Biological Resources Assessment prepared by Teichert Materials. The Biological Resources Assessment was subsequently peer-reviewed by LOA, and an errata was separately prepared by EcoSynthesis. The Biological Resources Assessment, peer review, and errata are included in Appendix E of this EIR. Information regarding aquatic resources and specific acreages of on-site habitats were provided by EcoSynthesis, which updates previous Wetland Delineation and habitat mapping efforts completed by ECORP.

Biological Resource Assessment

A comprehensive literature review, based on the professional experience of contributing biologists within the region and elsewhere in California, has been conducted for the project site in order to develop the most accurate list of potentially-occurring special-status plant and animal species. In addition, using the Rarefind 5.2 software program, a standard nine-quadrangle CNDDB report was generated for the study area. The CNDDB contains extensive records for special-status



species, as well as sensitive natural communities, which have been reported to the CDFW by a variety of sources, including researchers, landowners, field biologists and the public. Furthermore, because the CNDDB does not provide a comprehensive inventory of all sensitive species statewide, other sources of information on special-status species in California were also reviewed to determine if any special-status species not identified in the Rarefind 5.2 report have the potential to occur on the project site. Additional sources included the following:

- USFWS, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered species having the potential to occur in the study area; generated on April 7, 2014; April 20, 2017; and December 5, 2019.
- CNPS Online Inventory of Rare and Endangered Plants of California – List of special-status species that may occur in the study area; generated on various dates between April 2014 and April 2018 and November and December 2019.
- eBird Database (http://ebird.org) – Online database of bird distribution and abundance, accessed between April 14 and April 20, 2017 and November and December 2019. The eBird database accepts species occurrence submittals from the general public.
- Yolo HCP/NCCP Appendix A: Covered Species Accounts – Accounts of the life history, ecology, population trends, and other data for each species covered under the Yolo HCP/NCCP. The Appendix also includes modeled habitat for the covered species within the boundaries of the HCP/NCCP.

EcoSynthesis prepared an errata to the Biological Resources Assessment, which corrects information related to wetland delineations performed for the project site. The errata is included in Appendix E along with the Biological Resources Assessment. Further information regarding the updated wetland delineation that the errata is based on is provided in the Wetland Delineation section below.

Surveys

Field surveys were conducted to document existing conditions on-site and assess the potential for habitats on-site to support special-status species. Surveys focused on rare plants and existing habitats, but also included incidental observations of wildlife use and nesting species. Specific survey dates were June 18, June 20, and August 6, 2012; July 18, 2013; August 19, 2014; June 25 and August 5, 2015; and February 18 and July 21, 2016. Most survey dates were established to focus on the range of flowering and identification periods for rare plants. Over the course of the five-year survey period, Teichert Materials thoroughly surveyed all habitats present within the study area in order to properly inventory and document habitats and any potential occurrences of special-status species, including wildlife. In addition, a rare plant survey report was prepared for the project site in 2018. The survey consisted of identifying all habitat types and vegetation communities, conducting protocol-level rare plant surveys, and compiling an inventory of all plant species observed at the site. As discussed further below, the findings of the surveys listed above were confirmed by a reconnaissance-level site visit conducted by LOA on September 26, 2019.

Arborist Report

Oak tree surveys were completed in June 2012, February 18 and March 22, 2016 by Teichert biologists as part of a biological assessment of the site. The February 2016 survey was conducted in order to reassess potential project impacts due to minor changes in the proposed mining boundary, as well as to account for possible tree growth since the initial survey. The survey area generally included the project boundary and areas within 150 feet of the boundary. Trees in

adjacent private properties were determined to be well outside of potential impacts and were thus not inventoried.

An aerial photo of the site was used to determine potential tree locations and to develop field survey maps. Trees were then surveyed on foot to verify and map all trees located within the survey area. All native oak trees with trunks equal to or greater than six inches in diameter were then inventoried and mapped using a Trimble® Juno global positioning system (GPS) unit with sub-meter accuracy. All recorded trees were closely examined to determine species type and diameter at breast height (DBH). In addition, dripline radius was assessed based upon the measurement from the trunk to the end of the longest lateral limb, which defines the root protection zone of the tree.

Data collected at the time of the survey for each tree include: a unique identifying number, species identification, coordinate-based location, trunk DBH measurement, visual estimate of dripline radius, and visual assessment for health and structural condition using a 0 to 4 scale. Vigor consists of a combined assessment of the health and structure of a tree. The health rating (on a scale of 0 to 4) component considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and/or insect infestation. The structural rating component reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure.

Peer Review

As part of the peer review of the Biological Resources Assessment, LOA conducted a reconnaissance-level site visit on September 26, 2019 to evaluate existing conditions of the site. During the site visit, habitats present on the site were verified, including potentially suitable habitat for any special status plant or animal species that are known to occur, or once to have occurred, regionally. The extent of potentially jurisdictional habitats present was also evaluated. In addition, LOA completed an appropriate background review of sources of information relevant to the proposed project, the project site, and the site vicinity, including the project site plans, aerial photographs of the project site, USFWS National Wetlands Inventory Maps, and the CNDDB Rarefind 5 database.

Wetland Delineation

ECORP prepared a wetland delineation of the entire project site in 2012. Since preparation of the ECORP delineation, EcoSynthesis has prepared an additional wetland delineation of the project site. The wetland delineation prepared by EcoSynthesis is considered to be the definitive determination of wetlands within the project site; accordingly, the following section presents the methods used in preparing the EcoSynthesis Report.

Background Information

Preliminary wetland mapping was obtained from the US Fish and Wildlife Service National Wetlands Inventory (NWI) via the on-line Wetlands Mapper application. Information on soils was obtained from the Web Soil Survey on-line application. Climatic information was obtained from the Western Regional Climate Center and from the National Oceanic and Atmospheric Administration.

Other wetland reporting was examined but not relied upon except to identify locations that merited field study.

Field Methods

Field work was carried out according to the 1987 USACE Wetlands Delineation Manual and Regional Supplement for the Arid West Region, Version 2.0.

The EcoSynthesis study was informed by several previous visits to the site in different seasons in 2014 through 2018, specifically including the study of 19 soil pits that were excavated to depths varying from 5 to 14 feet to provide information related to the feasibility of post-mining reclamation. Notably, redoximorphic features and/or hydric soils were not observed in any near-surface strata in any of the pits.

Wetland determination data points were studied on July 12 and November 13, 2019. In two areas with codominance by hydrophytic species (one being an apparent irrigation tailwater detention basin; the other being subject to leakage from an adjacent property), EcoSynthesis studied data points at the wettest feasible spots. Upon finding that wetland criteria were not met at the data points, further "outside" data points were not studied because further points were drier and less likely to meet wetland criteria.

Specific field methods that were applied to the determination of each of the criteria within the study area are described below.

Vegetation

Plant species were identified on sight or with reference to keys and nomenclature of The Jepson Manual, 2nd edition. Determinations of plant cover were visual estimates, aided where necessary by cover percentage diagrams.

Wetland indicator status assignments were made according to current National Wetland Plant List.

Soils

In addition to the soil profiles studied for other purposes, wetland determination soils test pits were excavated by hand tools to depths of 12-20 inches. Determination of the presence or absence of hydric soils field indicators was made on the basis of Field Indicators of Hydric Soils in the United States and the Arid West Regional Supplement. Due to updates in the names and numbers of hydric soils indicators, there are minor discrepancies between the indicators in NRCS and those listed on the Arid West data form, but the discrepancies did not impair the hydric soils determination.

Hydrology

Determinations of wetland hydrology or absence thereof were made by means of field indicators.

Boundaries

The limits of delineated waters of the U.S. were determined at the apparent ordinary high water mark (OHWM) as described in Lichvar and McColley (2008) and documented in OHWM data sheets in Appendix C of the EcoSynthesis Determination of Waters of the U.S. report.

Survey and Mapping Technology

Boundaries and data point locations were surveyed with a Trimble GeoXH 6000 GNSS ("GPS") unit. The resulting data were then differentially post-processed using publicly available base station data. Given the open terrain (generally without woody overstory), satellite reception was excellent and the post-processed points were overwhelmingly determined by the Trimble Pathfinder Office software to be within the 15-30 cm accuracy range. Field work was exported in California State Plan zone 2, US survey feet, and reprojected to WGS 1984 for the contents of the Determination of Waters of the U.S. report.

Wetland Determination

On May 20, 2020 a request for confirmation of Aquatic Resource Delineation was submitted to the USACE, and the USACE responded on June 3, 2020.[12] The request for confirmation of Aquatic Resource Delineation was prepared by EcoSynthesis and was based on mapping prepared December 5, 2019.[13]

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to biological resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

Aggregate produced at the proposed mine would be processed at the nearby Woodland Plant, and the proposed project would include relocation of processing equipment from the Esparto Plant to the Woodland Plant. However, the Woodland Plant is currently used as an active plant site and, thus, is heavily disturbed. In addition, the project would not alter the type of processing operations at the Woodland Plant from what currently occurs. Any potential ground-disturbing activities required at the Woodland Plant as part of the project would be limited to areas that have already been disturbed and do not contain any sensitive biological resources. Thus, the impact analysis below focuses on the project site only.

4.4-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. The impact would be *significant*.

The following sections present a discussion of the special status plants and wildlife species that may be present within the project site. In particular, potential impacts to special-status plants; VELB; Western pond turtle; Northern harrier and short-eared owl; Swainson's hawk and white-tailed kite; loggerhead shrike; other nesting raptors protected under the MBTA; other nesting birds protected under the MBTA; foraging habitat for tricolored blackbird, Swainson's hawk, and white-tailed kite, and winter foraging habitat for ferruginous hawk and merlin; and silver-haired bat, Western red bat, and hoary bat.

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12 Travis Morse, Senior Project Manager, USACE, CO West Section. Personal communication [letter] with Baba, Barry, Habitat Resource Manager, Teichert Materials. June 3, 2020.

13 EcoSynthesis Scientific & Regulatory Services, Inc. *Teichert Shifler Project Determination of Waters of the U.S.* December 5, 2019.

Special-Status Plants

Of the 24 special-status plant species known to occur in the project region, 23 have habitat requirements that are not met on the project site. Only one species, Sanford's arrowhead, has the potential to occur on the project site based on habitat requirements. However, individuals of Sanford's arrowhead or other special-status plants were not found in or immediately adjacent to the project site during the field surveys or the focused plant surveys conducted as part of the Biological Resources Assessment. Suitable habitat for the species includes canals, such as those located on-site. However, both Moore Canal and Magnolia Canal are regularly maintained, which includes vegetation suppression. Therefore, relocation of the canals associated with the proposed project would not result in substantial adverse effects to any special-status plant species, and a less-than-significant impact would occur.

VELB

The VELB is listed as threatened by the FESA. The species is also a covered species under the Yolo HCP/NCCP.

Numerous elderberry shrubs, which are the host plant for VELB, were observed within the Cache Creek riparian corridor just north of the project site, as well as within the project site boundaries. However, all elderberry shrubs identified as part of the Biological Resources Assessment are located over 165 feet from the proposed limits of disturbance (see Figure 4.4-2). All elderberry shrubs would be protected from disturbance during the proposed mining and reclamation activities in accordance with USFWS conservation guidelines, which assumes complete avoidance when a 165-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. The Yolo HCP/NCCP assumes complete avoidance of impacts to shrubs when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level.

Based on the above, the proposed ground-disturbing activities not anticipated to result in adverse effects to VELB. However, given that elderberry shrubs are located within the project site, compliance with AMM-12 in the Yolo HCP/NCCP would be necessary. AMM-12 in the Yolo HCP/NCCP requires the minimization of effects to VELB habitat through identification of existing habitat, protection of such habitat, or replacement of habitat if removal is unavoidable. If removal of elderberry bushes is unavoidable, project proponents are responsible for transplanting elderberry shrubs to suitable habitat or monitor any shrubs left in place to ensure continued survival over a five-year period. Mitigation would be necessary to ensure compliance with the requirements of the Yolo HCP/NCCP.

Western Pond Turtle

Western pond turtle is not listed pursuant to either the FESA or CESA, but is designated by the CDFW as a California Species of Special Concern and is a covered species under the Yolo HCP/NCCP.

Moore and Magnolia Canal may provide habitat for Western pond turtles; specifically, the species is likely to use the canals primarily as movement corridors, if at all. The project would include relocation and modification of Moore Canal and Magnolia Canal,

respectively. The new channels for the canals would be constructed and put into operation prior to destruction of the existing channels. Consequently, the existing channel habitat would be fully replaced prior to removal of the existing channel habitat. Construction of the new canals in this manner would allow any Western pond turtles that happen to be in the existing canals to exit the existing canals prior to demolition of the canals. Thus, potential impacts during relocation and modification of the canals would be avoided. While implementation of the project would not result in the loss of existing aquatic habitat for the species, the proposed reclamation activities would result in the creation of approximately 112.9 acres of lake and shoreline habitat on the project site, increasing future habitat for the Western pond turtle.

The Yolo HCP/NCCP does not identify any modeled "nesting and overwintering habitat" for Western pond turtle on the project site. Most of the upland habitat within the proposed limits of disturbance is unsuitable for nesting or overwintering, given that such land is in active agricultural use each year. However, the narrow strip of grassland vegetation along the northern boundary of the project site, near Cache Creek (see Figure 4.4-1), could be used for nesting habitat by Western pond turtle. While the proposed project would not include any ground-disturbing activities to the north of the existing conveyor belt, compliance with the buffer zones established in the Yolo HCP/NCCP would be necessary in order to ensure that nests are not disturbed. In particular, the project must comply with AMM-14 of the Yolo HCP/NCCP. AMM-14 requires protection of a 100-foot (minimum) permanent buffer zone from the canopy drip-line of any valley foothill riparian, lacustrine, and riverine natural communities. Furthermore, if modeled upland habitat would be impacted, a qualified biologist must be present to assess the likelihood of Western pond turtle nests being present in the area to be disturbed. The qualified biologist should be retained if a nest is determined to be moderately or highly likely to occur in the area of disturbance, and that biologist may physically move any Western pond turtles disturbed as a result of the project. Moreover, the remote possibility exists that individual Western pond turtles could become stranded within the portions of Moore Canal and Magnolia Canal during the re-routing of canal flows into the newly constructed canal channels. Based on the above, the proposed project could result in a significant impact to Western pond turtle.

Northern Harrier and Short-Eared Owl

Neither Northern harrier nor short-eared owl are covered under the Yolo HCP/NCCP. However, both species are designated as California species of special concern by the CDFW (when nesting).

According to the Biological Resources Assessment, Northern harrier and short-eared owl may nest in the patch of ruderal habitat located along the northern boundary of the Project site. The patch of ruderal habitat is small and unlikely to be occupied, but the species cannot be completely discounted from nesting at this location. Consequently, should project-related vegetation removal or earthmoving associated with the proposed project occur during the nesting season of the species (i.e., mid-February to late August), the project could result in the loss of eggs or juveniles. In addition, nearby project-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, limited potential exists for nesting pairs to be sufficiently disturbed such that eggs or juveniles are abandoned or otherwise lost. Based on the above, although the

proposed project is not anticipated to result in impacts to Northern harrier or short-eared owl, disturbance of active nesting locations, should they occur at the site, would result in a significant impact to the two species.

Swainson's Hawk and White-Tailed Kite

Swainson's hawk is listed as a threatened species pursuant to the CESA, and is a covered species under the Yolo HCP/NCCP. White-tailed kite is not listed in accordance with either the FESA or CESA. However, the species is fully protected pursuant to Section 3511 of the California Fish and Game Code. The white-tailed kite is also a covered species under the Yolo HCP/NCCP.

According to the Biological Resources Assessment, the potential exists for Swainson's hawk and white-tailed kite to nest in the existing trees on and adjacent to the project site. With implementation of the proposed project, 46 of the existing on-site trees would require removal, or would otherwise by impacted, to accommodate the proposed mining and reclamation activities. Consequently, in the event that tree removal is required during the nesting season for the species (mid-march to late August), the proposed project could result in the loss of Swainson's hawk or white-tailed kite eggs or juveniles. In addition, nesting pairs located within up to 0.25-mile (1,320 feet) of the project site could be adversely affected during mining-related vegetation removal or earthmoving associated with the proposed project, for the duration of the proposed mining and reclamation activities. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. Thus, compliance with AMM-16 in the Yolo HCP/NCCP would be necessary. AMM-16 requires the identification and avoidance of nesting habitat and active nests during the specified nesting season. Daily monitoring by a biologist may be required if disturbance within a 1,320-foot buffer of any active nests is unavoidable. AMM-16 also contains strict limitations on tree pruning and nest tree removal. Based on the above, a significant impact to Swainson's hawk and white-tailed kite could occur.

Loggerhead Shrike

The loggerhead shrike is not listed pursuant to either the FESA or CESA, nor is the species covered by the Yolo HCP/NCCP. The species is considered a California Species of Special Concern by the CDFW (when nesting).

Per the Biological Resources Assessment, loggerhead shrike is considered to have potential to occur on the project site. Adults are unlikely to be substantially disturbed from ground disturbing activities associated with the project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances associated with project activities. Thus, a significant impact to nesting loggerhead shrike could occur.

Other Nesting Raptors Protected Under the MBTA

Common raptors, including species not designated as special-status species and not covered under the Yolo HCP/NCCP, that are known to nest near the project site include red-tailed hawk, red- shouldered hawk, American kestrel, great-horned owl, and barn owl. Such species are protected under the MBTA. Most of the species nest in larger tree stands in the project vicinity; however, some individuals, especially red-



tailed hawk and great-horned owl, may occasionally nest in "stand alone" trees. Because the proposed project would include removal of 46 of the on-site trees, should tree removal occur during the nesting season of such species (i.e., mid- February to late August), the project could result in the loss of eggs or juveniles during the removal activities.

In addition, nearby mining activities could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. Though noise and visual disturbance from existing mining and agricultural activities in the project vicinity suggest that individuals nesting near the project site can tolerate such disturbance, the potential exists, while unlikely, for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. Thus, a significant impact to nesting raptors protected by the MBTA could occur.

Other Nesting Birds Protected Under the MBTA

Migratory nesting birds, including species not designated as special-status species and not covered under the Yolo HCP/NCCP, such as yellow-billed magpie, have the potential to nest in trees, shrubs, and groundcover located on and adjacent to the project site. Migratory bird species, with the exception of introduced species, are afforded protection under the MBTA and the California Fish and Game Code, particularly while nesting. Because the proposed project would include removal of 46 of the on-site trees, should tree removal occur during the nesting season of such species (i.e., mid- February to late August), the project could result in the loss of eggs or juveniles during the removal activities. In addition, nearby mining activities could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. Thus, the potential exists for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost.

Based on the above, a significant impact to migratory birds protected by the MBTA could occur.

Foraging Habitat for Tricolored Blackbirds, Swainson's Hawk, and White-Tailed Kite and Winter Foraging Habitat for Ferruginous Hawk and Merlin

Swainson's hawk, white-tailed kite, and tricolored blackbirds are known to nest in the vicinity of the study area. Consequently, foraging habitat associated with nearby nest territories for such species may include the project site. Most of the study area is considered suitable foraging habitat for the species, though some of this suitability is temporal. In addition, ferruginous hawk and merlin are known to winter throughout the Central Valley, including in the vicinity of the study area. The loss of winter-fallowed agricultural land associated with the project site would result in a net decrease in the local foraging habitat for the species. Foraging habitat for covered species is protected under the Yolo HCP/NCCP.

The proposed mining activities would include the removal of up to 283.05 acres of cultivated land from agricultural production, as well as up to 11.9 acres of other habitat suitable as foraging habitat (e.g., ruderal vegetation/annual grassland) for a total loss of 294.95 acres. After mining has ceased on the project site, approximately 116.7 acres of the mining area would be reclaimed to agricultural use, 112.9 acres would be



reclaimed to a lake, and 23.9 acres would be reclaimed to riparian woodland and wetland habitats, while 21.3 acres would be reclaimed as grasslands. The aforementioned species use agricultural and grassland habitat for foraging, but do not use riparian woodland, or lake habitats for foraging. Therefore, a total of 138 acres of suitable foraging habitat would be restored at the project site, resulting in a permanent net loss of 156.95 acres of foraging habitat (294.95 existing acres – 138 reclaimed acres = 156.95 acres lost). Although the project would include reclamation of 138 acres of suitable foraging habitat, because 30 years would pass prior to reclamation of the full project site, the reclaimed habitat would not be recognized under the Yolo HCP/NCCP, and the entire 294.95 acres of existing suitable habitat would be considered impacted. Thus, a significant impact to foraging habitat for tricolored blackbird, Swainson's hawk, white-tailed kite, ferruginous hawk, and merlin could occur.

Silver-Haired Bat, Western Red Bat, and Hoary Bat

The silver-haired bat, Western red bat, and hoary bat are not listed pursuant to either the FESA or CESA, nor are the species covered by the Yolo HCP/NCCP. However, all three species are currently tracked by the CNDDB. In addition, Western red bat is designated by the CDFW as a California Species of Special Concern.

Per the Biological Resources Assessment, all three bat species have the potential to nest within the stand of oak trees located within and immediately adjacent to the northern project boundary. According to a survey of the project site for special-status bat species, four trees were considered to exhibit features suitable for use by bats.[14] The four identified trees are shown in Figure 4.4-6.

With implementation of the proposed project, 46 of the existing on-site trees, including the stand of oak trees at the northern project boundary where the bat habitat has been identified, would require removal, or would otherwise by impacted, to accommodate the proposed mining and reclamation activities. Consequently, in the event that tree removal associated with the proposed project is required during the maternity roosting season of such species (i.e., between April 15 and August 15), the project could result in the destruction of potential maternity roosting sites during the removal activities. A significant impact to silver-haired bat, Western red bat, and hoary bat could occur.

Conclusion

Implementation of the proposed project has the potential to result in adverse effects, either directly or through habitat modifications to the following special-status species: VELB, Western Pond Turtle, Northern Harrier and Short-Eared Owl, Swainson's Hawk and White-Tailed Kite, Loggerhead Shrike, tricolored blackbirds, ferruginous hawks, merlin, other nesting birds and raptors protected under the MBTA, silver-haired bat, Western red bat, and hoary bat. Consequently, the impact would be ***significant***.

[14] Wyatt, David. *Memorandum: Preconstruction Chiroptera (Bat) Survey*. April 8, 2016.

Figure 4.4-6
Location of Suitable Bat Habitat



Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

VELB

4.4-1(a) *Prior to initiation of any ground-disturbing activities at the project site, the project applicant shall obtain coverage under the Yolo HCP/NCCP, remit payment of any applicable Yolo HCP/NCCP fees, and implement all applicable Yolo HCP/NCCP Avoidance and Minimization Measures (AMMs). Proof of payment of HCP/NCCP coverage and fee payment shall be submitted to the County. This requirement may be satisfied by the execution of an agreement with the Yolo Habitat Conservancy, which could include, at the discretion of the YHC, phased payment of fees consistent with phased project approvals.*

4.4-1(b) *The project applicant shall implement Yolo HCP/NCCP AMM-12 (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle) to the satisfaction of the County and the YHC.*

Western Pond Turtle

4.4-1(c) *Implement Mitigation Measure 4.4-1(a), which mitigates for the loss of habitat for the Western Pond Turtle by funding the acquisition of suitable habitat easements through the Yolo HCP/NCCP.*

4.4-1(d) *The project applicant shall implement Yolo HCP/NCCP AMM-14 (Minimize Take and Adverse Effects on Habitat of Western Pond Turtle) to the satisfaction of the County and the YHC. In addition, prior to demolition and grading activities associated with the existing alignment of Moore Canal and Magnolia Canal, the existing on-site sections of each canal that are to be abandoned or disturbed shall be surveyed in order to confirm that no Western pond turtles have become stranded. Should Western pond turtles be found within the portions of Moore Canal or Magnolia Canal that are to be abandoned or disturbed, the turtles shall be physically moved by a qualified biologist in compliance with the guidance provided in AMM-14.*

Northern Harrier and Short-Eared Owl

4.4-1(e) *The project applicant shall not initiate project-related vegetation removal or earthmoving within 500 feet of the nearest potential nesting tree during the nesting season (February 15 through August 31). All initial project-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the maximum extent feasible.*

Alternatively, if project-related vegetation removal or earthmoving is required within 500 feet of the nearest potential nesting tree between February 15 and August 31, a qualified biologist shall conduct a survey for northern harrier and short-eared owl in suitable nesting habitat within and out to 500 feet from the area proposed for disturbance. Any

surveys conducted outside the project site shall occur to the extent practicable from publicly accessible areas. The survey(s) shall be conducted no more than 14 days prior to initiation of each phase of project-related vegetation removal or earthmoving on the project site. A written summary of the survey results shall be submitted to the County within 14 days of survey completion. If nesting individuals are not identified, further mitigation is not required for that phase.

4.4-1(f) *If nesting individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 500 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.*

Alternatively, the project applicant may retain a qualified biologist to monitor on a weekly basis active nests that are within 500 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 500 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Project-related vegetation removal or earthmoving shall not be initiated within 200 feet of an active nest once nesting has begun, under any circumstances. The project applicant shall establish a 500-foot protective buffer around active Northern harrier or short-eared owl nests if nesting is initiated after active mining has begun. The biologist shall submit a written summary of the monitoring results to the County.

Swainson's Hawk and White-Tailed Kite

4.4-1(g) *Implement Mitigation Measure 4.4-1(a), which mitigates for the loss of habitat for the Swainson's Hawk and White-Tailed Kite by funding the acquisition of suitable habitat easements through the Yolo HCP/NCCP.*

4.4-1(h) *The project applicant shall implement Yolo HCP/NCCP AMM-16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the County and the YHC. Any surveys outside the project site conducted pursuant to AMM-16 shall occur to the extent practicable from publicly accessible areas. In addition to implementing AMM-16, the project applicant shall establish a 500-foot protective buffer around active Swainson's hawk/white-tailed kite nests on or near the project site if nesting is initiated after active mining has begun.*

Loggerhead Shrike

4.4-1(i) *The project applicant shall not initiate project-related vegetation removal or earthmoving within 200 feet of the nearest potential nesting tree during the loggerhead shrike/migratory bird nesting season*

(February 15 through August 31). All initial project-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the maximum extent feasible.

Alternatively, if project-related vegetation removal or earthmoving is required within 200 feet of the nearest potential nesting tree between February 15 and August 31, a survey shall be conducted for non-special-status nesting raptors in suitable nesting habitat within and out to 200 feet from the area proposed for disturbance. Any surveys conducted outside the project site shall occur to the extent practicable from publicly accessible areas. The survey(s) shall be conducted by a qualified biologist within 14 days prior to initiation of each phase of project-related vegetation removal or earthmoving on the project site. This survey may be conducted concurrently with the survey required per Mitigation Measure 4.4-4(a). A written summary of the survey results shall be submitted to the County within 14 days of survey completion. If nesting individuals are not identified, further mitigation is not required for that phase.

4.4-1(j) *If nesting loggerhead shrike individuals or other nesting migratory birds are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.*

Alternatively, the project applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Project-related vegetation removal or earthmoving shall not be initiated within 100 feet of an active nest once nesting has begun, under any circumstances. The project applicant shall establish a 200-foot protective buffer around active nests if nesting is initiated after active mining has begun. The biologist shall submit a written summary of the monitoring results to the County.

Other Nesting Raptors Protected Under the MBTA

4.4-1(k) *The project applicant shall not initiate project-related vegetation removal or earthmoving within 300 feet of the nearest potential nesting tree during the raptor nesting season (February 15 through August 31). All initial project-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the maximum extent feasible.*

Alternatively, if project-related vegetation removal or earthmoving is required within 500 feet of the nearest potential nesting tree between February 15 and August 31, a survey shall be conducted for non-special-status nesting raptors in suitable nesting habitat within and out to 500 feet from the area proposed for disturbance. Any surveys conducted outside the project site shall occur to the extent practicable from publicly accessible areas. The survey(s) shall be conducted by a qualified biologist within 14 days prior to initiation of each phase of project-related vegetation removal or earthmoving on the project site. This survey may be conducted concurrently with the survey required per Mitigation Measure 4.4-4(a). A written summary of the survey results shall be submitted to the County within 14 days of survey completion. If nesting individuals are not identified, further mitigation is not required for that phase.

4.4-1(l) *If nesting raptor individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 300 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.*

Alternatively, the project applicant may retain a qualified biologist to monitor any active nests that are within 300 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 300 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Project-related vegetation removal or earthmoving shall not be initiated within 200 feet of an active nest once nesting has begun, under any circumstances. The project applicant shall establish a 300-foot protective buffer around active raptor nests if nesting is initiated after active mining has begun. The biologist shall submit a written summary of the monitoring results to the County.

Other Nesting Birds Protected Under the MBTA

4.4-1(m) *Implement Mitigation Measures 4.4-1(i) and (j).*

Foraging Habitat for Tricolored Blackbirds, Swainson's Hawk, and White-Tailed Kite and Winter Foraging Habitat for Ferruginous Hawk and Merlin

4.4-1(n) *Implement Mitigation Measures 4.4-1(a), which mitigates for the loss of habitat for the Tricolored Blackbirds, Swainson's Hawk, and White-Tailed Kite and Winter Foraging Habitat for Ferruginous Hawk and Merlin by funding the acquisition of suitable habitat easements through the Yolo HCP/NCCP.*

Silver-Haired Bat, Western Red Bat, and Hoary Bat

4.4-1(o) *Removal of the four trees identified as potential special-status bat species habitat in Figure 4.4-6 of this EIR shall occur either prior to formation of maternity bat colonies (April 15) or after young are capable of flight (August 15). Disturbance-free buffer zones, as determined by a qualified biologist, shall be observed for maternity roosts or hibernacula found during the maternity roost season (i.e., April 15 through August 15).*

Tree removal activities shall take place over a minimum of two days, with the first day consisting of trimming to open the roosting area up to airflow. Final tree removal shall only occur after at least one night has passed since trimming has been completed, to allow bats to wake from torpor and leave during darkness. The biologist shall submit a written summary of the tree removal activities, including any bat individuals observed, to the County within 14 days of completion of tree removal.

4.4-2 Have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. The impact would be *less than significant*.

As shown on Figure 4.4-1 the project site does not contain any riparian habitat. Land disturbance and vegetation removal associated with the proposed project would be limited to the project site, and a previously disturbed area, which does not contain riparian habitat, for the alignment of a new water line. Moreover, the proposed project would not result in any disturbance to Cache Creek or the Cache Creek Nature Preserve located to the north and northwest of the project site. Further discussion of potential impacts to other types of protected habitat are discussed in Impact 4.4-1 and 4.4-3 of this Chapter.

Consequently, implementation of the proposed project would not have the potential to result in substantial adverse effects on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, and ***less-than-significant*** impact would result.

Mitigation Measure(s)

None required.

4.4-3 Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. The impact would be *significant*.

On June 3, 2020, the USACE provided confirmation that the project site does not contain jurisdictional features, and that permitting from the USACE would not be required. Accordingly, the following discussion focuses on the potential for the project

to result in impacts to waters of the State or wetland features that are otherwise protected (for instance by the CDFW or RWQCB).

A total of 2.205 acres of waters of the State have been delineated within the project site (see Figure 4.4-1 above). All such features would be affected by the proposed project. Specifically, the segment of the Moore Canal within the project site, as well as a section of the Magnolia Canal, would be relocated to follow the western and northern boundary of the site. In addition, Section 1602 of the Fish and Game Code requires an SSA to be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake", which would include the proposed relocation of the Moore and Magnolia canals. Therefore, the project would have the potential to involve the disturbance, removal, fill or hydrologic interruption of 2.205 acres of waters of the State regulated by the RWQCB and/or the CDFW. Given the nature of the proposed project, neither Moore Canal nor Magnolia Canal can be avoided.

After mining has ceased on the project site, approximately 117 acres of the mining area would be reclaimed to agricultural use, 113 acres would be reclaimed to a lake, and 23.9 acres would be reclaimed to riparian woodland habitats. Thus, the proposed project would result in a net increase in on-site wetlands and waters of the State once reclamation is complete. The net increase in on-site wetlands following project implementation is important because the CDFW and RWQCB pursue a "no-net-loss" approach to wetland conservation. Typically, project applicants are required, either by the foregoing state agencies or the USACE, to purchase credits at mitigation banks to off-set the on-site loss of wetlands. In the case of the proposed project, the on-site aquatic features, which are related to existing irrigation ditches, would be retained through construction of relocated and modified irrigation ditch channels. The proposed alignment of Moore Canal would allow for the removal of approximately 1,200 feet of the existing alignment of Magnolia Canal. The removal of 1,200 feet of Magnolia Canal and loss of on-site irrigation ditch aquatic resource area would be substantially, if not completely, off-set through the increased length of Moore Canal, which would take a longer and more circuitous route following the northern and western boundary of the site. In addition to the increased length of Moore Canal serving to off-set most if not all of the removed area of Magnolia Canal, following reclamation of the project site, the small amount of aquatic features lost during mining activities would be replaced with a permanent lake that would greatly expand the aquatic resources and wetland habitat available on-site. Consequently, the project would comply with the "no-net-loss" approach to wetland conservation over the life of the project.

The Yolo HCP/NCCP requires payment of fees to offset loss of wetlands. In Addition, the Yolo HCP/NCCP contains two AMMs addressing impacts to wetlands: AMM 9 and AMM 10. AMM 9 requires the establishment of buffers around certain wetlands that will be avoided by a project. AMM 10 provides that project proponents must comply with any requirements imposed by applicable National Pollutant Discharge Elimination System (NPDES) permits, as well as applicable requirements of other agencies with jurisdiction of the impacted features. Because the waters on the project site cannot be avoided, AMM 9 is not applicable to the proposed project.

Other than requirements for buffers, minimizing project footprints, and species-specific measures for wetland-dependent covered species, the Yolo HCP/NCCP does not

include specific BMPs for protecting wetlands and waters, because such BMPs would have the potential to conflict with measures required by the RWQCB, and the CDFW.

Based on the above, implementation of the proposed project could have a substantial adverse effect on sensitive natural communities and/or have a substantial adverse effect on State protected aquatic resources (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption, or other means. While the proposed reclamation activities would ultimately result in a net increase in the total acreage of on-site wetlands and waters of the State, a temporary ***significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.4-3(a) *Implement Mitigation Measure 4.4-1(a), which mitigates for the loss of aquatic resources by funding the acquisition of aquatic habitat easements through the Yolo HCP/NCCP.*

4.4-3(b) *Prior to disturbance associated with relocation of the Moore and/or Magnolia Canal, the applicant shall secure a Section 1602 Lake or Streambed Alteration Agreement from CDFW, for the relocation of the Moore/Magnolia Canal and any other activities affecting the bed, bank, or associated riparian vegetation of the canals. The information provided in the application(s) shall include a description of all of the activities associated with the proposed project, and shall not be limited to those associated solely with the drainages and/or riparian vegetation. Impacts shall be outlined in the application and shall be substantially consistent with the impacts to biological resources outlined in this EIR. If this is not the case, the County shall be immediately notified to determine an appropriate response pursuant to CEQA. Impacts for each activity shall be broken down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts shall be outlined per activity and as temporary or permanent. Information regarding project-specific drainage and hydrology changes resulting from project implementation shall be provided as well as a description of storm water treatment methods. Mitigation may include restoration or enhancement of resources on- or off-site, purchase habitat credits from an agency-approved mitigation/conservation bank, off-site, working with a local land trust to preserve land, or any other method acceptable to CDFW. Written verification of the Section 1600 Lake or Streambed Alteration Agreement shall be submitted to the County.*

4.4-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The impact would be *less than significant*.

The project site is bounded by County Road 22 to the south and County Road 94B to the west. Such roadways limit the unrestricted movement of terrestrial wildlife through the project site. In addition, the project site is currently used for agricultural production, thereby precluding use of the site as a native wildlife nursery site. Per the Biological Resources Assessment, the habitat provided by the Moore and Magnolia canals is not suitable for any migratory fish species. Thus, the project site does not constitute a substantial established wildlife corridor or wildlife nursery site. Therefore, the proposed mining and reclamation activities would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. In addition, wildlife would continue to be able to use Cache Creek as a movement corridor throughout project implementation. Therefore, a ***less-than-significant*** impact would result.

Mitigation Measure(s)

None required.

4.4-5 Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan. The impact would be *less than significant*

The Yolo HCP/NCCP protects individual species as well as habitats within the Yolo HCP/NCCP area. Potential impacts to individual species are discussed in Impact 4.4-1 while impacts to habitats are discussed in impacts 4.4-1 through 4.4-3. As discussed in the aforementioned impact discussions, following implementation of mitigation, the proposed project would result in less-than-significant impacts to individual species and habitats. The CCAP Update FEIR determined that because components of the CCAP included measure that would ensure compliance with the Yolo HCP/NCCP, and that the Yolo HCP/NCCP relies on mining fees and habitat restoration activities that would occur as part of the CCAP, implementation of the CCAP would not conflict with the Yolo HCP/NCCP. The proposed project was anticipated to occur under the CCAP; thus, consistent with the conclusions of the CCAP Update FEIR, and based on the project specific analysis presented in impacts 4.4-1 through 4.4-3, the proposed project would not be anticipated to result in a conflict with the Yolo HCP/NCCP and a ***less-than-significant*** impact would result.

Mitigation Measure(s)

None required.

4.4-6 The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare or threatened species. The impact would be *less than significant*.

Fish and wildlife populations that are in danger of dropping below self-sustaining levels are typically those species that have been previously identified as special-stats species or listed under the FESA or CESA. Impact 4.4-1 analyzes the potential for the proposed project to result in impacts to special-status species due to implementation of the proposed project. As discussed in Impact 4.4-1, although the project site may be used by special-status species, implementation of mitigation measure 4.4-1(a) through 4.4-1(o) would provide compensatory habitat (through payment of Yolo HCP/NCCP fees, which would be used to purchase and protect reserve land), and require that steps be taken to avoid impacts to individual animals. implementation of mitigation measure 4.4-1(a) through 4.4-1(o) would minimize potential impacts resulting from the proposed project, and avoid direct reductions in wildlife populations, to the maximum extent feasible.

In order for a project to result in substantial reductions in wildlife populations, elimination of plant or animal communities, or substantial reductions in the range of a listed species, the project site must contain high value and unique habitat, such as a wildlife nursery site, or a unique habitat community. The project site is predominantly agricultural land, with only small areas of valley oak woodland, and grassland. Aquatic resources within the project site are comprised of manmade irrigation ditches, and are considered relatively low quality habitat. Although the project site is not currently considered high quality habitat, reclamation of the project site as part of the proposed project would result in creation of a lake and riparian woodlands on-site, as well as expansion of on-site grassland habitat and continued agricultural activities. The habitats available on-site following reclamation of the site would allow for future use of the site by special-status species suited to such habitats. Considering the types of habitat present within the project site and the types of habitats that would occur following reclamation of the site, implementation of the project would not have the potential to result in the elimination of a plant or animal community, nor would the project substantially restrict the range of a listed species.

With respect to the properties proposed for dedication, future recreation, trails, and public open space uses and activities would not occur on lands currently providing habitat with the possible exception of the 123-acre Shifler In-Channel property. This property contains in-channel area of the creek, some areas of existing native woodland and other habitat, and a number of trails and unpaved roadways. Mitigation Measures 4.8-4(a through c) require construction of bank reinforcement and habitat enhancement on an approximately six-acre primarily barren portion of this property containing non-native ruderal species, as identified in Figure 4.8-1. Dedication of the Shifler In-Channel property would involve change of ownership but no other specific land use changes or improvements beyond the improvements identified under Mitigation Measure 4.8-4(a through c). Recreational, parkway, and open space use

would rely primarily on existing trails and roads on the property, avoiding existing vegetation, and specifically native species, on the site.

Based on the above, implementation of the project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare or threatened species; and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.4-7 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The impact would be *less than significant*.

The proposed project would include the removal of 46 of the 52 existing oak trees identified within the site vicinity. Yolo County does not have an established tree preservation ordinance or policy. However, given that the proposed project would include removal of native oak trees, the project would be required to comply with the applicable provisions of the Yolo County Oak Woodland Conservation and Enhancement Plan. The proposed project would not include any tree removal activities at the Woodland Plant site.

In general, the proposed project is in accord with the Yolo County Oak Woodland Conservation and Enhancement Plan; as a result of the proposed reclamation activities, approximately 10.9 acres of the site would be reclaimed as “upper riparian woodland” and an additional 13.0 acres would be reclaimed as “lower riparian woodland”. Per the proposed reclamation plan, the upper riparian woodland habitat would be planted with approximately 50 valley oak seedlings per acre, along with other native species. The proposed density of planting could result in a maximum of 545 oak trees on-site. The lower riparian woodland would be planted with non-oak native species at densities ranging from 30 to 10 seedlings per acre, depending on the species. Thus, the project would ultimately increase the acreage of oak woodland habitat on-site, consistent with Goals 7 and 8 of the Yolo County Oak Woodland Conservation and Enhancement Plan. Respectively, the two goals call for projects to “Increase the area covered by valley oak and other oak species that are now uncommon in Yolo County because they have been cleared from much of their historical range in the county” and “Maximize the total amount of oak woodland canopy cover to achieve erosion, flood, and air quality protection benefits, while recognizing the importance of including a variety of canopy cover levels within conserved and restored woodlands to provide habitat diversity”.

In addition, as required per SMRO Section 10-5.601, native seeds, plants and cuttings used for reclamation and restoration activities would be ecotypes of Cache Creek watershed genetic origin, including areas outside of Yolo County, and of Yolo County genetic origin when materials are used that originate from outside of the Cache Creek watershed. Thus, the proposed reclamation activities would be completed consistent



with Policy 9, which calls for projects to "Use only oaks of local genetic stock for plantings located in and near native oak stands to conserve the genetic integrity of local oak populations. Local trees are adapted to local conditions, so conserving genetic integrity is an important part of sustaining local oak populations".

Based on the above, implementation of the project would result in the temporary loss of oak woodland habitat on-site during the 30-year mining period. The nature of the proposed mining activities renders protection of the existing oak woodlands impossible, and replacement plantings cannot be undertaken until the cessation of mining activity and the initiation of reclamation activity. Although the project would result in a loss of trees over the 30-year mining period, the net effect of the project would be a gain of on-site woodlands, resulting in an increase of 499 oak trees on-site (545 proposed trees – 46 oak trees removed = 499 net oak trees).

Accordingly, the proposed project would not conflict with local policies protecting biological resources, including tree resources. Therefore, a ***less-than-significant*** impact could occur.

Mitigation Measure(s)
None required.

4.4-8 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to biological resources. The impact would be *less than significant*.

Table 4.4-1 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to biological resources.

As shown in the table, the proposed project would be generally consistent with applicable standards related to biological resources. Thus, a ***less-than-significant impact*** would occur.

Mitigation Measure(s)
None required.

Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy CC-4.32 Emphasize the use of regionally native drought tolerant plants for landscaping where appropriate.	Per the proposed Reclamation Plan and consistent with the requirements of Section 10-5.601 of the SMRO, landscaping elements included in the proposed project would be native species, and would be selected based on watering requirements. Thus, the proposed project would be consistent with this policy.

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Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Policy CI-4.5 Roads and road-related structures (bridges, culverts, retaining walls, abutments, etc.) located in or near watercourses shall be placed, designed, built, and landscaped so as to minimize the impact to riparian corridors, including reducing erosion during and after construction, accommodating flood flows, and minimizing grading on slopes greater than 20 percent.	Issues related to erosion and flood flows are discussed in in Chapter 4.8, Hydrology and Water Quality, of this EIR.
Policy CO-1.22 Emphasize the use of native grasses, shrubs and trees as the primary focus of landscaping and restoration work within resource parks and other open spaces.	See discussion above of compliance with General Plan Policy CC-4.32.
Policy CO-2.9 Protect riparian corridors to maintain and balance wildlife values.	The proposed project would not adversely affect the existing riparian vegetation to the north of the site, along Cache Creek. Thus, the proposed project would be consistent with this policy.
Policy CO-2.10 Encourage the restoration of native habitat.	As discussed under Impact 4.4-7, oak woodland removed as part of the proposed mining activities would be mitigated through the planting of new native oak seedlings. The resulting mitigation planting area would be required to meet or exceed the acreage removed. Thus, the proposed project would be consistent with this policy.
Policy CO-2.14 Ensure no net loss of oak woodlands, alkali sinks, rare soils, vernal pools or geological substrates that support rare endemic species. The limited loss of blue oak woodland and grasslands may be acceptable, where the fragmentation of large forests exceeding 10 acres is avoided and losses are mitigated to the extent feasible.	See discussion above of compliance with General Plan Policy CO-2.10.
Policy CO-2.17 Emphasize and encourage the use of wildlife-friendly farming practices within the County's Agricultural Districts and with private landowners, including: • Establishing native shrub hedgerows and/or tree rows along field borders. • Protecting remnant valley oak trees. • Planting tree rows along roadsides, field borders, and rural driveways. • Creating and/or maintaining berms. • Winter flooding of fields. • Restoring field margins (filter strips), ponds, and woodlands in non-farmed areas.	The applicant proposes to reclaim the approximately 277-acre proposed mining area to agriculture and habitat uses. Approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. Slopes would be reclaimed to grassland. The reclaimed agricultural land would comply with the wildlife-friendly practices established by this policy, as applicable. Therefore, the proposed project would be consistent with this policy.

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Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
• Using native species and grassland restoration in marginal areas. • Managing and maintaining irrigation and drainage canals to provide habitat, support native species, and serve as wildlife movement corridors. • Managing winter stubble to provide foraging habitat. • Discouraging the conversion of open ditches to underground pipes, which could adversely affect giant garter snakes and other wildlife that rely on open waters. • Widening watercourses, including the use of setback levees.	
Policy CO-2.29 Promote native perennial grass habitat restoration and controlled fire management in grazing lands to reduce invasive species cover and enhance rangeland forage.	The project site does not include any grazing land. The proposed reclamation activities would include planting of native vegetation within areas proposed to be reclaimed to grassland uses. Thus, the proposed project would be consistent with this policy.
Policy CO-2.30 Promote native perennial grass habitat restoration and controlled fire management in grazing lands to reduce invasive species cover and enhance rangeland forage.	After mining has ceased on the project site, approximately 116 acres of the mining area would be reclaimed to agricultural use, 112.9 acres would be reclaimed to a lake, and 23.9 acres would be reclaimed to riparian woodland and wetland habitats. Other areas, totaling approximately 21.3 acres, would be restored to grasslands. Thus, the proposed project would be consistent with this policy.
Policy CO-2.32 Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.	Issues related to erosion and water pollution are discussed in in Chapter 4.8, Hydrology and Water Quality, of this EIR.
Policy CO-2.34 Recognize, protect and enhance the habitat value and role of wildlife migration corridors for the Sacramento River, Putah Creek, Willow Slough, the Blue Ridge, the Capay Hills, the Dunnigan Hills and Cache Creek.	The proposed mining and reclamation activities would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. All proposed off-channel excavations would be located 200 feet or further from Cache Creek. Thus, the proposed project would be consistent with this policy.
Policy CO-2.41 Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate	See Impact 4.4-1. This EIR includes mitigation to reduce potential impacts to special-status species. The proposed project would comply with this policy.

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Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
impacts consistent with applicable local, State, and Federal requirements.	
Policy CO-2.42 Projects that would impact Swainson's hawk foraging habitat shall participate in the Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County entered into by the CDFG and the Yolo County HIP/NCCP Joint Powers Agency, or satisfy other subsequent adopted mitigation requirements consistent with applicable local, State, and federal requirements.	See Impact 4.4-1. The proposed project would satisfy all mitigation requirements consistent with the Yolo HCP/NCCP. Therefore, the proposed project would be consistent with this policy.
Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.	This EIR includes mitigation measures to ensure that impacts to wildlife and other environmental factors are reduced to the maximum extent feasible. Thus, the proposed project would be consistent with this policy.
Policy CO-5.8 Support efforts to reduce the accumulation of methyl mercury in fish tissue in Cache Creek and the Delta, as well as the consumption of fish with high levels of methyl mercury.	Conditions of approval would be included to require the proposed project to comply with all applicable water quality monitoring and reporting requirements established by SMRO Section 10-5.517, which includes standards related to bioaccumulation of mercury. Therefore, the proposed project would be consistent with this regulation.
Off-Channel Mining Plan	
Action 6.4-2 Provide for the development of shallow areas along reclaimed off-channel excavations that extend below the groundwater level, to create wetland and riparian habitat. (See Section 10-5.529 of the Reclamation Ordinance.)	See discussion above of compliance with General Plan Policy CO-2.30.
Section 10-4.429(f) **(**f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation.	The proposed off-channel excavations would be setback approximately 200 feet from the nearest riparian vegetation. This, the proposed project would comply with this regulation
Action 6.4-3 Mitigate for short-term and long-term loss of agricultural land and habitat pursuant to applicable County requirements and CEQA. Comply with the Yolo HCP/NCCP for species covered by that Plan. For non-covered species for which impacts may occur, ensure compliance with appropriate measures in site-specific biological assessments required under the OCMP and CCRMP, in compliance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations, plans and programs, as appropriate.	Mitigation Measure 4.4-1(a) requires the project applicant to obtain coverage under the Yolo HCP/NCCP and pay all applicable HCP/NCCP fees. Such fees are used to mitigate for the loss of habitat for covered species. For all plant and wildlife species potentially affected by the proposed project, including non-covered species, this EIR includes mitigation to ensure that impacts are reduced to less-than-significant levels. Therefore, the proposed project would be consistent with this action.

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Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	Discussion of short-term and long-term loss of agricultural land is discussed in Chapter 4.2 of this EIR.
Action 6.4-5 Include provisions to enhance habitat for special-status species in restoration components of reclamation plans, where feasible. (See Section 10-5.523 of the Reclamation Ordinance.)	See discussion above of compliance with General Plan Policy CO-2.30.
Action 6.4-7 Restore riparian habitat throughout the planning area, wherever appropriate. However, re-vegetative efforts should be primarily focused on implementing recommendations described in the Technical Studies and the subsequent Restoration Recommendations incorporated into the CCRMP. Integrate off-channel and in-channel revegetation plans with the goal of reducing fragmentation by expanding and connecting existing habitat patches, optimizing restoration planning in alignment with the Parkway Plan, and supporting future funding proposals. Ensure that elements such as soils, drainage, slopes, and habitat types complement one another in a coordinated effort.	The proposed project would not require plantings within or directly adjacent to the Cache Creek channel. However, the proposed reclamation activities would include provision of new pond, riparian woodland, and wetland habitats within the project site upon completion of mining activities. Therefore, the proposed project would be consistent with this action.
Action 6.4-8 Include native-planted hedgerows and other vegetated buffers between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.	The proposed reclamation activities would maintain the existing unpaved access road along the eastern site boundary. In addition, grassland slopes and riparian woodland would be planted to the west of the road, between the proposed reclaimed pond and the neighboring agricultural uses to the east of the project site. Therefore, the proposed project would be consistent with this action.
Off-Channel Surface Mining Ordinance	
Section 10-4.418 All surface mining operations shall be consistent with applicable components of the Yolo Habitat Conservation Plan/ Natural Community Conservation Plan (HCP/NCCP).	The mitigation measures provided within this chapter would ensure compliance with all applicable components of the Yolo HCP/NCCP. Therefore, the proposed project would comply with this regulation.
Section 10-4.436 Existing vegetation and habitat to be retained shall be enclosed by temporary fencing to restrict access, protect against damage and/or provide buffers to reduce the impact of dust. Temporary fencing shall be a minimum of four (4) feet high. The disturbance of riparian forest or oak woodland vegetation, including identified off-channel vegetation, should be avoided if possible. Replacement habitat and plantings shall be established where complete avoidance is not	Please see discussion of impacts above. The project site does not contain riparian forest; however, limited oak woodland habitat does exist within the project site. Although the project would involve removal of the existing oak woodland during mining activity, reclamation of the project site would include planting of 23.9 acres of woodland habitat (upper and lower riparian woodland), which would comply with the replacement provisions of this section. The project would comply with all applicable requirements related to fencing of

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Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
possible, according to a habitat restoration plan prepared by a qualified biologist, consistent with the goals of this plan.	existing vegetation and habitat located outside of the proposed disturbance area. Therefore, the proposed project would comply with this regulation.
Section 10-4.440 Avoid disturbance to important wildlife habitat features such as bird nesting trees, colonial breeding locations, elderberry host plants for Valley Elderberry Longhorn Beetle, and mature riparian forest and oak woodland habitat. This shall include sensitive siting of haul roads, trails, and recreational facilities away from these features. Suitable habitat for special-status species shall be protected and enhanced, or replaced as a part of mitigation plans prepared by a qualified biologist where necessary, and through compliance with the Yolo HCP/NCCP for special-status species covered by that Plan. Mining and reclamation activities shall be performed in accordance with the State Fish and Wildlife Code, Migratory Bird Treaty Act, and other applicable regulations to protect bird nests when in active use. Native-planted hedgerows and/or other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.	The proposed project would not include removal or disturbance of any existing elderberry plants. In addition, the project would preserve the existing trees and riparian habitat to the north of the project site along Cache Creek. While the project would require removal of the stand of oak trees within the northeastern portion of the project site, reclamation of the project site would include planting of 23.9 acres of woodland habitat (upper and lower riparian woodland), which would represent a net gain of woodlands on-site. In addition, this chapter contains mitigation measures to ensure that impacts to special-status species, species covered by the Yolo HCP/NCCP, and species protected under the MBTA are reduced to less-than-significant levels. With regard to provision of buffers, see discussion above of compliance with CCAP Action 6.4-8.
Section 10-4.502(b)(1) A biological inventory and analysis to evaluate the on-site habitat value of the proposed mined area, as well as the potential impacts to special-status species and sensitive natural communities, both on-site and within the immediate area. The analysis shall propose appropriate measures to reduce any potential adverse impacts to special-status species or significant suitable habitat, and shall ensure compliance with the Yolo HCP/NCCP, California Fish and Game Code, Migratory Bird Treaty Act, and other applicable regulations, plans and programs. The analysis shall also include a wetland delineation study for any potential on-site wetlands, and shall provide adequate mitigation and appropriate authorizations from regulatory agencies, where required. If landscaping is proposed to screen the surface mining operations from adjoining public rights-of-way or public and private lands, the biological analysis shall include	The Biological Resources Assessment prepared for the proposed project is consistent with the requirements of this regulation.

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Table 4.4-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
an evaluation of the feasibility of the species, weed control, and irrigation methods to be used;	
Surface Mining Reclamation Ordination	
Section 10-5.514 All reclamation plans shall be consistent with applicable components of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP).	The proposed Reclamation Plan would not conflict with the Yolo HCP/NCCP. Thus, the project would be consistent with this regulation.
Section 10-5.515 Proposed habitat restoration or mitigation plans for lands within the OCMP area shall be sent to the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and other interested parties for review and comment through the CEQA process as applicable, to ensure that the projects do not conflict with other existing habitat enhancement efforts.	The proposed Reclamation Plan is summarized in Chapter 3, Project Description, of this EIR, and is included as Appendix C. Thus, the Reclamation Plan will be available for review by the CDFW, the USFWS, and the USACE during the public review period for the EIR, and the project would be consistent with this regulation.
Section 10-5.523 Site-specific planting plans shall be developed by a qualified biologist for proposed habitat reclamation projects. Restoration components of reclamation plans shall include provisions to enhance habitat for special-status species, where feasible. Native-planted hedgerows and other vegetated buffers shall be included between restored habitat areas and adjoining farmland, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. These buffers will also reduce the noise, dust, and spraying generated by agricultural operations, in addition to providing valuable pollinator resources that in turn could enhance agricultural production.	See CCAP Action 6.4-8.
Section 10-5.533 Off-channel excavations that are proposed to be reclaimed to permanent lakes shall include riparian and/or wetland habitat. The creation of riparian and or wetland habitat along the perimeter of permanent lakes shall include appropriate features such as: scalloped basin perimeters with extended peninsulas, islands, and stepped benches of various widths at approximately three (3) foot vertical intervals both above and below the groundwater level. Where wetlands are not proposed, either grassland and/or woodland habitat, or agricultural fields separated from the lake by a berm, shall be established using only native species in order to provide continuous habitat value around the permanent lakes.	In addition to the 112.9 acres that would be reclaimed to a pond, the project would reclaim 23.9 acres of the project site to riparian woodland and wetland habitats. Other areas, totaling approximately 21.3 acres, would be restored to grasslands. Each habitat community is designed to have a diversity of plants and conditions that will complement each other and provide a diverse habitat for wildlife. As shown in Figure 3-30 through Figure 3-36 of this EIR, the finished grades surrounding the pond area would comply with the standards established in SMRO Section 10-5.533. Thus, the proposed project would be consistent with this policy.

Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
Plants				
FERRIS' MILKVETCH *Astragalus tener* var. *ferrisiae*	— / — / 1B	Vernally moist meadows, alkaline flats and fallow rice fields. Scattered throughout the Sacramento Valley region from Butte County south to Solano County. Elevation: < 250 feet.	April to May	No Habitat Present
ALKALI MILKVETCH *Astragalus tener* var. *tener*	— / — / 1B	Alkali meadows, vernal pools and playas, edges of salt marshes, and moist grassy flats. Western portion of Central Valley and San Francisco Bay area from Yolo County south to Merced, San Benito and Monterey counties. Elevation: < 200 feet.	March to June	No Habitat Present
HEARTSCALE *Atriplex cordulata* var. *cordulata*	— / — / 1B	Generally alkali grassland, alkali meadow and alkali scrub. Occasional on margins of alkali pools. Western Central Valley from Glenn County south to Tulare and San Luis Obispo counties. Elevation: < 660 feet.	April to Oct	No Habitat Present
BRITTLESCALE *Atriplex depressa*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland and playas. Mostly western regions of Sacramento Valley from Glenn and Butte counties. south throughout the San Joaquin Valley (Kern County). Elevation: < 1,050 feet.	May to Oct	No Habitat Present
SAN JOAQUIN SALTBUSH *Extriplex joaquinana*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland and playas. Western Central Valley and Inner South Coast Range from Glenn County south to San Luis Obispo County. Elevation: < 2,740 feet.	April to Oct	No Habitat Present
VERNAL POOL SMALLSCALE *Atriplex persistens*	— / — / 1B	Deeper portions of large, alkaline vernal pools. Central Valley from Glenn County south to Tulare County Most occurrences in San Joaquin Valley. Elevation: < 380 feet.	June to Oct	No Habitat Present
ROUND-LEAVED FILAREE *California microphylla*	— / — / 1B	Clay soils in open cismontane woodland and valley/foothill grasslands. Central western California, southern coast, and northern Channel Islands. Elevation: < 3,940 feet.	March to July	Unlikely to Occur

(Continued on next page)

Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
PALMATE BIRD'S-BEAK *Chloropyron palmatum*	FE / SE / 1B, YHCP	Saline alkali flats, alkali scrub and alkali grassland. Scattered locations in the Central Valley from Glenn County south to Fresno County. Also Livermore Valley in Alameda County. Elevation: < 490 feet.	May to Oct	No Habitat Present
HISPID BIRD'S-BEAK *Cordylanthus mollis* ssp. *hispidus*	— / — / 1B	Saline marshes, alkali flats and alkali vernal pools. Scattered locations throughout San Joaquin Valley. Also Solano and Alameda counties. and near Rocklin in Placer County. Elevation: < 490 feet.	June to Sept	No Habitat Present
DWARF DOWNINGIA *Downingia pusilla*	— / — / 2B	Vernal pools and swales, ephemeral drainages and margins of other seasonal wetlands. Central Valley from Tehama County south to Fresno County. Also in valleys north of S.F. in Napa and Sonoma counties. Elevation: < 1,480 feet.	March to May	No Habitat Present
TUOLUMNE BUTTON-CELERY *Eryngium pinnatisectum*	— / — / 1B	Swales, vernal pools, moist flats and ephemeral drainages. North-central Sierra Nevada Foothill and adjacent valley from Sacramento County south to Tuolumne County. Elevation: 230-2,950 feet.	May to Aug	No Habitat Present
BOGGS LAKE HEDGE-HYSSOP *Gratiola heterosepala*	— / SE / 1B	Marshy lake margins, cattle ponds and in vernal pools. Central Valley and foothills from Shasta to Tulare County. Also occurs in Lake County, Modoc Plateau, and Oregon. Elevation: < 3,940 feet.	April to Aug	No Habitat Present
HOGWALLOW STARFISH *Hesperevax caulescens*	— / — / 4	Vernal pools and seasonally saturated clay flats. Central Valley and adjacent foothills from Tehama County south to Kern County. Also reported in San Luis Obispo County. Elevation: < 1,640 feet.	March to June	No Habitat Present
WOOLY ROSE MALLOW *Hibiscus lasiocarpos* var. *occidentalis*	— / — / 1B	Freshwater marshes and swamps. Scattered locations from Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties. Elevation: < 3,280 feet.	June to Sept	Unlikely to Occur

(Continued on next page)



Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
LEGENERE *Legenere limosa*	— / — / 1B	Vernal pools, seasonal wetlands, drainages, and along margins of cattle ponds. Northern Central Valley (Shasta to San Joaquin County) and Inland Coast Range (Sonoma to Santa Clara County). Elevation: < 2,890 feet.	April to June	No Habitat Present
HECKARD'S PEPPERGRASS *Lepidium latipes* var. *heckardii*	— / — / 1B	Alkali flats and alkali grassland near the margins of vernal pools. Western Sacramento Valley from Glenn County south to Solano County. Elevation: < 660 feet.	March to May	No Habitat Present
TEHAMA NAVARRETIA *Navarretia heterandra*	— / — / 4	Typically growing heavy soils, vernal pools, and drying flats. Scattered throughout northern California and southern Oregon. Elevation: 100-3,280 feet.	April to June	No Habitat Present
BAKER'S NAVARRETIA *Navarretia leucocephala* ssp. *bakeri*	— / — / 1B	Vernal pools and ephemeral drainages. Western Sacramento Valley and northern Inland Coast Range from Glenn and Mendocino counties. to Solano County. Elevation: < 5,580 feet.	April to July	No Habitat Present
MYER'S PINCUSHION NAVARRETIA *Navarretia myersii* ssp. *myersii*	— / — / 1B	Vernal pools, usually with acidic soils. E. Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County. Elevation: 70-1,080 feet.	April to May	No Habitat Present
ADOBE NAVARRETIA *Navarretia nigelliformis* ssp. *nigelliformis*	— / — / 4	Vernal pools and vernally moist swales. Scattered locations from the Sierra Nevada Foothills, Central Valley and Inner South Coast Range. Elevation: 300-3,280 feet.	April to June	No Habitat Present
SLENDER ORCUTT GRASS *Orcuttia tenuis*	FT / SE / 1B	Generally restricted to deeper vernal pools and other ephemeral wetlands with clay soils. Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake County. Elevation: 100-5,580 feet.	May to Oct	No Habitat Present
CALIFORNIA ALKALIGRASS *Puccinellia simplex*	— / — / 1B	Generally restricted to saline and alkaline habitats, often associated with springs, seeps, vernal pools. Elevation: below 9,840 feet.	March to May	No Habitat Present

(Continued on next page)



Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
SANFORD'S ARROWHEAD *Sagittaria sanfordii*	— / — / 1B	Margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals. Widely distributed throughout the Central Valley from Shasta County to Kern County. Elevation: < 2,130 feet.	May to Aug	Could Occur
SALINE CLOVER *Trifolium hydrophilum*	— / — / 1B	Salt marshes, alkali meadows, and vernal pools. Central Western California (Sonoma County to San Luis Obispo County) and southwestern Sacramento Valley. Elevation: < 980 feet.	April to June	No Habitat Present
Invertebrates				
BLENNOSPERMA VERNAL POOL ANDRENID BEE *Andrena blennospermatis*	— /—/CNDDB	Bee is oligolectic on Blennosperma. Occurs in vernal pool grassland habitats where Blennosperma is found. Records include scattered locations along the edges of the Central Valley in Yolo, Solano, El Dorado, Sacramento and Tehama counties.	Late Feb to April	No Habitat Present
WESTERN BUMBLEBEE *Bombus occidentalis occidentalis*	FC /—/CNDDB	Generalist pollinator found from southern British Columbia to central California, northern Arizona, Northern New Mexico. In California, it occupies subalpine sites in the Sierra Nevada and areas along the northern coast.	March to July	Unlikely to Occur
CROTCH'S BUMBLEBEE *Bombus crotchii*	FC /—/CNDDB	Common to grassland and scrub habitats, Crotch's bumblebee is not a specialist and commonly nests underground. Distribution includes portions of California, Nevada, and Mexico. Recent observations are primarily restricted to coastal southern California.	March to July	Unlikely to Occur
CONSERVANCY FAIRY SHRIMP *Branchinecta conservatio*	FE/ — / —	Alkaline pools, vernal lakes and vernal pools that are typically large and/or relatively deep and moderately turbid. Known from several disjunct locations in the Central Valley from Tehama County south to Ventura County.	Nov to May	No Habitat Present

(Continued on next page)

Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed/State/Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
VERNAL POOL FAIRY SHRIMP *Branchinecta lynchi*	FT/—/—	Vernal pools and swales from Jackson County near Medford, Oregon, throughout the Central Valley, and west to the central Coast Ranges.	Nov to May	No Habitat Present
MID-VALLEY FAIRY SHRIMP *Branchinecta mesovallensis*	— /—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats throughout southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa regions.	Nov to May	No Habitat Present
VALLEY ELDERBERRY LONGHORN BEETLE *Desmocerus californicus dimorphus*	FT/—/YHCP	The subspecies occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges. The subspecies is entirely dependent upon its host plant (i.e., Sambucus spp.) and is only found where this shrub occurs (typically in riparian vegetation associations, but occasionally in isolated shrubs or stands of the plant). Known to occur within the Cache Creek corridor, and observed within 1 mile of project site. Host plant with exit holes present in proposed project site but is at least 160 feet (50 meters) outside of limit of disturbance and therefore entirely avoided (USFWS 2017).	Year-round (exit holes)	Known to Occur
HAIRY WATER FLEA *Dumontia oregonensis*	—/—/CNDDB	First described in 2003 from three pools in Oregon, this species has since been reported from southern Sacramento County, as well as from Solano County. Little information exists regarding the species' habitat or life history requirements.	Nov to May	No Habitat Present
RICKSECKER'S HYDROCHARA *Hydrochara rickseckeri*	—/—/CNDDB	Known historically from pond habitats around the San Francisco Bay area. Vernal pools and other large seasonally inundated wetlands.	Nov to May	No Habitat Present
VERNAL POOL TADPOLE SHRIMP *Lepidurus packardi*	FE/—/—	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta to Merced County, with the majority of populations occurring in the Sacramento Valley.	Nov to May	No Habitat Present

(Continued on next page)



Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
CALIFORNIA LINDERIELLA *Linderiella occidentalis*	—/—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta County south to Fresno County, across the Central Valley and some of the coast ranges.	Nov to May	No Habitat Present
Amphibians				
CALIFORNIA TIGER SALAMANDER *Ambystoma californiense*	FT / ST /YHCP	Found mostly in the Central Valley of California and is restricted to large vernal pools, seasonal ponds, or stock ponds that hold water for at least 4 months during spring for breeding and larval development. Adult non-breeding habitat is generally grasslands and oak savannah.	March to May	No Habitat Present
CALIFORNIA RED-LEGGED FROG *Rana draytonii*	FT/—/ SSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and stream-sides with plant cover. Most common in lowlands or foothills along the California coast and surrounding the Central Valley. Only a handful of scattered populations within the Central Valley.	Jan to Feb	No Habitat Present
WESTERN SPADEFOOT *Spea hammondii*	—/—/ SSC	Restricted to vernal pools, seasonal wetlands, stock ponds, and quiet in-channel pools for breeding and larval development. Adult non-breeding habitat is generally grasslands. Known to occur within the Central Valley and surrounding foothills from Colusa County to Tulare County.	March to May	No Habitat Present
Reptiles				
WESTERN POND TURTLE *Emys marmorata*	—/—/ SSC, YHCP	Found in ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers) along the west coast of the U.S. and Mexico. Prefers loose soils in adjacent banks, grasslands, and open woodland for nesting. Known to occur along Cache Creek.	March to Oct	Could Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
GIANT GARTER SNAKE *Thamnophis gigas*	FT / ST / YHCP	Found in marshes, low gradient streams and adjacent rice fields supported by perennial fresh water in the Central Valley.	April to Sept	Unlikely to Occur
Birds				
COOPER'S HAWK *Accipiter cooperii* (nesting)	—/—/CNDDB	Nests in dense riparian or oak woodland. Hunts and winters in wide variety of woodland and forest vegetation communities. Distributed from Southern Canada to Northern Mexico. Most nesting occurrences in Yolo County are associated with riparian habitat along the larger rivers or large urban stands of trees.	May to July	Unlikely to Occur
SHARP-SHINNED HAWK *Accipiter striatus* (nesting)	—/—/ CNDDB	Nests in dense pole and small-tree stands of riparian and coniferous forest near water. Hunts and winters in wide variety of woodland and shrub vegetation communities. Occurs throughout much of North America.	May to July	Unlikely to Occur
GRASSHOPPER SPARROW *Ammodramus savannarum* (nesting)	—/—/ SSC	Nests in dense, dry, expansive grasslands (sometimes with scattered shrubs). Forages in similar habitat. Species exhibits extreme site fidelity.	April to July	Unlikely to Occur
TRICOLORED BLACKBIRD *Agelaius tricolor* (nesting)	—/ SE / YHCP	Nests in dense stands of emergent freshwater marsh, willow, blackberry, thistle, nettles, or certain crops. Forages in grassland or rangeland providing an abundant source of food (e.g., grasshoppers or butterfly larvae) - often within three miles of the nest colony. Almost the entire population occurs year-round in cismontane California, with the Central Valley supporting the largest populations.	April to July	Unlikely to Occur. However, potential foraging habitat present.
GOLDEN EAGLE *Aquila chrysaeto* (nesting and wintering)	—/—/ CFP	Nests on secluded cliffs, but may also use large, isolated trees. Hunts widely over open areas. Occurs throughout much of North America. Most records in Yolo County are winter occurrences.	Year-round	Unlikely to Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed/State/Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
GREAT EGRET *Ardea alba* (nesting colony)	—/—/ CNDDB	Scattered throughout the U.S. and Mexico. Nesting colonies are located in large trees adjacent to bodies of water, such as lakes, ponds, marshes and estuaries. Foraging habitat includes a variety of wetland habitats. Frequently found roosting with great blue herons.	April to May	Unlikely to Occur
GREAT BLUE HERON *Ardea herodias* (nesting colony)	—/—/ CNDDB	Breeding colonies are located in trees near isolated swamps or on islands, or near lakes and ponds bordered by forests throughout the U.S. and southern Canada. Foraging habitat includes freshwater and saltwater wetlands/water bodies, as well as grasslands and agricultural fields. Frequently found roosting with great egrets.	March to May	Unlikely to Occur
SHORT-EARED OWL *Asio flammeus* (nesting)	—/—/ SSC	Suitable nesting habitat is provided by freshwater and coastal marshes, coastal prairie and dunes, wet meadows, and dense grasslands. Most nesting occurs within Canada and the north-central portion of the U.S.	April to July	Could Occur
LONG-EARED OWL *Asio otus* (nesting)	—/—/ SSC	Species requires grassland or other open spaces for foraging, as well as dense tall shrubs/trees for nesting and roosting. Occurs throughout much of the U.S. and Canada. Scattered populations exist in the mountain and coastal regions of California.	Feb to July	Unlikely to Occur
BURROWING OWL *Athene cunicularia* (burrow sites and some wintering sites)	—/—/ SSC, YHCP	Occurs in western North America south to Mexico. Generally a resident species in California. Nests and winters in low open grassland or other low, open habitats with abundant small mammal burrows. Nest sites are in ground burrows, usually surrounded by bare soil or short grass. Forages in similar habitats.	Feb to Aug (Breeding) Dec to Jan (Non-breeding)	Unlikely to Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
FERRUGINOUS HAWK *Buteo regalis* (wintering)	—/—/ CNDDB	Nests are usually built in tall trees along streams or rivers, or in junipers with a view of surrounding grassland. Cliffs, hills, boulders, and man-made structures are occasionally used as nest sites. Nests primarily within the interior portions of North America. Hunts in expansive, open vegetation communities.	Oct to April	Could Occur (Winter)
SWAINSON'S HAWK *Buteo swainsoni* (nesting)	— /ST / YHCP	Nests in large trees in riparian and oak woodland (sometimes single large oaks) adjacent to large open areas for hunting. Occurs throughout much of western North America. Previously observed foraging at project site and adjacent areas.	April to Sept	Likely to Occur
WESTERN SNOWY PLOVER *Charadrius alexandrinus nivosus*	FT/—/ SSC	Western snowy plover nests on bare ground, typically in beaches or other coastal habitats with friable soils and little or no vegetation. Less typical nesting sites include river bars, sandy shores, salt pans, and dredge material disposal sites.	March to Sep	Unlikely to Occur
MOUNTAIN PLOVER *Charadrius montanus* (wintering)	—/—/ SSC	Found patchily distributed as a wintering species in California where it occurs on relatively level lands with short grass, plowed or burned agricultural fields, and sprouting grain or alfalfa fields.	Oct to March	Unlikely to Occur
NORTHERN HARRIER *Circus hudsonius* Previously *Circus cyaneus* (nesting)	—/—/ SSC	Nests throughout much of North America in tall grasses, marshes, and grain fields. Forages in open vegetation communities. Previously observed foraging at project site and adjacent areas.	Year-round	Known to Occur
WESTERN YELLOW-BILLED CUCKOO *Coccyzus americanus occidentalis* (nesting)	FT / SE / YHCP	Species is restricted to cottonwood and willow-dominated riparian forests along large rivers. In California, the majority of breeding population currently concentrated along upper Sacramento River.	June to Aug	Unlikely to Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
WHITE-TAILED KITE *Elanus leucurus* (nesting)	—/—/ CFP, YHCP	Found throughout the lower elevation portions of California in low rolling grasslands with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Requires grasslands, meadows, or marshes (for foraging) located near dense-topped trees (for nesting and roosting). Previously observed foraging at project site and adjacent areas.	Year-round	Could Occur
WILLOW FLYCATCHER *Empidonax traillii* (nesting)	— / SE / —	Breeds from southern British Columbia, Alberta, North Dakota, New York, and Maine south to central California, Nevada, Arkansas, and Virginia. Nests in riparian brush dominated by deciduous willows/shrubs. Nesting season records for the state limited to the Sierra Nevada and Cascades.	May to Aug	Unlikely to Occur
MERLIN *Falco columbarius* (wintering)	—/—/ CNDDB	Occurs in a variety of low elevation, relatively flat habitats that include wooded areas, coastlines, open grasslands, savannah, and the periphery of lakes. The species is less often found in open desert. Merlin typically requires dense stands of trees for cover and roosting, and is most often found where there are substantial populations of small birds (the primary prey item). Merlin is a regular winter visitor to much of the U.S.	Oct to March	Could Occur
PRAIRIE FALCON *Falco mexicanus* (nesting)	—/—/ SSC	Generally year-round bird from south Canada, western U.S. and Mexico. Nests on secluded cliffs, bluffs, or rock outcrops (particularly with southeastern exposure). Hunts in open terrain (grassland, oak savannah, and early succession stages of shrub and woodland habitats). Most records in Yolo County are winter occurrences.	April to Aug	Unlikely to Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
AMERICAN PEREGRINE FALCON *Falco peregrinus anatum* (nesting)	FD/ SD / CFP	Species occurs all over the world; in North America, breeds in open landscapes with cliffs (or skyscrapers) for nest sites. Can be found nesting at elevations up to 12,000 feet, as well as along rivers, coastlines, or in cities. Known from mountain and coastal regions throughout the State. No records for this species from the Central or Sacramento Valleys.	March to Aug	Unlikely to Occur
BALD EAGLE *Haliaeetus leucocephalus* (nesting and wintering)	FD/ SE / CFP	Nests near large lakes, reservoirs, and rivers. Wintering occurs near these latter habitats as well as in rangelands and coastal wetlands. Occurs throughout much of North America. Occasional winter visitor in Yolo County.	Oct to March	Unlikely to Occur
LEAST BITTERN *Ixobrychus exilis* (nesting)	—/—/ SSC	Breeds in tall emergent vegetation in marshes, primarily freshwater, less commonly in coastal brackish marshes and mangrove swamps. Breeding populations known from throughout California, including the Central Valley.	May to July	Unlikely to Occur
LOGGERHEAD SHRIKE *Lanius ludovicianus* (nesting)	—/—/ SSC	Endemic to North America, from southern Canada south through the U.S. and Mexico. Utilizes shrubs and other dense, woody vegetation for nesting. Uses adjacent open vegetation communities for foraging.	April to July	Could Occur
CALIFORNIA GULL *Larus californicus* (nesting colony)	—/—/ CNDDB	Mostly western North America. Breeds on islands in lakes or rivers in the Sierra Nevada and Cascade Ranges, and on the coast. Forages in a variety of habitats, from parking lots to farm fields to the open ocean. No nesting season records exist for this species in the Central or Sacramento Valleys.	May to July	Unlikely to Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed/State/Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
SONG SPARROW (MODESTO POPULATION) *Melospiza melodia* "Modesto" (nesting)	—/—/ SSC	The Modesto Song Sparrow is found in areas containing extensive wetlands, such as the Sacramento-San Joaquin Delta. Prefers freshwater marsh and riparian forest habitats with available water, open areas for foraging and moderately dense vegetation cover for nesting.	March to Aug	Unlikely to Occur
BLACK-CROWNED NIGHT HERON *Nycticorax nycticorax*	—/—/ CNDDB	The black-crowned night heron is a medium-sized, carnivorous wading bird. It is associated with wetlands and riparian areas. This species forms communal rookeries but often forage as individuals.	April to Aug	Unlikely to Occur
AMERICAN WHITE PELICAN *Pelecanus erythrorhynchos* (nesting colony)	—/—/ SSC	California's nesting pelicans have been confined mainly to the Klamath Basin, within Siskiyou, Modoc and Lassen counties. Historic breeding range includes the Central Valley, prior to large-scale urban and agricultural development.	March to July	Unlikely to Occur
DOUBLE-CRESTED CORMORANT *Phalacrocorax auritus* (nesting colony)	—/—/ CNDDB	This species is widely distributed throughout North America. Breeding colonies are typically formed in clusters of large trees near water. Require aquatic bodies (lakes, ponds) large enough to support a mostly fish diet.	April to Aug	Unlikely to Occur
YELLOW-BILLED MAGPIE *Pica nuttalli* (nesting and communal roosts)	—/—/ CNDDB	Found as a resident and wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, and other open woodland types near water (generally where there are large trees with dense cover for nesting and roosts). Also common in residential areas.	Year-round	Could Occur
WHITE-FACED IBIS *Plegadis chihi* (nesting colony)	—/—/ CNDDB	This species nests at scattered locations in the Central Valley as well as elsewhere in California where there are dense, freshwater emergent wetlands.	May to July	Unlikely to Occur

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Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed/State/Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
PURPLE MARTIN *Progne subis* (nesting)	—/—/ SSC	Extremely localized and limited distribution along Central to North Coast, Sierra Nevada and Cascades, southern California mountains, and Sacramento. Nests mostly in old woodpecker cavities in tall, old, isolated trees or snags.	April to Sept	Unlikely to Occur
BANK SWALLOW *Riparia riparia* (nesting)	— / ST / YHCP	Formerly found as a summer nesting species within a larger California distribution along the coast and adjacent to larger streams and rivers. Range is now concentrated along Central Valley streams and rivers. Species nests in vertical banks and cliffs with fine-textured sandy soils. No existing nesting habitat for the species occurs on the project site. Species may intermittently use areas (i.e., stockpiles, vertical mine faces, etc.) during mining phases.	April to July	Unlikely to Occur
Mammals				
PALLID BAT *Antrozous pallidus*	—/—/ SSC	Found as a resident in all desert, grassland, shrub, woodland, and forest habitats from sea level to approximately 6,000 feet. Day roosts are typically found in buildings, bridges, rocky outcrops, mines, caves, and trees. Night roosts are generally provided by bridges, mines, and caves.	April to Sept	Unlikely to Occur
SILVER-HAIRED BAT *Lasionycieris noctivagans*	—/—/ CNDDB	Found in coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats from the Oregon border south along the coast to San Francisco Bay, and in the Sierra Nevada and Great Basin regions to Inyo County. The species also occurs in southern California from Ventura and San Bernardino counties south to Mexico and on some of the Channel Islands. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	April to Sept	Could Occur

(Continued on next page)

Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
WESTERN RED BAT *Lasiurus blossevillii*	—/—/ SSC	Occurs at scattered locations throughout the lowland portions of California west of the Sierra Nevada crest and desert regions (typically in riparian forest or orchards). Roosting sites are found in tree or shrub foliage between two- and 40-feet above ground (typically in large cottonwoods, sycamores, walnuts, and willows).	April to Sept	Could Occur
HOARY BAT *Lasiurus cinereus*	—/—/ CNDDB	Hoary bat occurs throughout California, although its distribution is patchy in the southeastern deserts. Hoary bat is a common, solitary species that typically occurs in woodlands and forests with undisturbed, medium to large-size trees and dense foliage up to 13,200 feet in elevation. The species winters along the coast and in southern California.	April to Sept	Could Occur
YUMA MYOTIS *Myotis yumanensis*	—/—/ CNDDB	Found in a variety of habitats (including coastal vegetation communities and urban areas) with nearby sources of water over which the species forages. Day roosts are found in caves, mines, buildings, or crevices. Night roosts are typically associated with bridges, buildings, and other man-made structures.	April to Sept	Unlikely to Occur
AMERICAN BADGER *Taxidea taxus*	—/—/ SSC	Found as a resident species at scattered localities throughout California (except in the coastal redwood region). Generally occurs in extensive, open habitats in the vicinity of abundant rodent populations.	Year-round	Unlikely to Occur
Fishes				
STEELHEAD – CENTRAL VALLEY DPS *Oncoryhnchus mykiss irideus* pop. 11	FT /—/ —	Anadromous salmonid fish. This population is local to the Sacramento and San Joaquin rivers and their tributaries. Males display plastic and diverse reproductive strategies.	Dec to April	No Habitat Present

(Continued on next page)



Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed/State/Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
CENTRAL VALLEY CHINOOK SALMON *Oncoryhnchus tshawytscha* pop. 6	—/—/ SSC	Anadromous salmonid fish which is largely restricted to the Sacramento River. Errant fishes have been observed spawning in other rivers.	Dec to April	No Habitat Present
SACRAMENTO SPLITTAIL *Pogonichthys macrolepidotus*	—/—/ SSC	Endemic to California's Central Valley with a migratory life history. Found in the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and the San Francisco Estuary. Relies on both brackish and freshwater habitats.	Nov to April	No Habitat Present
LONGFIN SMELT *Spirinchus thaleichthys*	—/ST/ —	An anadromous species which can be found in the San Francisco Estuary, Sacramento-San Joaquin Delta, Humboldt Bay, and the estuaries of the Eel and Klamath Rivers. The Longfin smelt can tolerate saline and fresh waters. Longfin smelt is typically found in lower portions of freshwater streams.	Dec to Feb	No Habitat Present

Status Codes:

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threatened
FC	Federal Candidate Species (former Category 1 candidates)
FD	Federally Delisted
SE	State listed as Endangered
ST	State listed as Threatened
SR	State listed as Rare
SD	State Delisted
CFP	CDFW designated "Fully Protected"
SSC	CDFW designated "Species of Special Concern"
1A	California Rare Plant Rank - Presumed extinct
1B	California Rare Plant Rank - Rare or Endangered in California and elsewhere
2A	California Rare Plant Rank - Presumed extirpated in California, more common elsewhere
2B	California Rare Plant Rank - Rare or Endangered in California, more common elsewhere
3	California Rare Plant Rank - Plants About Which More Information is Needed, A Review List
4	California Rare Plant Rank - Plants of Limited Distribution, A Watch List
CNDDB	Species is tracked by the CNDDB

Table 4.4-2
Special-Status Species and Other Protected Species with Potential to Occur within the Project Site

Scientific Name (Common Name)	Status (Fed / State / Other)	Habitat and Distribution	Survey Period	Potential for Occurrence
YHCP	Species is covered by the Yolo HCP/NCCP			

Source: Teichert Materials, 2020.

4.5 Cultural and Tribal Cultural Resources

4.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

4.5.1 INTRODUCTION

The Cultural and Tribal Cultural Resources chapter of the EIR addresses known historic and prehistoric resources in the project vicinity, as well as the potential for previously unknown resources to occur within the project site. In addition, a discussion of Tribal Cultural Resources potentially occurring in the project area is provided. The chapter summarizes the existing setting with respect to cultural resources, identifies thresholds of significance, evaluates project impacts to such resources, and sets forth mitigation measures as necessary. The information presented in this chapter is sourced primarily from the Cultural Resource Assessment prepared for the proposed project by Peak & Associates, Inc. (see Appendix G),[1] the Yolo County General Plan[2] and associated EIR,[3] and the Cache Creek Area Plan (CCAP) update EIR.[4]

In response to the NOP, the County received comments related to cultural and tribal cultural resources from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Potential impacts to Tribal Cultural Resources (Northwest Information Center);
- Potential impacts to unknown archaeological resources (Northwest Information Center); and
- Potential impacts to historical resources, specifically the Moore Canal (Northwest Information Center).

The County did not receive any NOP comment letters from local Native American tribes.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following terms are used throughout this chapter and have important bearing upon properly evaluating cultural and Tribal Cultural Resources within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

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1 Peak & Associates, Inc. *Cultural Resource Assessment for the Shifler Mining and Reclamation Project, Yolo County, California.* January 2015.
2 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
3 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034.* April 2009.
4 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

"Cultural resources" is a term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; resources of importance to Native Americans; and human remains. Human remains include those interred both within and outside of formal cemeteries.

"Historic properties" is a term defined by the National Historic Preservation Act (NHPA) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property.

"Historical resource" is a CEQA term that includes buildings, sites, structures, objects, or districts; each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

"Archaeological resource" refers to material remains of human life or activities that are at least 50 years of age and are capable of providing scientific or humanistic understanding of past human behavior, cultural adaptation, and related topics. As discussed in further detail below, Public Resources Code (PRC) Section 21083.2 includes protections for archaeological resources deemed to be "unique". Section 21083.2 of the PRC defines "unique archaeological resource" to mean an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

4.5.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to cultural and tribal cultural resources.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and ornamental landscaping.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground

structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

The following sections describe the archaeological setting, ethnographic background, and historic background of the region.

Archeological Setting

In the early decades of the 1900s, E.J. Dawson explored numerous sites within the Central Valley region of California, near Stockton and Lodi, later collaborating with W.E. Schenck. By 1933, the focus of work was directed to the area in the vicinity of the Cosumnes River, where survey and excavation studies were conducted by the Sacramento Junior College.

Excavation data, in particular from the stratified Windmiller site (a prehistoric mound site located near Cosumnes River), suggested two temporally distinct sets of cultural rituals and customs (i.e., cultural traditions): the Windmiller Culture and the Cosumnes Culture. Later work at other mounds by Sacramento Junior College and the University of California, Berkeley, enabled the investigators to identify a third cultural tradition, the Hotchkiss Culture, intermediate between the previously postulated Early and Late Horizons. These three cultural traditions, referred to as the three-horizon sequence, was based on discrete changes in ornamental artifacts and mortuary practices (as well as on observed differences in soils within sites) and was later refined by Beardsley. The three cultural traditions were described as follows:

- The Windmiller Culture (Early Horizon) was characterized by ventrally-extended (prone) burial positions with westerly orientation of heads; a high percentage of burials with grave goods; frequent presence of red ocher in graves; large projectile points, of which 60 percent are of materials other than obsidian; rectangular Haliotis beads; Olivella shell beads (types A1a and L); rare use of bone; some use of baked clay objects; and well-fashioned charmstones, usually perforated.
- The Cosumnes Culture (Middle Horizon) displays considerable changes from the Windmiller Culture. The burial mode is predominately flexed (i.e., legs folded up to the chest), with variable cardinal orientation and some cremations present. The percentage of burials with grave goods is lower, and ocher staining is common in graves. Olivella beads of types C1, F and G predominate, and abundant use of green Haliotis species (sp.), rather than red Haliotis sp., is noted. Other characteristic artifacts include perforated and canid teeth; asymmetrical and “fishtail” charmstones, usually not perforated; cobble mortars and evidence of wooden mortars; extensive use of bone for tools and ornaments; large projectile points, with considerable use of rock other than obsidian; and use of baked clay.
- With regard to the Hotchkiss Culture (Late Horizon), the burial pattern retains the use of the flexed mode, and widespread evidence of cremation is available, along with lesser use of red ocher, heavy use of baked clay, Olivella beads of Types E and M, extensive use of Haliotis ornaments of many elaborate shapes and forms, shaped mortars and cylindrical pestles, bird-bone tubes with elaborate geometric designs, clam shell disc beads, small projectile points indicative of the introduction of the bow and arrow, flanged tubular pipes of rock (steatite and schist), and use of magnesite.

Bennyhoff and Hughes have presented alternative dating schemes with an emphasis on a more elaborate division of the horizons described per the Three Horizon Sequence. The alternative dating schemes are described as follows:

- Paleo-Indian Period: 11,550 to 8550 calendar years BC.
- Lower Archaic: 8550 to 5550 BC.
- Middle Archaic: 5550 to 550 BC.
- Upper Archaic: 550 BC to AD 1100.
- Emergent Period: AD 1100 to contact with European colonizers.

Ethnographic Background

The Patwin occupied the southern Sacramento Valley west of the Sacramento River from the town of Princeton, north of Colusa, south to San Pablo and Suisun bays. Patwin territory extended approximately 90 miles north to south and 40 miles east to west. Distinction is made between the River Patwin, who resided in large villages near the Sacramento River, especially between Colusa and Knights Landing, and the Hill Patwin, whose villages were situated in the small valleys along the lower hills of the Vaca Mountains and Coast Range, with concentrations in Long, Native American, Bear, Capay, Cortina and Napa valleys. The term “Patwin” refers to the people belonging to the many small contiguous independent political entities in this area who shared linguistic and cultural similarities. Hill and River Patwin dialects are grouped into a North Patwin language, separate from South Patwin, spoken by people who live near present-day Knight’s Landing and Suisun. Together, these are classified as southern Wintuan and belong to the Penutian language family, as do the languages of the Miwok and Nisenan peoples living nearby.

Patwin territory includes the riverine environment of tule marshes, vines and brush near the Sacramento River, the flat grasslands dotted with oak groves, and the hills and small valley of the Coast Ranges. The villages situated on low bluffs near the river were often very large; in 1848, General Bidwell estimated at least 1,000 residents at Koru, near Colusa. In the hills, the Patwin settled in the small valleys, particularly along Cache and Putah creeks, where large populations were reported. The plains were least hospitable, and villages were sparse because of the seasonal flooding in winter and lack of reliable water sources during the dry months.

Within a village, the Patwin constructed earth-covered semi-subterranean structures. The Hill Patwin used a circular floor plan while the River Patwin favored an elliptical shape. Four types of building occurred in a predictable pattern: the ceremonial dance house was placed a short distance to the north or south of the village, the sudatory, or sweat house, was positioned to the east or west of the dance house, and the menstrual hut was built on the edge of the village, farthest from the dance house. Family dwellings could be constructed anywhere within the community. Family lodges were built by one's paternal relatives, while the other structures were the product of a communal effort. They used readily available materials, forming a framework of saplings, and covering the walls and roof with mud and brush.

Natural resources flourished in Patwin territory. They gathered seeds and plant foods and hunted game animals on the plains, shot or netted ducks and other migratory water fowl in the thick tule marshes, and netted salmon and other fish in the rivers and streams. Some of such gathering activities were conducted by groups or families assigned to particular resource areas by a village chief. Acorns were a staple in the Patwin diet. At privately-owned gathering tracts on the plains, families gathered seeds, including sunflower, alfilaria, clover, bunchgrass, wild oat and yellow-blossom. The Patwin also collected a variety of bulbs, nuts, roots and berries, including buckeye, pine nuts, juniper berries, manzanita berries, blackberries, wild grapes, brodiaea bulbs, and tule roots. To obtain salt, the Patwin scraped off rocks that were found near Cortina, burned a grass that grew on the plains or obtained it in trade from the neighboring Pomo.

King salmon, silver salmon and steelhead trout that run from the ocean to the fresh-water rivers and streams were an important diet item. Explorers observed Patwin fishing for salmon with a boom net in 1854. The Patwin also caught smaller fish and collected mussels from the river bottom. They attracted wild ducks by setting out realistic decoys, and then drove the fowl into large nets stretched above the marshes. Hunters also netted mud hens, geese and quail. The Suisun tribelet pursued waterfowl in tule rafts. The Patwin hunted large game, such as tule elk, deer, antelope and bear, and took many varieties of small animals, reptiles, insects and birds either to eat or to use for ceremonial and practical materials.

Historical Background

The 1833 malaria epidemic in the Central Valley played a major role in defining the post-Contact land use pattern of the Native Americans of the region, as well as impacting Euro-American economic development. The introduction of malaria to central California circa 1831 occurred as a result of expeditions of several fur brigades of the Hudson's Bay Company with infected individuals. The introduction of the disease led to the tremendous epidemic of 1833 that decimated the Native American population of the region. An estimated three-quarter of the total Native American population of the region died from the disease in that year.

The first white settler in the Woodland vicinity was Uncle Johnny Morris, who settled near an extensive grove of oaks on the plains south of Cache Creek in November of 1849. He engaged in agricultural pursuits on the rich Cache Creek bottom land and was soon joined by Henry Wycoff and others. Wycoff established a new store in the area, which was referred to as Yolo City by white settlers. In 1857, Frank S. Freeman purchased 160 acres and laid out a town which he envisioned as being the commercial center of the rich agricultural zone that was developing in the area. A post office was established in 1858, at which time the town became Woodland instead of Yolo City, as it had been known until that time.

Woodland was selected as the county seat in 1862 and Freeman, donated a city block for the courthouse. The City contains many fine examples of nineteenth century architecture in the First Street area that have survived and continue in use.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert

Woodland Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), rural residential, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The aggregate mining operations to the north consist of Teichert's Storz mining site to the northwest and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

The following sections provide an overview of the history of the Moore Canal and the Magnolia Canal within the project area.

The Moore Canal System

The project site is crossed by a segment of the Moore Canal system, an irrigation system that dates to 1856. Before beginning work on the canal, James Moore purchased 80 acres from the grantee of Rancho Guesisosi, the land grant William Gordon had obtained from the Mexican government in 1843. The deed from Gordon for the 850 acres included "the entire and exclusive right to build and erect and keep in repair a dam across Cache Creek." The deed also included the entire and exclusive right to use the waters of the aforesaid "Jesus Maria" or Cache Creek running through Gordon's grant, to the sole use and behoof (sic) of said James Moore, her heirs and assignees forever." The land grant was confirmed by President James Buchanan in 1860.

In addition, Moore purchased 200 acres of the lands of the adjacent Hardy grant from Harbin and the right of way for a ditch across the property. As a result, Moore felt he could claim the rights to water from Cache Creek, and in 1856, began his project. A brush dam was built as well as the headgate and the first section of canal, extending three and a half miles to a tract of land owned by Moore. The 1858 Map of Rancho Rio Jesus Maria shows the initial extent of the canal.

In 1864, the canal was enlarged, the system was extended in two branches, and the grade at the section at the head was changed to secure greater capacity. The system totaled at that time nine miles, with a branch toward Woodland and another branch extended southward. After 1864, all extensions and laterals were built by the waters users and owned and maintained by the users.

The system continued to grow with associated expansions built by local groups of farmers to total seventy miles. The canal operated for a number of years with temporary dams, usually carried away by the winter rains. Water users who wanted irrigation water earlier in the season would have to pay higher costs to have the dam installed earlier. A more permanent dam was installed in 1881, but only stayed intact until it was washed away just five years later, likely due to a large flood event, defective construction, or neglect and failure to make repairs. After that date the dam was replaced annually until at least 1901.

The Moore Dam and Canal System became the subject of numerous lawsuits over the years, continuing for long after Moore's death in 1884. So much money was spent in legal actions that the author of a 1901 publication on irrigation from Cache Creek stated the following:

> In 1886 the permanent dam was washed away. Hampered and hedged about the provisions and limitations of this strange bequest. The trustees have found themselves unable to replace the dam or make much-needed repairs. They have not been able to operate the ditch to the satisfaction of either themselves, the heirs, or the water users. During all these forty-four years since James Moore first began his ditch, nearly half a century, the waters of Cache Creek have been going to waste, and all this outlay of energy and treasure there is nothing to show but these voluminous court records and one mismanaged ditch, irrigating in an ineffectual, unreliable way from 5,000 to 7,000 acres per annum out of a possible 40,000 to 50,000 acres that the natural flow of this stream should water and make fruitful. The physical difficulties to overcome are insignificant. Time after time energy and capital have brushed these aside only to find themselves involved in a maze of endless litigation which leads nowhere and settles nothing (Wilson 1901: 182).

The Moore interests eventually passed into the hands of the Yolo Water and Power Company. This appropriation has passed through the hands of a number of agencies, and is now owned by the YCFCWCD.

The Magnolia Canal

The Magnolia Canal is a remnant in part of the Moore Canal. The current course of the ditch in the project area follows roughly the mapped route dating back to 1858; however, within the project area, the system has been subject to numerous changes. In the 1950s, water was diverted into the ditch directly from Cache Creek, and is first called by the name "Magnolia Canal." At some point, the water delivery point is changed, and a gate structure built on the Moore Canal and the ditch realigned. The western section between Cache Creek and the existing canal has been abandoned. Other segments have been removed or disturbed by ongoing gravel mining along Cache Creek.

On-Site Cultural Resources

A records search of the California Historical Resources Information System (CHRIS) confirmed the project site has not been subject to past cultural resource surveys.[5] Nor have any prehistoric period cultural resources been recorded within the project site. Near the northeast portion of Parcel 2 is the location of a former ranch headquarters (Stevens Ranch); however, structures do not exist at the location and the area is currently overgrown by low-lying brush. All that remains of the former structures is a building pad, a partially buried steel pipe of unknown use, and various refuse piles.

Three historic-period resources have been recorded within the project vicinity: an oak grove, Monument Hill Memorial Park cemetery, and the Moore Canal. In addition, the project site contains a section of the Magnolia Canal which, as noted above, is a remnant part of the Moore Canal.

Oak Grove

A grove of 12 oak trees to the northwest of, and outside the project site, has been recorded as part of the 1986 Yolo County Inventory of historic resources, reportedly because the "trees that remain have a special historic and visual appeal." This resource has been assigned a primary number in the statewide system by the NWIC (P-57-132). The site was re-visited by an archeologist in 2007, who updated the form to report the continuing presence of the grove of trees. The 12 valley oak trees are not located within or adjoining the project site.

[5] Northwest Information Center. *County File Number ZF2018-0078 / Portions of APNs 025-120-032, 025-120-033, 025-430-001, and 025-430-002 / Teichert Shifler Mining and Reclamation*. September 5, 2019.

Monument Hill Memorial Park Cemetery

Monument Hill Memorial Park cemetery is located to the south of the project site, and is characterized by a USGS benchmark with a cemetery developed around the marker. The site was recorded in 1986 as HRI-5/153. A primary number has not been assigned in the statewide numbering system.

Moore Canal

In 2007, a history firm recorded the Moore Canal at a roadway crossing adjacent to the project site for a large-scale California Department of Transportation (Caltrans) contract. The section of the canal within the project site is recorded as CA-YOL-211H (P-57-605).

Currently, within the project site, the Moore Canal consists of a segment of a concrete and earth-lined canal that carries water from Cache Creek to nearby agricultural fields in the area west and southwest of the community of Woodland. The base of the canal averages approximately ten feet wide, with sides sloping up to a cut of approximately 22 feet wide. The canal varies from between four to six feet deep. The length of the inspected canal within the project site is approximately 5,600 feet. A secondary canal intersects with the Moore Canal near the eastern end of the inspected segment, at which point a concrete structure is located. The concrete lining was probably added to the Moore Canal at approximately the same time the concrete structure was constructed at the intersection with the other canal, sometime in the 1950s. The original Moore Canal, dug by James Moore in the 1850s, was not concrete lined.

Magnolia Canal

Although the Magnolia Canal follows in part the route of the original (1858) Moore Canal alignment, many alterations have occurred that have damaged the integrity of the resource. The original segment of the Moore Canal was cut off and not used for years, but by 1953 was partially brought back into service, with water brought by a new canal segment closer to Cache Creek. The entire new and old segments of the Moore Canal were re-named the “Magnolia Canal.” A later change to the Magnolia Canal occurred sometime between 1960 and 1970, with a gate added on the main Moore Canal within the project site to supply water into the Magnolia Canal. The section, built circa 1950, from Cache Creek to the old Moore Canal section, went into disuse, and is eroded away within the project area. Per the Cultural Resource Assessment, the Magnolia Canal lacks association with the Moore Canal, and is not currently considered part of the Moore Canal. Although technically a portion of the ditch was excavated in 1856, much has happened to alter this segment.

Tribal Resources

Based on a search of the Native American Heritage Commission (NAHC) Sacred Lands File, as described in further detail in the Method of Analysis section below, no Native American sacred sites or traditional cultural properties have been recorded within the project site. Per the NAHC’s suggestion, Peak & Associates, Inc. contacted each of the Native American tribes or individuals indicated by the NAHC to potentially have knowledge of cultural resources in the project area. In addition to the above, the County conducted Assembly Bill (AB) 52 and Senate Bill (SB) 18 tribal consultation for the project, as described in the Method of Analysis section below. Additional tribal cultural resources were not identified for the project site.

4.5.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of cultural and tribal cultural resources under the CEQA process.

Federal Regulations

The following are the federal regulations relevant to cultural and tribal cultural resources.

National Register of Historic Places

The NRHP is the nation's master inventory of known historic resources. The NRHP includes listings of resources, including: buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, State, or local level. Resources over 50 years of age can be listed on the NRHP. However, properties under 50 years of age that are of exceptional significance or are contributors to a district can also be included on the NRHP. Four criteria are used to determine if a potential resource may be considered significant and eligible for listing on the NRHP. The criteria include resources that:

A. Are associated with events that have made a significant contribution to the broad patterns of history; or
B. Are associated with the lives of persons significant in our past; or
C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. Have yielded or may likely yield information important in prehistory or history.

A resource can be individually eligible for listing on the NRHP under any of the above four criteria, or can be listed as contributing to a group of resources that are listed on the NRHP. A resource can be considered significant in American history, architecture, archaeology, engineering, or culture. Once a resource has been identified as significant and potentially eligible for the NRHP, the resource's historic integrity must be evaluated. Integrity is a function of seven factors: location, design, setting, materials, workmanship, feeling, and association. The factors closely relate to the resource's significance and must be intact for NRHP eligibility.

State Regulations

The following are the State environmental laws and policies relevant to cultural resources.

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that when human remains are discovered, no further site disturbance shall occur until the county coroner has determined that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, in the manner provided in PRC Section 5097.98. If the coroner determines that the remains are not subject to the coroner's authority, and the remains are recognized to be those of a Native American, the coroner is required to contact the NAHC within 24 hours.

California Environmental Quality Act

State historic preservation regulations affecting this project include the statutes and guidelines contained in CEQA (PRC Sections 21083.2 and 21084.1 and Sections 15064.5 and 15126.4 (b)

of the CEQA Guidelines). CEQA requires lead agencies to consider the potential effects of a project on historic resources and unique archaeological resources. An "historic resource" includes, but is not limited to, any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically significant (PRC Section 5020.1). Under Section 15064.5 of the CEQA Guidelines, a resource is considered "historically significant" if one or more of the following CRHR criteria have been met:

1. The resource is associated with events that have made a significant contribution to the broad patterns of California history;
2. The resource is associated with the lives of important persons from our past;
3. The resource embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual or possesses high artistic values; or
4. The resource has yielded, or may be likely to yield, important information in prehistory or history.

In addition, the resource must retain integrity. CEQA requires preparation of an EIR if a proposed project would cause a "substantial adverse change" in the significance of a historical resource. A "substantial adverse change" would occur if a proposed project would result in physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (CEQA Guidelines Section 15064.5[b][1]).

In addition to historically significant resources, which can include archeological resources that meet the criteria listed above, CEQA also requires consideration of "unique archaeological resources." If a site meets the definition of a unique archaeological resource, the site must be treated in accordance with the provisions of PRC Code Section 21083.2. Under PRC20183.2(g), an archaeological resource is considered "unique" if it:

1) Is associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory;
2) Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions;
3) Has a special kind or particular quality such as oldest, best example, largest, or last surviving example of its kind;
4) Is at least 100 years old and possesses substantial stratigraphic integrity; or
5) Involves important research questions that can be answered only with archaeological methods.

CEQA also includes specific guidance regarding the accidental discovery of human remains. Specifically, CEQA Guidelines Section 15064.5(e) requires that if human remains are uncovered, excavation activities must be stopped and that the county coroner be contacted. If the county coroner determines that the remains are Native American, the coroner must contact the NAHC within 24 hours. The NAHC identifies the most likely descendent, and that individual or individuals can make recommendations for treatment of the human remains under the procedures set forth in Section 15064.5 of the CEQA Guidelines.



Public Resource Code Section 5024.1

The State Historic Preservation Officer (SHPO) maintains the CRHR. Properties that are listed on the NRHP are automatically listed on the CRHR, along with State Landmarks and Points of Interest. The CRHR can also include properties designated under local ordinances or identified through local historical resource surveys. Criteria to determine eligibility under the CRHR are listed above.

Public Resource Code Section 5097.98

PRC Section 5097.98 includes standards and procedures related to discovery of Native American human remains. Per Section 5097.98, in the event that Native American human remains are discovered, the most likely descendants of the deceased individual must be immediately notified. The descendants may, with the permission of the owner of the land, or their authorized representative, inspect the site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods.

Tribal Consultation Guidelines (Senate Bill 18 - 2004)

Signed in September 2004, SB 18 amended Section 815.3 of the Civil Code, amended Sections 65040.2, 65092, 65351, 65352, and 65560 of the PRC, and added to Sections 65352.3, 65352.4, and 65562.5 to the Government Code, relating to traditional tribal cultural places. SB 18 requires local (city and county) governments to consult with California Native American tribes, when amending or adopting a general plan or specific plan, or designating land as open space, in order to aid in the protection of traditional tribal cultural places ("cultural places"). The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places. The consultation and notice requirements apply to adoption and amendment of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.).

Assembly Bill 52 - 2014

Approved in 2014, AB 52 amended, and added to, Section 5097.94, 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 of the PRC, relating to Native Americans. AB 52 added Tribal Cultural Resources to the categories of cultural resources in CEQA, which had formerly been limited to historic, archaeological, and paleontological resources. "Tribal Cultural Resources" are defined as either:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Under AB 52, a project that may cause a substantial adverse change in the significance of a Tribal Cultural Resource is defined as a project that may have a significant effect on the environment. Where a project may have a significant impact on a Tribal Cultural Resource, the lead agency's environmental document must discuss the impact and whether feasible alternatives or mitigation measures could avoid or substantially lessen the impact. AB 52 (PRC 21080.3.1) requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if they have requested notice of projects proposed within that area. If the tribe(s) requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe(s). Consultation may include discussing the type of environmental review necessary, the significance of Tribal Cultural Resources, the significance of the project's impacts on the Tribal Cultural Resources, and alternatives and mitigation measures recommended by the tribe(s).

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The relevant goals, policies, and actions from the Yolo County General Plan related to cultural and tribal cultural resources are presented below.

Goal CO-4 Cultural Resources. Preserve and protect cultural resources within the County.

Policy CO-4.1 Identify and safeguard important cultural resources.

Policy CO-4.3 Encourage owners of historic resources to preserve and rehabilitate their properties.

Policy CO-4.4 Encourage historic resources to remain in their original use whenever possible. The adaptive use of historic resources is preferred when the original use can no longer be sustained. Older residences may be converted to office/retail use in commercial areas and to tourist use in agricultural areas, so long as their historical authenticity is maintained or enhanced.

Policy CO-4.11 Honor and respect local tribal heritage.

Policy CO-4.12 Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the development review process.

Policy CO-4.13 Avoid or mitigate to the maximum extent feasible the impacts of development on Native American archaeological and cultural resources.

Action CO-A63 Require cultural resources inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical,

or paleontological resources. In addition, require a mitigation plan to protect the resource before the issuance of permits. Mitigation may include:

- Having a qualified archaeologist or paleontologist present during initial grading or trenching;
- Redesign of the project to avoid historic or paleontological resources;
- Capping the site with a layer of fill; and/or
- Excavation and removal of the historical or paleontological resources and curation in an appropriate facility under the direction of a qualified professional. (Policy CO-4.1, Policy CO-4.13)

Action CO-A64 Require that discretionary projects which involve earth disturbing activities on previously undisturbed soils in an area determined to be archaeologically sensitive perform the following:

- Enter into a cultural resources treatment agreement with the culturally affiliated tribe.
- Retain a qualified archaeologist to evaluate the site if cultural resources are discovered during the project construction. The archaeologist will have the authority to stop and redirect grading activities, in consultation with the culturally affiliated tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.
- Consult with the culturally-affiliated tribe to determine the extent of impacts to archaeological resources and to create appropriate mitigation to address any impacts.
- Arrange for the monitoring of earth disturbing activities by members of the culturally affiliated tribe, including all archaeological surveys, testing, and studies, to be compensated by the developer.

- Implement the archaeologist's recommendations, subject to County approval.
- Agree to relinquish ownership of all artifacts that are found on the project area to the culturally affiliated tribe for proper treatment and disposition. (Policy CO-4.1, Policy CO-4.13)

Action CO-A65 Require that when cultural resources (including non-tribal archeological and paleontological artifacts, as well as human remains) are encountered during site preparation or construction, all work within the vicinity of the discovery is immediately halted and the area protected from further disturbance. The project applicant shall immediately notify the County Coroner and the Planning and Public Works Department. Where human remains are determined to be Native American, the project applicant shall consult with the Native American Heritage Commission (NAHC) to determine the person most likely descended from the deceased. The applicant shall confer with the descendant to determine appropriate treatment for the human remains, consistent with State law. (Policy CO-4.1, Policy CO-4.11, Policy CO-4.12, Policy CO-4.13)

Action CO-A66 Prohibit the removal of cultural resources from the project site except by a qualified consultant and after the County planning staff have been notified. Prehistoric resources include chert or obsidian flakes, projectile points, mortars, pestles, dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or adobe foundations and walls, structures and features with square nails, and refuse deposits often in old wells and privies. Policy CO-4.1, Policy CO-4.11)

Action CO-A69 Refer all development proposals that may adversely affect cultural resources to the Northwest Information Center (NWIC) at Sonoma State University for review and comments. The NWIC will identify the presence or absence of known cultural



resources and/or previously performed studies in or near a given project area and will offer recommendations regarding the need for additional studies, where necessary. If the NWIC recommends further study, the project applicant shall contract with a qualified professional to conduct the study and make recommendations designed to avoid or minimize adverse impacts on cultural or historic resources and indicate whether further investigation is needed. All studies shall be completed and submitted to the County prior to the completion of any environmental document for the project. (Policy CO-4.1, Policy CO-4.11)

Action CO-A70 Refer draft environmental documents, including any studies and recommended mitigation measures, to the appropriate culturally-affiliated tribes for review and comment as part of the public review process. (Policy CO-4.1, Policy CO-4.11, Policy CO-4.12)

Off-Channel Mining Plan

The County's Off-Channel Mining Plan (OCMP) contains the following objective relevant to the project.

Objective 2.3-7 Avoid damage to important cultural resources, in order to document and/or preserve the historic and prehistoric record.

Yolo County Off-Channel Surface Mining Ordinance

Section 10-4.410 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding cultural resources:

Section 10-4.410. Cultural Resources

(a) All resource records shall be checked for the presence of and the potential for prehistoric and historic sites. Damaging effects on cultural resources shall be avoided whenever possible. If avoidance is not feasible, the importance of the site shall be evaluated by a qualified professional prior to the commencement of mining operations. If a cultural resource is determined not to be important, both the resource and the effect on it shall be reported to the Agency, and the resource need not be considered further. If avoidance of an important cultural resource is not feasible, a mitigation plan shall be prepared and implemented. The mitigation plan shall explain the importance of the resource, describe the proposed approach to mitigate destruction or damage to the site, and demonstrate how the proposed mitigation would serve the public interest.

(b) If human skeletal remains are encountered during excavation, all work within seventy-five (75') feet shall immediately stop, and the County Coroner shall be notified within twenty-four (24) hours. If the remains are of Native American origin, the appropriate Native American community identified by the Native American Heritage Commission

> shall be contacted, and an agreement for treating or disposing of, with appropriate dignity, the remains and associated grave goods shall be developed. If any cultural resources, such as chipped or ground stone, historic debris, building foundations, or paleontological materials are encountered during excavation, then all work within seventy-five (75') feet shall immediately stop and the Director shall be notified at once. Any cultural resources found on the site shall be recorded by a qualified archaeologist and the information shall be submitted to the Agency. (§ 1, Ord. 1190, eff. September 5, 1996)

Section 10-4.502(b)(6) of the Yolo County OCSMO states the following regarding technical reports required to be included in applications for mining permits:

> (6) A cultural resources survey of the proposed mining area, in order to evaluate the potential for historic and/or prehistoric artifacts. A survey may not be required if a preliminary investigation from the Northwest Information Center indicates that the likelihood of archaeological resources is low for the proposed site;

Other County Codes

Section 8-11.101 of the Yolo County Code of Ordinances states the following regarding the County's Historic Landmarks Ordinance:

> The purpose of this chapter is to promote the public health, safety, and general welfare by providing for the identification, protection, enhancement, perpetuation and use of improvements, buildings, structures, signs, objects, features, sites, places and areas within the County that reflect elements of its cultural, agricultural, social economic, political, aesthetic, military, maritime, engineering, archaeological, religious, ethnic, natural, architectural and other heritage for the following reasons:
>
> (a) To safeguard the County's heritage as embodied and reflected in such resources;
> (b) To encourage public knowledge, understanding, and appreciation of the County's past;
> (c) To promote their use for the education and welfare of other residents of the County;
> (d) To strengthen the economy of the County by protecting and enhancing the County's attraction to tourists, visitors and residents;
> (e) To stabilize and improve property values in historic areas of structures and objects for the ultimate aesthetic and economic benefit of the County;
> (f) To provide increased availability to building owners of construction code, financing aids and tax benefits permitted under State and Federal laws when buildings have been designated a historic landmark status or lie within a designated historic district; and
> (g) To enhance the visual character of the County by encouraging new design and construction that complement the County's historic buildings.

4.5.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to cultural and tribal cultural resources. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A cultural or tribal cultural resources impact is considered significant if the proposed project would:

- Cause a substantial adverse change in the significance of an historical resource pursuant to CEQA Guidelines, Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines, Section 15064.5;
- Disturb any human remains, including those interred outside of dedicated cemeteries;
- Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: (a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or (b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe;
- The project has the potential to eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines, Section 15065(a)(1)); and/or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to cultural and tribal cultural resources;

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) did not identify any less-than-significant impacts related to Cultural Resources and Tribal Cultural Resources.

Method of Analysis

The analysis presented within this chapter is based primarily on the Cultural Resources Assessment prepared for the proposed project by Peak & Associates, Inc. Peak & Associates, Inc. staff complete a pedestrian survey of the project site on August 30 and September 3, 2012 using 15-meter-wide transects. A second visit was made to the project site on October 3, 2013 to gather additional information related to the on-site ditches. In addition to the field surveys, the Cultural Resources Assessment included a review of site-specific information from the CHRIS database provided by the Central California Information Center on August 20, 2012. Additional research on the history of the development and use of the Moore Canal was conducted at the Yolo County Archives and the California Room of the California State Library, as well as through internet sources including Ancestry.com, the Internet Archive, and the USGS topographic map collection. Sources utilized include maps, published reports, and county histories.

In addition, on August 19, 2012, Peak & Associates, Inc. sent letters to the following Native American tribes or individuals indicated by the NAHC to potentially have knowledge of cultural resources in the project area: the Yocha Dehe Wintun Nation and the Cortina Rancheria Band of Wintun Indians of California. Representative of the firm indicated in their report that responses from the tribes were not received.



In compliance with AB 52 and SB 18, the County conducted tribal consultation for the project, as follows:

- 12/18/2018 The County sent letters to five tribes requesting to initiate AB 52 consultation and requested response within 30 days: the Yocha Dehe Wintun Nation; the Cortina Rancheria Band of Wintun Indians of California; the Ione Band of Miwok Indians; the Wilton Rancheria; and the Torres Martinez Desert Cahuilla Indians.
- 1/10/2019 The Yocha Dehe Wintun Nation requested initiation of formal consultation with the County, along with copies of various project materials related to cultural resources (see Appendix G).
- 1/23/2019 The County acknowledged Yocha Dehe Wintun Nation and sent the Cultural Resources Report for the proposed project. The County requested a meeting.
- 1/28/2019 The Yocha Dehe Wintun Nation emailed offers for several meeting dates.
- 2/11/2019 A consultation/coordination meeting was held at tribal offices (meeting minutes included in Appendix G).
- 2/11/2019 The Cultural Resources Report was resent to the tribe. The County also sent a copy of the Biological Resources Report sent to the tribe.
- 3/11/2019 The County sent minutes of the meeting to the tribe and agreed to set up a site visit.
- 4/1/2019 The County provided an email confirming the field meeting.
- 5/6/2019 Representatives from the County and the applicant conducted a tour of the project site, attended by Isaac Bojorquez and other representatives of the Yocha Dehe Wintun Nation.
- 5/21/2019 The County received a letter from the tribe recommending monitoring during “development and ground disturbance”.

Based on the above, the County has provided written notification of the proposed project to all applicable local tribes and has provided an opportunity for the tribes to comment on methods for protection of unknown tribal cultural resources potentially occurring within the project area. Additional opportunity for comment and collaboration will include through tribal review of this EIR. Thus, the County has fully satisfied AB 52 and SB 18 tribal consultation requirements for the proposed project.

Information from the Cultural Resources Assessment and the County’s tribal consultation efforts was used to determine the potential for cultural resources to occur on the project site. The physical improvements associated with the proposed project were evaluated in the context of the applicable regulations listed under Section 4.5.4 above and the significance criteria provided in Appendix G of the CEQA Guidelines. Where potential impacts are identified, this EIR includes mitigation measures to reduce the severity of the identified impacts to the maximum extent feasible.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to cultural and tribal cultural resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.5-1 Cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5. The impact would be *significant*.

The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project. The replacement of the existing equipment at the Woodland Plant with equipment form the Esparto Plant would not involve disturbance of areas that have not already been subject to prior disturbance associated with ongoing processing activities at the Woodland Plant.

The segment of the Moore Canal within the project site would be relocated to follow the western and northern boundary of the site. In addition, an approximately 1,200-foot-long segment of Magnolia Canal would be removed. The applicant proposes to relocate these facilities a minimum of 200-feet from the existing top bank of Cache Creek. The relocated Moore Canal would be concrete-lined and have an access road on each side for periodic maintenance by the YCFCWCD. Two over-crossings of the relocated Moore Canal would be constructed to facilitate the transport of aggregate by conveyor to the Woodland Plant site and to allow mining equipment to access the project site from the Woodland Plant site (see Figure 3-6). Such over-crossings would remain after completion of mining and reclamation to allow vehicular access across the relocated Moore Canal.

The northeast portion of the project site contains remnants of the former Stevens Ranch headquarters; however, structures do not exist at the location and the area is currently overgrown by low-lying brush. All that remains of the former structures is a building pad, a partially buried steel pipe of unknown use, and various refuse piles. Given that the integrity of the former Stevens Ranch headquarters has been substantially degraded, the headquarters is not eligible for consideration as a historic resource per the CRHR criteria.

Per the Cultural Resource Assessment, the Magnolia Canal is not considered significant under subsections 15064.5(A) and (B) of the CEQA Guidelines because it is not currently associated with important people and events. In addition, the lack of continuous use and major alterations, as well as the re-naming and the alteration of water source, also make the Magnolia Canal ineligible under subsections (C) and (D) of CEQA Guidelines Section 15064.5. Therefore, the Magnolia Canal is not eligible for consideration as a significant historical resource under the CRHR, and removal of a segment of the canal as part of the proposed project would not result in any significant impacts.

The Moore Canal has been described as being the oldest ditch in Yolo County, and is considered to be a significant historical resource eligible for inclusion in the NRHP. In



addition to being the oldest canal, the Moore Canal is relevant in the history of water rights policy in the California.

Per the Cultural Resource Assessment, the Moore Canal appears to be significant and eligible for the CRHR under CRHR Criterion 1, for its associations with important events. The Moore Canal is also significant and eligible under CRHR Criterion 3, as the earliest canal in Yolo County. As the original canal allowed the seasonal irrigation of many acres of otherwise dry lands useful only for grazing or grain crops, the changes in land use changed the patterns of development of the region. The section of the Moore Canal in the project site retains integrity of location (in part), setting, feeling, and association. However, the materials have been changed with the lining of the ditch at some point in the past. Based on the above, the Moore Canal is considered to be eligible for inclusion in the CRHR and the NRHP.

The proposed relocation of the Moore Canal would have the potential to materially alter in an adverse manner those physical characteristics of the canal that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR. Specifically, the existing portion of the alignment to be relocated would require demolition. Therefore, the proposed project could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, and a ***significant*** impact could occur.

The proposed project would not alter or otherwise adversely affect the existing stand of oak trees located to the northwest of the project site near Cache Creek. In addition, the project would not adversely affect the significance of the historic resources associated with Monument Hill Memorial Park cemetery to the south of the project site. Both areas are located outside of the proposed areas of disturbance, and are located within the vicinity of existing development and infrastructure. In the case of the stand of oak trees, County Road 94 B is located to the west and the area to the south (within the project site) has been subject to disturbance associated with agricultural uses. In the case of the Monument Hill Memorial Park cemetery, County Road 22 and existing residential development are located to the south, and various agricultural uses have occurred to the north, east and west. Thus, the proposed project would not result in a substantial adverse effect to the context of the two resources relative to changes that have already occurred in the area.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the severity of the above impact to the maximum extent feasible. However, given that the proposed relocation of the Moore Canal would still be required, the impact would remain *significant and unavoidable*.

4.5-1 *Prior to initiation of construction activities associated with relocation of Moore Canal within the project site, the project applicant shall retain a qualified archaeologist to provide for documentation of the Canal. A series of high-resolution photographs shall be taken of the resource, including any features and general overviews of canal segments planned for removal, to document the current appearance, with*

associated GPS readings. In addition, GPS readings shall be taken of the linear extent of Moore Canal.

Cross-sectional profiles shall be recorded at various points along the segments, depending on variations of the width and depth of the feature. The project applicant shall ensure that copies of the photographs of the canal section are filed with the Northwest Information Center, the Yolo County Archives, the Yolo County Flood Control and Water Conservation District, and the Yolo County Department of Community Services.

4.5-2 Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5 or disturb any human remains, including those interred outside of dedicated cemeteries. The impact would be *less than significant*.

Evidence of prehistoric cultural resources, including archaeological resources, has not been identified within the project site by prior cultural resource studies and was not noted during the field survey of the project site conducted by Peak & Associates, Inc. In addition to the on-site ground-disturbing activities associated with the proposed project, the project would require installation of a new water pipe, to be located partially off-site alongside the existing conveyor belt alignment. However, installation of the pipe would not require trenching in areas that have not already been subject to substantial prior disturbance associated with the conveyor belt. Similarly, the addition of new equipment at the Woodland Plant would occur entirely within the footprint of the existing Plant and would not require substantial ground disturbance. As such, ground-disturbing activities associated with the proposed mining and reclamation activities would not be likely to disturb any unique archaeological resources or human remains.

With regard to lands proposed for dedication, the future recreation, trails, and public open space uses and activities would occur on reclaimed lands subsequent to mining and reclamation. Dedication of the Shifler In-Channel property would involve change of ownership but no other specific land use changes or improvements beyond the improvements identified under Mitigation Measure 4.8-4(a through c) which would be subject to the requirements of the OCSMO and Mitigation Measure 4.5-3(a and b). Recreational, parkway, and open space use would rely primarily on existing trails and roads on the Shifler In-Channel property.

Nonetheless, the possibility exists that previous activities have obscured prehistoric or historic period artifacts or habitation areas, eliminating surface evidence that would permit discovery of such resources. In the event that an inadvertent discovery of prehistoric resources or human skeletal remains during excavation activities, the project applicant would be required to implement the provisions of OCSMO Section 10-4.410. The provisions require immediate cessation of all work within 75 feet of the discovery, notification of the Yolo County Coroner (if human remains are encountered), contact with the appropriate Native American community, and recording

of found resources by a qualified archaeologist. With required adherence to the OCSMO requirements, the proposed project would not cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5 or disturb human remains, including those interred outside of dedicated cemeteries, and a ***less-than-significant*** impact would result.

Mitigation Measure(s)

None required.

4.5-3 Directly or indirectly disturb or destroy a unique tribal cultural resource, such as a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American tribe. The impact would be *significant*.

Based on a search of the NAHC Sacred Lands File there are no recorded Native American sacred lands or traditional cultural properties within the project site vicinity. However, the Yocha Dehe Wintun Nation expressed concern that the project could impact Tribal Cultural Resources. The potential exists for previously undiscovered Tribal Cultural Resources associated with local tribes to occur in the vicinity of the project site, particularly within the upper layers of overburden material within the project site. The Yocha Dehe Wintun Nation has requested that a tribal monitor be present on-site during initial ground disturbance associated with the proposed project.

Because, ground-disturbing activities associated with the proposed project could unearth an unknown Tribal Cultural Resource as defined in PRC Section 21074, a ***significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.5-3(a) *Prior to initiation of ground-disturbing activities associated with removal of overburden material on the project site, within 500 feet of the Cache Creek bank (i.e., streamway influence zone), local Native American tribes or groups that have responded to the request for information regarding sacred lands or other heritage sites that might be impacted by the proposed project shall be apprised by the applicant of the proposed mining schedule and be afforded the opportunity to provide a tribal monitor at their discretion. Written proof of notification shall be submitted to the Yolo County Department of Community Services. The opportunity to monitor shall be provided during all ground-disturbing activities occurring within 500 feet of the Cache Creek bank, down to a depth of 10 feet below the existing ground surface. The monitor shall meet all applicable Occupational Safety and Health Administration (OSHA) requirements and abide by the operator schedule. The operator shall be responsible for reimbursing the costs of one (1) tribal monitor.*

4.5-3(b) *Prior to initiation of ground-disturbing activities, a consultant and construction worker cultural resources awareness brochure and training program for all personnel involved in project implementation shall be developed in coordination with interested Native American tribes. The brochure shall be distributed and the training shall be conducted in coordination with qualified cultural resources specialists and Native American Representative and monitors from culturally affiliated Native American Tribes. The program shall include relevant information regarding sensitive tribal cultural laws and regulations. The worker cultural resources awareness program shall describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project site and shall outline what to do and whom to contact if any potential archeological resources or artifacts are encountered. The program shall also underscore the requirement for confidentiality and culturally-appropriate treatment of any find of significance to Native American and for behavior consistent with Native American Tribal values. A copy of the cultural resources awareness brochure and written verification of completion of the training program shall be submitted to the Yolo County Department of Community Services.*

4.5-4 The project has the potential to eliminate important examples of the major periods of California history or prehistory. This impact would be *significant*.

As discussed in Impacts 4.5-1 through 4.5-3 above, the proposed project would include relocation of the Moore Canal within the project site, which is considered to be eligible for inclusion in the CRHR and the NRHP as an historic resource. In addition, ground-disturbing activities associated with the proposed project could disturb previously unknown archaeological resources and tribal cultural resources potentially occurring within the project site. Therefore, the proposed project may be considered to have the potential to eliminate important examples of the major periods of California history or prehistory, and a ***significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the severity of the above impact to the maximum extent feasible. However, given that the proposed relocation of the Moore Canal would still be required, the impact would remain *significant and unavoidable*.

4.5-4 *Implement Mitigation Measures 4.5-1, 4.5-3(a), and 4.5-3(b).*

4.5-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to cultural and tribal cultural resources. The impact would be *less than significant*.

Table 4.5-1 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to cultural resources. It should be noted that consistency with other standards in SMARA, the County Zoning Ordinance, and the SMRO that are specific to land use and planning issues are discussed in Chapter 4.9, Land Use and Planning, of this EIR. As shown in the table, the proposed project would be generally consistent with applicable standards related to cultural resources. Thus, a ***less-than-significant impact*** would occur.

Mitigation Measure(s)

None required.

Table 4.5-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy CO-4.1 Identify and safeguard important cultural resources.	A Cultural Resource Assessment has prepared for the proposed project to identify existing on-site cultural resources. The investigation included a search of appropriate cultural resource databases and pedestrian surveys of the project site. As noted above, this EIR requires implementation of Mitigation Measures 4.5-1, 4.5-3(a), and 4.5-3(b) to reduce potential impacts to cultural resources to the maximum extent feasible. Therefore, the project would be consistent with this policy.
Policy CO-4.3 Encourage owners of historic resources to preserve and rehabilitate their properties.	Mitigation Measure 4.5-1 in this EIR would ensure proper documentation of Moore Canal within the project site prior to relocation. Therefore, the project would be consistent with this policy.
Policy CO-4.4 Encourage historic resources to remain in their original use whenever possible. The adaptive use of historic resources is preferred when the original use can no longer be sustained. Older residences may be converted to office/retail use in commercial areas and to tourist use in agricultural areas, so long as their historical authenticity is maintained or enhanced.	As discussed under Impact 4.5-1, the proposed project proposes relocation of Moore Canal within the project site. However, the canal would continue to be operational after relocation. Therefore, the project would be consistent with this policy.
Policy CO-4.11 Honor and respect local tribal heritage.	See discussed under Impact 4.5-3. The County has worked with local tribes to identify potential Tribal Cultural Resources within the project area. Therefore, the project would be consistent with this policy.

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Table 4.5-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Policy CO-4.12 Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the development review process.	See discussion above of compliance with Policy CO-4.11.
Policy CO-4.13 Avoid or mitigate to the maximum extent feasible the impacts of development on Native American archaeological and cultural resources.	The site-specific Cultural Resource Assessment and the impact analysis presented in this EIR have been performed to ensure that significant impacts on cultural resources are avoided or appropriately mitigated. Therefore, the project would be consistent with this policy.
Off-Channel Mining Plan	
Objective 2.3-7 Avoid damage to important cultural resources, in order to document and/or preserve the historic and prehistoric record.	See discussion above of compliance with Policy CO-4.1.
Action CO-A63 Require cultural resources inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical, or paleontological resources. In addition, require a mitigation plan to protect the resource before the issuance of permits. Mitigation may include: • Having a qualified archaeologist or paleontologist present during initial grading or trenching; • Redesign of the project to avoid historic or paleontological resources; • Capping the site with a layer of fill; and/or • Excavation and removal of the historical or paleontological resources and curation in an appropriate facility under the direction of a qualified professional. (Policy CO-4.1, Policy CO-4.13)	See discussion above of compliance with Policy CO-4.13.
Action CO-A64 Require that discretionary projects which involve earth disturbing activities on previously undisturbed soils in an area determined to be archaeologically sensitive perform the following: • Enter into a cultural resources treatment agreement with the culturally affiliated tribe. • Retain a qualified archaeologist to evaluate the site if cultural resources are discovered during the project construction. The archaeologist will have the authority to stop and redirect grading activities, in consultation with the culturally affiliated tribe and their designated monitors, to	The project site has been subject to extensive ground disturbance, including tilling, associated with ongoing agricultural uses. Thus, the project would not involve earth disturbing activities on previously undisturbed soils. The proposed project would be consistent with this action.

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Table 4.5-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
evaluate the significance of any archaeological resources discovered on the property. • Consult with the culturally-affiliated tribe to determine the extent of impacts to archaeological resources and to create appropriate mitigation to address any impacts. • Arrange for the monitoring of earth disturbing activities by members of the culturally affiliated tribe, including all archaeological surveys, testing, and studies, to be compensated by the developer. • Implement the archaeologist's recommendations, subject to County approval. • Agree to relinquish ownership of all artifacts that are found on the project area to the culturally affiliated tribe for proper treatment and disposition. (Policy CO-4.1, Policy CO-4.13)	
Action CO-A65 Require that when cultural resources (including non-tribal archeological and paleontological artifacts, as well as human remains) are encountered during site preparation or construction, all work within the vicinity of the discovery is immediately halted and the area protected from further disturbance. The project applicant shall immediately notify the County Coroner and the Planning and Public Works Department. Where human remains are determined to be Native American, the project applicant shall consult with the Native American Heritage Commission (NAHC) to determine the person most likely descended from the deceased. The applicant shall confer with the descendant to determine appropriate treatment for the human remains, consistent with State law. (Policy CO-4.1, Policy CO-4.11, Policy CO-4.12, Policy CO-4.13)	Mitigation Measures 4.5-3(a), and 4.5-3(b) would ensure that proper procedures are followed in the event that previously unknown cultural resources are encountered ground-disturbing activities. Therefore, the proposed project would be consistent with this action.
Action CO-A66 Prohibit the removal of cultural resources from the project site except by a qualified consultant and after the County planning staff have been notified. Prehistoric resources include chert or obsidian flakes, projectile points, mortars, pestles, dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or adobe foundations and walls, structures and features with square nails,	See discussion above of compliance with Action CO-A65.

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Table 4.5-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
and refuse deposits often in old wells and privies. Policy CO-4.1, Policy CO-4.11)	
Action CO-A69 Refer all development proposals that may adversely affect cultural resources to the Northwest Information Center (NWIC) at Sonoma State University for review and comments. The NWIC will identify the presence or absence of known cultural resources and/or previously performed studies in or near a given project area and will offer recommendations regarding the need for additional studies, where necessary. If the NWIC recommends further study, the project applicant shall contract with a qualified professional to conduct the study and make recommendations designed to avoid or minimize adverse impacts on cultural or historic resources and indicate whether further investigation is needed. All studies shall be completed and submitted to the County prior to the completion of any environmental document for the project. (Policy CO-4.1, Policy CO-4.11)	See discussion above of compliance with Policy CO-4.1.
Action CO-A70 Refer draft environmental documents, including any studies and recommended mitigation measures, to the appropriate culturally-affiliated tribes for review and comment as part of the public review process. (Policy CO-4.1, Policy CO-4.11, Policy CO-4.12)	See discussion of tribal consultation efforts presented under the Method of Analysis section of this chapter. Additional opportunity for comment and collaboration will be included through tribal review of this EIR. Therefore, the project would be consistent with this action.
Land Development and Zoning (Yolo County Code of Ordinances, Title 8)	
Section 8-11.101 The purpose of this chapter is to promote the public health, safety, and general welfare by providing for the identification, protection, enhancement, perpetuation and use of improvements, buildings, structures, signs, objects, features, sites, places and areas within the County that reflect elements of its cultural, agricultural, social economic, political, aesthetic, military, maritime, engineering, archaeological, religious, ethnic, natural, architectural and other heritage for the following reasons: (a) To safeguard the County's heritage as embodied and reflected in such resources; (b) To encourage public knowledge, understanding, and appreciation of the County's past; (c) To promote their use for the education and welfare of other residents of the County;	The project site does not contain any officially designated historic landmarks that would be subject to the standards included in Chapter 11, Historic Landmarks, of the Yolo County Code of Ordinances. Therefore, the proposed project would be consistent with this regulation.

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Table 4.5-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(d) To strengthen the economy of the County by protecting and enhancing the County's attraction to tourists, visitors and residents; (e) To stabilize and improve property values in historic areas of structures and objects for the ultimate aesthetic and economic benefit of the County; (f) To provide increased availability to building owners of construction code, financing aids and tax benefits permitted under State and Federal laws when buildings have been designated a historic landmark status or lie within a designated historic district; and (g) To enhance the visual character of the County by encouraging new design and construction that complement the County's historic buildings.	
Off-Channel Surface Mining Ordinance	
Section 10-4.410 (a) All resource records shall be checked for the presence of and the potential for prehistoric and historic sites. Damaging effects on cultural resources shall be avoided whenever possible. If avoidance is not feasible, the importance of the site shall be evaluated by a qualified professional prior to the commencement of mining operations. If a cultural resource is determined not to be important, both the resource and the effect on it shall be reported to the Agency, and the resource need not be considered further. If avoidance of an important cultural resource is not feasible, a mitigation plan shall be prepared and implemented. The mitigation plan shall explain the importance of the resource, describe the proposed approach to mitigate destruction or damage to the site, and demonstrate how the proposed mitigation would serve the public interest. (b) If human skeletal remains are encountered during excavation, all work within seventy-five (75) feet shall immediately stop, and the County Coroner shall be notified within twenty-four (24) hours. If the remains are of Native American origin, the appropriate Native American community identified by the Native American Heritage Commission shall be contacted, and an agreement for treating or disposing of, with appropriate dignity, the remains and associated grave goods shall be developed. If any cultural resources, such as chipped or ground stone, historic debris, building foundations, or paleontological materials are	See discussion of Impact 4.5-2. In the event of the inadvertent discovery of prehistoric, historic, paleontological resources or human remains, the project would implement the provisions of OCSMO Section 10-4.410. Therefore, the project would be consistent with this regulation.

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Table 4.5-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
encountered during excavation, then all work within seventy-five (75) feet shall immediately stop and the Director shall be notified at once. Any cultural resources found on the site shall be recorded by a qualified archaeologist and the information shall be submitted to the Agency.	
Section 10-4.502(b)(6) A cultural resources survey of the proposed mining area, in order to evaluate the potential for historic and/or prehistoric artifacts. A survey may not be required if a preliminary investigation from the Northwest Information Center indicates that the likelihood of archaeological resources is low for the proposed site;	The Cultural Resource Assessment prepared for the proposed project (see Appendix G) included a survey of the proposed mining area. Thus, the proposed project is consistent with this regulation.
Surface Mining Reclamation Ordination	
None applicable.	

4.6 Geology and Soils, Mineral Resources, and Paleontological Resources

4.6 GEOLOGY AND SOILS, MINERAL RESOURCES, AND PALEONTOLOGICAL RESOURCES

4.6.1 INTRODUCTION

The Geology and Soils, Mineral Resources, and Paleontological Resources chapter of the EIR describes the geologic and soil characteristics of the project site and evaluates the extent to which implementation of the project could expose people and structures to the following geologic and seismic hazards: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; soil erosion; soil stability; and expansive soils. In addition, the mineral and paleontological resources within the County are discussed. Information for the chapter has been drawn primarily from the Yolo County General Plan[1] and associated EIR,[2] the Cache Creek Area Plan (CCAP) Update FEIR,[3] and the following project-specific reports: the Slope Stability Evaluation[4] Local Geology Memorandum,[5] and Technical Memorandum related to dewatering and pit capture[6] prepared for the proposed project by Geocon Consultants, Inc. (see Appendix H) and a Custom Soil Resource Report[7] prepared for the project by the United States Department of Agriculture (USDA) Natural Resources Conservation Service.

In response to the NOP, the County received comments related to Geology and Soils, Mineral Resources, and Paleontological Resources from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- The depletion of minerals and natural resources (Resident);
- Risk of soil erosion during mining operations (Resident);
- Potential impacts to the relocation of the Moore Canal (Resident);
- The erosion of Cache Creek from gravel mining and bank disturbances (Resident); and
- Potential impacts from the removal of topsoil and soil compaction (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require that the comments be considered. Consistent with these requirements, these

1 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
2 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034.* April 2009.
3 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.
4 Geocon Consultants, Inc. *Slope Stability Evaluation Teichert Shifler Mining and Reclamation Project Yolo County, California.* May 2016.
5 Geocon Consultants, Inc. *Technical Memorandum – Local Geology, Shifler Mining and Reclamation Project, Yolo County, California.* November 27, 2019.
6 Geocon Consultants, Inc. *Technical Memorandum: Dewatering Shifler Mining and Reclamation Project Yolo County, California.* August 11, 2020.
7 U.S. Department of Agriculture Natural Resources Conservation Service. *Custom Soil Resource Report for Yolo County, California Shifler Mining and Reclamation Project.* June 12, 2019.

comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following definitions are common terms used to discuss issues related to geology and soils, mineral resources, and paleontological resources:

The following terms are used in this chapter to refer to soil types: silty sand (SM), silt (ML), silty clay (CL-ML), sandy clay (CL), clay (CL), and clayey sand (SC).

"Shrink-swell potential" is used in this chapter to describe the potential for expansive soils to increase in volume when they absorb water and shrink when they dry out.

The Mineral Resources Zone (MRZ) system, developed by the California State Mining and Geology Board, used in this chapter to discuss the presence of significant aggregate deposits. MRZs are defined as follows:

- MRZ-1. Areas where adequate information indicates that significant mineral deposits are not present or where a low likelihood for the presence of mineral deposits exists;
- MRZ-2. Areas where adequate information indicates significant mineral deposits are present or where a high likelihood for the presence of mineral deposits exists;
- MRZ-3. Areas containing mineral deposits, the significance of which cannot be evaluated from available data; and
- MRZ-4. Areas where available information is inadequate for assignment to any other MRZ.

"Factor of safety (FOS)" refers to the actual load-bearing capacity of a structure or component and the required margin of safety for a structure or component. A value of less than one means that the design of the component is not viable.

4.6.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to geology and soils, mineral resources, and paleontological resources.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and ornamental landscaping.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

The proposed project site is located approximately three miles west of the City of Woodland, in unincorporated Yolo County. Approximately 70 percent of the County is located in the Great Valley geomorphic province of California, and consists of gently sloping to level alluvial plains. The remaining portion of the County is in the Coast Range geomorphic province. Geologic units in the Great Valley area generally consist of Quaternary alluvium or basin deposits, and the Quaternary Modesto and Riverbank Formations, both of which consist of somewhat older alluvium. According to geologic maps, the closest known active faults to the site are the Great Valley Fault System and a segment of the Dunnigan Hills Fault, located eight miles to the west and northwest, respectively.

Regional Seismicity

A fault is defined as a fracture or zone of closely associated fractures along which rocks on one side have been displaced as compared to those on the other side. A fault zone is a zone of related faults that is commonly braided and subparallel, but may be branching or divergent. Movement within a fault causes an earthquake. When movement occurs along a fault, the energy generated is released as waves that cause ground shaking. Ground shaking intensity varies with the magnitude of the earthquake, the distance from the epicenter, and the type of rock or sediment the seismic waves move through.

The potential risk of fault rupture is based on the concept of recency and recurrence. The more recently a particular fault has ruptured, the more likely the fault would rupture again. The California Geological Survey defines an “active fault” as one that has had surface displacement within the past 11,000 years (Holocene). Potentially active faults are defined as those that have ruptured between 11,000 and 1.6 million years before the present (Quaternary). Faults are generally considered inactive if evidence of displacement is not present during the Quaternary. Per the California Department of Conservation, potentially active faults with Holocene-epoch surface displacement are not known to exist within the project region.

Regional faults surrounding the County include the Dunnigan Hills Fault, Capay Fault, West Valley Fault, Hunting Creek Fault, and Sweitzer Fault. However, the only fault in the County that has been identified by the California Geologic Survey (CGS) to be active, or potentially active, and subject to surface rupture is the Hunting Creek Fault. The fault is located in the northwestern corner of the County. The fault has caused Holocene displacement, but not during historic times.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the

western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), Wild Wings Subdivision, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The existing aggregate mining operations in the vicinity consist of Teichert's Storz mining site to the west and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

Soil and Geology

Based on the Soil Resource Report prepared for the proposed project,[8] the site consists of Brentwood silty clay loam, 0 to 2 percent slopes, Loamy alluvial land, Riverwash, Sehorn-Balcom complex, 2 to 15 percent slopes, Sehorn-Balcom complex, 30 to 50 percent slopes, eroded, and Yolo silt loam, 0 to 2 percent slopes.

The site is underlain by Holocene-aged stream channel deposits. The depositional and erosional deposits are associated with open, active stream channels and generally consist of unweathered gravel, sand, silt, and clay. The overburden soil at the site consists of an approximate 9- to 18-foot thick layer of interbedded silty sand (SM), silt (ML), silty clay (CL-ML), sandy clay (CL), clay (CL), and clayey sand (SC). The gravelly soil below the overburden generally consists of loose to very dense poorly graded sand. The gravel and cobbles include slightly weathered to fresh metavolcanics and metasedimentary rock with some quartz and chert. The strata proposed for mining overlays a cemented sandstone to clay layer. Consistency of the clay layer varies from very stiff to hard as is typical of this type of sedimentary deposit. The presence of loamy soils on the project site indicates that most of the soils are alluvial, derived from sedimentary, igneous, or metamorphic rock.

Based on review of the drill hole logs, top and bottom elevations of the soil layers are relatively uniform, which is consistent with the erosional/depositional geology of the area.

Groundwater

The Slope Stability Evaluation encountered groundwater in a boring performed on February 20, 2014, at a depth of 70 feet below mean sea level (MSL).[9] Based on the *Preliminary Mining and Reclamation Exhibits* (which are presented as Figures 3-21 through 3-36 of the Project Description Chapter of this EIR), prepared by Cunningham Engineering and dated January 30, 2014, the average low groundwater elevation was determined to be 50 feet above MSL for mining

[8] U.S. Department of Agriculture, Natural Resources Conservation Service. *Custom Soil Resource Report for Yolo County, California Shifler Mining and Reclamation Project.* June 12, 2019.

[9] Geocon Consultants, Inc. *Slope Stability Evaluation Teichert Shifler Mining and Reclamation Project Yolo County, California.* May 2016.

and 40 feet above MSL for reclamation. The average high groundwater elevation was determined to be 65 feet above MSL for mining and 62 feet above MSL for reclamation.[10]

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, or other factors such as localized pumping, irrigation practices, and seasonal fluctuations in Cache Creek.

Seismicity

Per the Slope Stability Evaluation, the proposed project site is not located on any known active earthquake fault trace. In addition, the site is not located within an Alquist-Priolo Earthquake Fault Zone. The Great Valley Fault System and a segment of the Dunnigan Hills Fault, located eight miles to the west and northwest, respectively, are the closest known active faults to the site. For the alluvial soil type, the United States Geologic Survey (USGS) estimated modal magnitude is 6.6. While the estimate can be useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. However, the seismic risk at the site is not considered to be high.

Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary loss of shear strength due to pore pressure buildup under the cyclic shear stresses associated with earthquakes. Primary factors that trigger liquefaction include the following: moderate to strong ground shaking, relatively clean, loose granular soils such as poorly graded sands and silty sands, and saturated soil conditions (i.e., shallow groundwater). The Governor's Office of Emergency Services does not designate the project site in a liquefaction zone area.[11] Additionally, because groundwater at the project site is approximately 42 to 65 feet below the ground surface, the likelihood that saturated soil conditions occur within the zone of potential liquefaction is low.

Landslides

The project site is relatively flat and level with an average elevation ranging from approximately 98.7 feet to 112 feet above MSL. According to General Plan Figure HS-2, the project site is in an area of low landslide susceptibility.

Expansive Soil

Expansive soils are those that increase in volume when they absorb water and shrink when they dry out, commonly referred to as "shrink-swell" potential. Soil surveys generally rate "shrink-swell" potential in soils on a low, medium, and high basis. If the shrink-swell potential is rated moderate to high, shrinking and swelling can cause damage to buildings, roads, and other structures; as a result, special design is often needed. According to the General Plan, the project site contains low to high expansive soils.[12]

Mineral Resources

The California State Mining and Geology Board uses the MRZ system to classify California's mineral resources. The zones are based on the presence of significant aggregate deposits.

[10] Luhdorff & Scalmanini Consulting Engineers. *Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations, Shifler Property*. February 2016.

[11] California Governor's Office of Emergency Services. *My Hazards*. Available at: http://myhazards.caloes.ca.gov/. Accessed February 28, 2019.

[12] Yolo County. *2030 Countywide General Plan* [Figure HS-3]. November 10, 2009.

Aggregates are used in the production of building materials, such as concrete, asphalt, and cement. Locally produced aggregate is a valuable resource for urban regions, because the cost of transporting these materials makes remote production cost prohibitive.

Yolo County has two primary mineral resources, aggregate (sand and gravel) and natural gas. Mining in Yolo County is regulated by the Off-Channel Mining Plan (OCMP). The MRZ-2 area along Cache Creek contains over 700 million tons of high-grade sand and gravel. Within the project site, 107-acres are designated as MRZ-2 reflecting known significant deposits and 212 acres are designated MRZ-3 reflecting unknown significant deposits. However, based on analysis and testing conducted by the applicant, the quality and quantity of mineral resources underlying the entire site have been confirmed. In July 2020, the applicant submitted an application to the California Department of Conservation (DOC) in July 2020 to modify the MRZ-3 State designation of the site to MRZ-2 to reflect the existence of known significant aggregate reserves over the entire project site.

Paleontological Resources

A fossil locality search (i.e., search of known locations where fossils have been identified) has been conducted within Yolo County to characterize the County's paleontological sensitivity. The fossil locality search identified eight fossil localities within or directly adjacent to the County. Five fossil localities were discovered in the Pliocene Tehama Formation. One fossil locality was found in the Pleistocene Red Bluff formation. Two fossil localities were found in undifferentiated Pleistocene alluvium. Three additional fossil localities were identified along Putah Creek.[13]

According to the Yolo County General Plan EIR, geologic units within Yolo County include the following: Holocene Alluvium, Pleistocene Alluvium, Tehama Formation, Capay Formation, Fores Formation, Guinda Formation, Funks Formation, Sites formation, Yolo Formation, and Venado Formation. The project site, which is located to the south of Cache Creek, is underlain by Holocene-aged stream channel deposits. Such depositional and erosional deposits are associated with open, active stream channels and generally consist of unweathered gravel, sand, silt, and clay. Per the General Plan EIR, late Holocene alluvial deposits such as those found on the project site typically contain vertebrate and invertebrate fossils of extant, modern taxa, which are generally not considered paleontologically significant.[14] Nonetheless, several past discoveries of paleontological resources have taken place near Cache Creek within the project region.

4.6.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of geology and soils, mineral resources, and paleontological resources under the CEQA process.

Federal Regulations

The following are the federal environmental laws and policies relevant to geology and soils, mineral resources, and paleontological resources.

[13] Yolo County. *2030 Countywide General Plan*. November 10, 2009.
[14] Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034* [pg. 527]. November 10, 2009.

Federal Earthquake Hazards Reduction Act

Passed by Congress in 1977, the Federal Earthquake Hazards Reduction Act (Public Law 95-124, 42 United States Code 7701 et. seq.) is intended to reduce the risks to life and property from future earthquakes. The Act established the National Earthquake Hazards Reduction Program (NEHRP). The goals of NEHRP are to educate and improve the knowledge base for predicting seismic hazards, improve land use practices and building codes, and to reduce earthquake hazards through improved design and construction techniques.

Uniform Building Code

The Uniform Building Code (UBC) was first published in 1927 by the International Council of Building Officials and is intended to promote public safety and provide standardized requirements for safe construction. The UBC was replaced in 2000 by the new International Building Code (IBC), published by the International Code Council (ICC), which is a merger of the International Council of Building Officials' UBC, Building Officials and Code Administrators International's National Building Code, and the Southern Building Code Congress International's Standard Building Code. The intention of the IBC is to provide more consistent standards for safe construction and eliminate any differences between the three preceding codes. All State building standard codes are based on the federal building codes.

State Regulations

The following are the State environmental laws and policies relevant to geology and soils, mineral resources, and paleontological resources.

Alquist-Priolo Earthquake Fault Zoning Act

The 1972 Alquist-Priolo Earthquake Fault Zoning Act (AP Zone Act, Division 2, Chapter 7.5 Sections 2621-2630 of the Public Resource Code) was passed to prevent the new development of buildings and structures for human occupancy on the surface of active faults. The Act is directed at the hazards of surface fault rupture and does not address other forms of earthquake hazards. The locations of active faults are categorized into fault zones by the AP Zone Act. Local agencies regulate new development within the appropriate zones in their jurisdiction.

The AP Zone Act regulates development near active faults so as to mitigate the hazard of surface fault rupture. The AP Zone Act requires that the State Geologist (Chief of the California Department of Mines and Geology [CDMG]) delineate "special study zones" along known active faults in California. Cities and counties affected by these zones must regulate certain development projects within these zones. The AP Zone Act prohibits the development of structures for human occupancy across the traces of active faults. According to the AP Zone Act, active faults have experienced surface displacement during the last 11,000 years. Potentially active faults are those that show evidence of surface displacement during the last 1.6 million years. A fault may be presumed to be inactive based on satisfactory geologic evidence; however, the evidence necessary to prove inactivity sometimes is difficult to obtain and locally may not exist.

Seismic Hazards Mapping Act

In 1990, following the Loma Prieta earthquake, the California Legislature enacted the Seismic Hazards Mapping Act (SHMA), which was enacted as Public Resources Code Chapter 7.8, Section 2690-2699.6. The act is intended to protect the public from the effects of strong ground shaking, liquefaction, landslides and other seismic hazards. The SHMA established a State-wide mapping program to identify areas subject to violent shaking and ground failure; the program is intended to assist cities and counties in protecting public health and safety. The SHMA requires

the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within the designated zones.

California Building Standards Code

The State of California regulates development within the State through a variety of tools that reduce or mitigate potential hazards from earthquakes or other geologic hazards. The 2016 California Building Standards Code (CBSC) (California Code of Regulations [CCR], Title 24) governs the design and construction of all building occupancies and associated facilities and equipment throughout California. In addition, the CBSC governs development in potentially seismically active areas and contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards. The CBSC includes federal building standards in the national building code, building standards adapted from national codes to meet California conditions, and building standards adopted to address particular California concerns.

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) was enacted by the State in 1975, through Public Resources Code Sections 2710-2796, as a means of minimizing adverse environmental effects of surface mining, ensuring that mined lands are reclaimed to a usable condition and that the production and conservation of mineral resources are encouraged. The act establishes state policy regarding reclamation of mined lands and minerals management practices, among other things.

Public Resources Code Section 5097.5

Section 5097.5 of the Public Resources Code establishes protections for historic, prehistoric, archaeological, and paleontological features. In particular, section 5097.5 prohibits the intentional excavation, removal, destruction, injury, or defacement of historic or prehistoric ruins, burial grounds, and archaeological or vertebrate paleontological sites on public lands. Public lands are defined as those lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, public corporation, or any agency thereof.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The relevant goals and policies from the Yolo County General Plan related to geology and soils, mineral resources, and paleontological resources are presented below.

Goal HS-1 Geologic Hazards. Protect the public and reduce damage to property from earthquakes and other geologic hazards.

- Policy HS-1.1 Regulate land development to avoid unreasonable exposure to geologic hazards.
- Policy HS-1.3 Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.

Goal ED-1 Economic Diversity. Diversify the local economy to provide substantial and sustainable long-term growth that will benefit businesses, residents and local government.

Policy ED-1.2 Support the continued operation of existing aggregate mining activities within the county as well as new aggregate mining in appropriate areas, to meet the long-range construction needs of the region.

Goal CO-3 Mineral Resources. Protect mineral and natural gas resources to allow for their continued use in the economy.

Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Policy CO-3.2 Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.

Policy CO-3.5 Preserve and protect the County's unique geologic and physical features, which include geologic or soil "type localities", and formations or outcrops of special interest. (DEIR MM GEO-1a)

Action CO-A37 Designate and zone lands containing identified mineral deposits to protect them from the encroachment of incompatible land uses so that aggregate resources remain available for the future. (Policy CO-3.1)

Action CO-A39 Encourage the responsible development of aggregate deposits along Cache Creek as significant both to the economy of Yolo County and the region. (Policy CO-3.1)

Action CO-A42 Implement the Cache Creek Area Plan to ensure the carefully managed use and conservation of sand and gravel resources, riparian habitat, ground and surface water, and recreational opportunities. (Policy CO-3.1)

Action CO-A43 Monitor updates to the State Mineral Resource classification map and incorporate any needed revisions to the County's zoning and land use map. (Policy CO-3.1)

Action CO-A47 Ensure that mined areas are reclaimed to a usable condition that is readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities. (Policy CO-3.1)

Action CO-A54 Implement the Cache Creek Area Plan (Policy CO-3.2).

Action CO-A63 Require cultural resources inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical, or paleontological resources. In addition, require a mitigation plan to protect the resource before the issuance of permits. Mitigation may include:

- Having a qualified archaeologist or paleontologist present during initial grading or trenching;
- Redesign of the project to avoid historic or paleontological resources;
- Capping the site with a layer of fill; and/or
- Excavation and removal of the historical or paleontological resources and curation in an appropriate facility under the direction of a qualified professional. (Policy CO-4.1, Policy CO-4.13)

Action CO-A65 Require that when cultural resources (including non-tribal archeological and paleontological artifacts, as well as human remains) are encountered during site preparation or construction, all work within the vicinity of the discovery is immediately halted and the area protected from further disturbance. The project applicant shall immediately notify the County Coroner and the Planning and Public Works Department. Where human remains are determined to be Native American, the project applicant shall consult with the Native American Heritage Commission (NAHC) to determine the person most likely descended from the deceased. The applicant shall confer with the descendant to determine appropriate

treatment for the human remains, consistent with State law. (Policy CO-4.1, Policy CO-4.11, Policy CO-4.12, Policy CO-4.13)

Off-Channel Surface Mining Ordinance

Section 10-4.403 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) provides the following requirements related to accidental reporting:

> ### Section 10-4.403. Accident Reporting
>
> The operator shall immediately notify the Director of any events such as fires, explosions, spills, land or slope failures, or other conditions at the site which could pose a hazard to life or property. Action shall be immediately undertaken to alleviate the hazard. The operator shall provide a written report of any such event, within thirty (30) days, which shall include, but not be limited to, a description of the facts of the event, the corrective measures used, and the steps taken to prevent a recurrence of the incident. Failure to provide this report shall initiate violation proceedings pursuant to Article 11. This condition does not supersede nor replace any requirement of any other governmental entity for reporting incidents.

Section 10-4.406 of the OCSMO states the following regarding excavation of mining pit benches:

> ### Section 10-4.406. Benches
>
> During mining operations, a series of benches may be excavated in a slope provided that the excavations are made in compliance with the requirements of the state Mine Safety Orders (California Code of Regulations, Title 8, Subchapter 17). The vertical height and slope of the benches constructed for permanent reclaimed slopes shall not exceed maximum standards for the specific soil types presented in the California Code of Regulations, Title 8, Article 6. In general, vertical cutslopes between benches shall not exceed four (4) feet in height in topsoil and overburden sediments. Benching shall be allowed in cohesive soil (clay, sandy or silty clay, clayey silt) only. Slopes above the elevation of groundwater (determined at the time of the excavation by the level of exposed water in the excavation) that exceed the maximum vertical height shall be excavated and maintained at slopes not steeper than 2:1 (horizontal:vertical). Slopes located five (5) feet or less below the average summer low groundwater level shall not be steeper than 2:1 (horizontal:vertical). Slopes located more than five (5) feet below the average summer low groundwater level shall not be steeper than 1:1 (horizontal to vertical).
>
> Vertical cut slopes in excess of four (4) feet in height may be approved for the development of special habitat (e.g., bank swallows) if a site-specific slope stability analysis, performed by a licensed engineer, indicates that the slope does not exceed critical height for the on-site soil conditions. Projects proposing such slopes shall submit a long-term maintenance plan to ensure that the function of the slopes as habitat is met.

Section 10-4.410 of the OCSMO states the following regarding prehistoric sites:

> ### Section 10-4.410. Cultural Resources
>
> (a) All resource records shall be checked for the presence of and the potential for prehistoric and historic sites. Damaging effects on cultural resources shall be avoided whenever possible. If avoidance is not feasible, the importance of the site shall be evaluated by a qualified professional prior to the commencement of mining operations. If a cultural resource is determined not to be important, both the resource and the effect on it shall be reported to the Agency, and the resource need not be

considered further. If avoidance of an important cultural resource is not feasible, a mitigation plan shall be prepared and implemented. The mitigation plan shall explain the importance of the resource, describe the proposed approach to mitigate destruction or damage to the site, and demonstrate how the proposed mitigation would serve the public interest.

(b) If human skeletal remains are encountered during excavation, all work within seventy-five (75') feet shall immediately stop, and the County Coroner shall be notified within twenty-four (24) hours. If the remains are of Native American origin, the appropriate Native American community identified by the Native American Heritage Commission shall be contacted, and an agreement for treating or disposing of, with appropriate dignity, the remains and associated grave goods shall be developed.

If any cultural resources, such as chipped or ground stone, historic debris, building foundations, or paleontological materials are encountered during excavation, then all work within seventy-five (75') feet shall immediately stop and the Director shall be notified at once. The find must be recorded by a qualified archaeologist or paleontologist using relevant professional protocols and a report fully recording the find submitted to the County. This report shall include recommendations for appropriate removal and preservation of the artifact. The County encourages the donation of the find to the County for public display at the Cache Creek Nature Preserve or other appropriate venue.

Section 10-4.431 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding engineering of slopes:

Section 10-4.431. Slopes

Except where benches are used, all banks above groundwater level shall be sloped no steeper than 2:1 (horizontal:vertical). Proposed steeper slopes shall be evaluated by a slope stability study, prepared by a Registered Civil Engineer. Slopes below the groundwater level shall be no steeper than 1:1 (horizontal:vertical). Slopes located five (5) feet or less below the summer low groundwater level shall not be steeper than 2:1 (horizontal:vertical).

Section 10-4.432 of the OCSMO states the following regarding soil removal and transport:

Section 10-4.432. Soil Removal

Soil shall be cut in maximum depths in order to minimize traffic and limit compaction. The handling and transportation of soil shall be minimized. All handling of topsoil shall be accomplished when the soil is dry in order to avoid undue compaction.

Section 10-4.433 of the OCSMO states the following regarding soil stockpiles:

Section 10-4.433. Soil Stockpiles

Topsoil, subsoil, and subgrade materials in stockpiles shall not exceed forty (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles, other than aggregate stockpiles, shall be seeded with a vegetative cover, preferably of local native species, to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Director.

Slopes on stockpiled soils shall be graded to a 2:1 (horizontal:vertical) slope for long-term storage to prevent use by bank swallows. At no time during the active breeding season (May 1 through July 31) shall slopes on stockpiles exceed a slope of 1:1, even on a

temporary basis. Stockpiles shall be graded to a minimum 1:1 slope at the end of each work day where stockpiles have been disturbed during the active breeding season.

Section 10-4.434 of the OCSMO states the following regarding technical report recommendations:

> Section 10-4.434. Technical Report Recommendations
> The recommendations contained within each technical report submitted with a surface mining permit application shall be consistent with the OCMP and with all other technical reports submitted. The recommendations of all technical reports shall be implemented.

Section 10-4.502(b)(6) of the Yolo County OCSMO states the following regarding technical reports required to be included in applications for mining permits:

> (6) A cultural resources survey of the proposed mining area, in order to evaluate the potential for historic and/or prehistoric artifacts. A survey may not be required if a preliminary investigation from the Northwest Information Center indicates that the likelihood of archaeological resources is low for the proposed site;

Surface Mining Reclamation Ordinance

Section 10-5.530 of the Yolo County Surface Mining Reclamation Ordinance (SMRO) states the following regarding reclamation slopes:

> Section 10-5.530. Slopes
> All final reclaimed slopes shall have a minimum safety factor equal to or greater than the critical gradient as determined by an engineering analysis of the slope stability. Final slopes less than five (5) feet below the average summer low groundwater level shall be designed in accordance with the reclaimed use and shall not be steeper than 2:1 (horizontal:vertical). Reclaimed wet pit slopes located five (5) feet or more below the average summer low groundwater level shall not be steeper than 1:1 (horizontal:vertical), in order to minimize the effects of sedimentation and biological clogging on groundwater flow, to prevent stagnation, and to protect the public health.
>
> The maximum slope angle for all final reclaimed slopes shall be determined by slope stability analysis performed by a Licensed Geotechnical Engineer or Registered Civil Engineer and submitted with any mining and reclamation application for review by the Director. The slope stability analysis shall conform with industry standard methodologies regarding rotational slope failures under static and pseudostatic (seismic) conditions. The minimum factor of safety for all design reclamation slopes located adjacent to levees or below existing structures shall not be less than 1.5 for static and 1.1 for pseudostatic (seismic) conditions. Other reclamation slopes shall meet a minimum factor of safety that is consistent with the post-reclamation use proposed for the mining area.

4.6.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to geology and soils, mineral resources, and paleontological resources. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A geology and soils, mineral resources, and paleontological impact is considered significant if the proposed project would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault;
    - Strong seismic ground shaking;
    - Seismic-related ground failure, including liquefaction;
    - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan; and/or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to geology and soils, mineral resources, and paleontological resources;

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) determined that implementation of the proposed project would result in no impact related to soils incapable of adequately supporting the use of septic tanks. Therefore, the following impact is not discussed further in this EIR:

- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water.

Method of Analysis

Issues related to geology and soils were evaluated in the Slope Stability Evaluation[15] and Local Geology Memorandum[16] prepared for the proposed project by Geocon Consultants, Inc. (see Appendix H) and a Custom Soil Resource Report[17] prepared for the project by the United States Department of Agriculture (USDA), Natural Resources Conservation Service.

Slope Stability Analysis

The analysis within the Slope Stability Evaluation relied on a site reconnaissance conducted on February 20, 2014, review of available information, limited exploratory borings, soil sampling, laboratory testing, and knowledge of geotechnical conditions in the surrounding area.

Slope stability was evaluated at four locations considered representative of the anticipated mining and reclamation slope conditions along the perimeter of the proposed mining pit. The configuration of slope stability analysis sections was based on topography and anticipated mining depths provided by the applicant. The typical slope sections are shown in Figure 4.6-1 and Figure 4.6-2.

The stability of the slopes on the project site were analyzed using the computer program SLOPE/W, Version 7.22 for static and seismic conditions. For the mining slope conditions, Geocon Consultants, Inc. analyzed both shallow surface (surficial) and global stability. Shallow surface failures are those within close proximity to the top of the mining slope, generally within the outer 25-foot portion of the dedicated 50-foot buffer. For reclamation slope conditions, global failure surfaces were analyzed.

A total of six test pits were performed using a CAT 385 excavator. Test pits were excavated to approximate depths ranging from 18 to 21 feet. On exploratory boring was performed using a truck-mounted drill rig with hollow-stem augers to a depth of approximately 101 feet (see Appendix H). Based on the results of the test pits, shear strength parameters for overburden, gravel, clay, and fill soil were estimated and incorporated into the slope stability and seepage analyses.

Local Geology Memorandum

The Local Geology Memorandum was prepared to evaluate the geologic conditions along the south bank of Cache Creek. The existing conditions were used to aid in evaluating the potential for lateral stream migration of Cache Creek and bank retreat southward toward the project site. As part of the Local Geology Memorandum, a site reconnaissance was performed on November 1, 2019. In addition, Geocon reviewed published geologic mapping and available exploration logs. The Cache Creek bank was evaluated for steepness, length, and shape of the slopes.

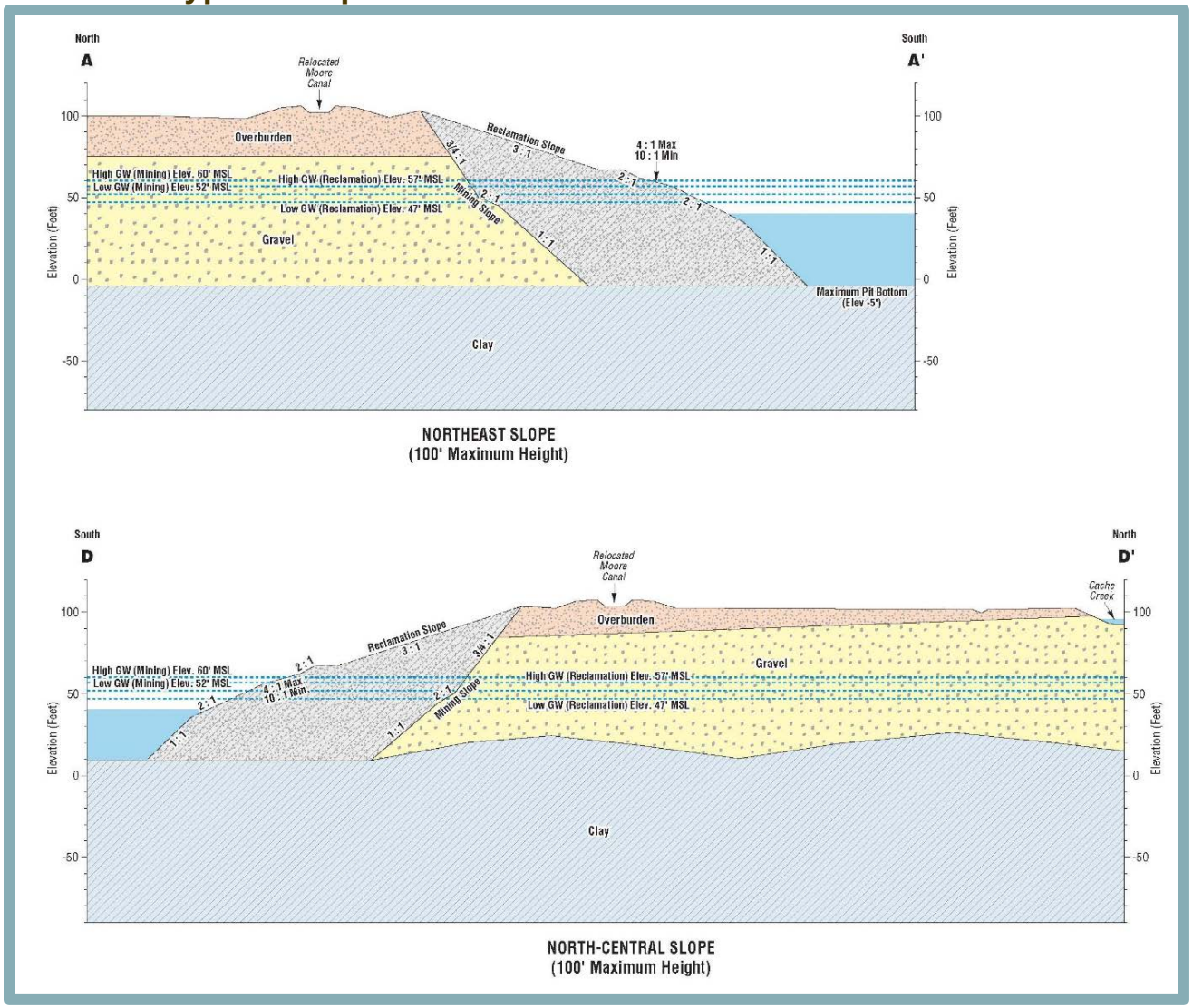
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15 Geocon Consultants, Inc. *Slope Stability Evaluation Teichert Shifler Mining and Reclamation Project Yolo County, California.* May 2016.

16 Geocon Consultants, Inc. *Technical Memorandum – Local Geology, Shifler Mining and Reclamation Project, Yolo County, California.* November 27, 2019.

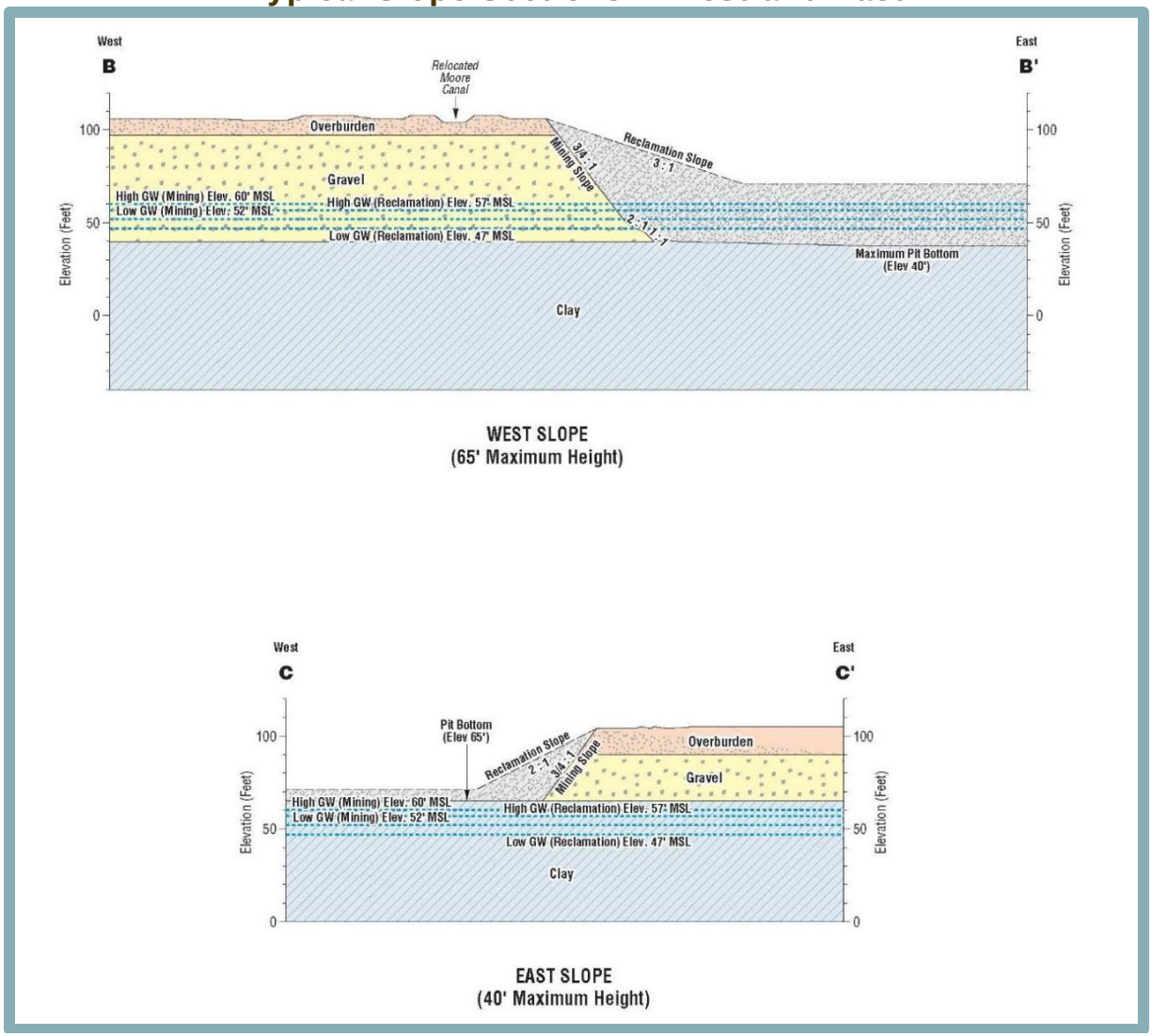
17 U.S. Department of Agriculture, Natural Resources Conservation Service. *Custom Soil Resource Report for Yolo County, California Shifler Mining and Reclamation Project.* June 12, 2019.

Figure 4.6-1
Typical Slope Sections – Northeast and North Central



Source: Geocon Consultants, Inc., 2016.

Figure 4.6-2
Typical Slope Sections – West and East



Source: Geocon Consultants, Inc., 2016.

Custom Soil Resource Report

The Custom Soil Resource Report prepared for the proposed project was based on soil survey data maintained by the National Cooperative Soil Survey, a joint effort of the USDA and other federal, State, and local agencies. The soil survey data included in the Custom Soil Resource Report is also available through the Natural Resources Conservation Service Web Soil Survey online platform.

Soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses. Within the project site, soils were classified by taxonomic classes (units). Each taxonomic class has a set of soil characteristics with precisely defined limits.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to geology and soils, mineral resources, and paleontological resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.6-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides. The impact would be *less than significant*.

The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project. The proposed new water pipe would be used to convey groundwater from the mining pit to the Woodland Plant site to supply aggregate processing operations at the plant. The proposed depths of mining at the project site would be approximately 40 feet below the existing ground surface in the northeastern corner of the site, and approximately 70 feet below the existing ground surface in the southwestern corner of the mining area. Above-ground structures included in the proposed project would be limited to the relocated Moore Canal, a new junction with Magnolia Canal, two new overcrossings at the Moore Canal, and a floating dredge to be used for the proposed mining activities.

Fault Rupture

The site is not located within an Alquist-Priolo Earthquake Fault Zone and the nearest active fault system is located approximately eight miles west of the site. Thus, fault rupture would not pose a risk to the proposed project.

Strong Seismic Ground Shaking and Slope Stability

Although the site is not located within an Alquist-Priolo Earthquake Fault Zone, the proposed mining pit, relocated Moore Canal, and other project components could be subject to seismic ground shaking and resultant seismic ground failure. Risks associated with seismic ground shaking and failure are discussed below.

The Slope Stability Evaluation analyzed the impacts associated with seismic ground shaking and potential ground failure during mining and reclamation by modeling an earthquake event and producing a seismic FOS value, which is used to characterize the stability of soil conditions. Strong slope conditions generally have values above 1.0. Per the Soils Stability Evaluation, the seismic FOS for the mining conditions varied from 1.0 to 1.4 at different locations on the project site. The areas with lower FOS, indicating comparatively reduced stability, were located within the outer portion of the 50-foot buffer surrounding the proposed mining pit. During reclamation, the slopes would become more stable compared to conditions during active mining.

The Slope Stability Evaluation determined that seismic events occurring in shallow surfaces during mining could be susceptible to adverse effects; however, even under worst-case conditions, the FOS would be above 1.0, which is the generally acceptable standard for stability of a structure or component such as a mining slope. Considering the relatively short amount of time that the mining slopes would be exposed (less than one year), the likelihood of a design-level earthquake occurring during mining is low. Therefore, the risk of seismic-induced ground failure on the project site during mining and reclamation activities, as well as after reclamation is complete, would be relatively low. Seismic-induced ground failure of slopes would be considered a landslide; thus, because the risk of seismic-induced ground failure is low, the risk of seismic-induced landslide is low.

All proposed structures, including the relocated Moore Canal, the new junction with Magnolia Canal, two new overcrossings at the Moore Canal, and the floating dredge, would be subject to compliance with the CBSC, as applicable. The CBSC provides minimum standards to ensure that the proposed structures would be designed using sound engineering practices and appropriate engineering standards for the seismic area in which the project site is located. Projects designed in accordance with the CBSC should be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural, as well as non-structural, damage. While new buildings would not be developed within the proposed mining area, the project would include transport of aggregate materials to the Teichert Woodland Plant north of the project site. The existing structures at the Woodland Plant would not be modified as part of the proposed project. Furthermore, the project area is not subject to strong seismic risk. Thus, risk of injury or loss is less-

than-significant at the project site and at the Woodland Plant as a result of the proposed project.

The Governor's Office of Emergency Services does not designate the project site in a liquefaction zone area.[18] Additionally, because groundwater at the project site is approximately 42 to 65 feet below the ground surface, the likelihood that saturated soil conditions occur within the zone of potential liquefaction is low, and seismic-induced liquefaction at the site would be unlikely.

Conclusion

Based on the above, a ***less-than-significant*** impact related to directly or indirectly causing potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides.

Mitigation Measure(s)

None required.

4.6-2 Result in slope failure or substantial erosion or loss of topsoil. Based on the analysis below, the impact is *less than significant*.

The following is an evaluation of the risk of erosion during the mining and reclamation phases, as well as the risk of pit capture.

Erosion and Loss of Topsoil

During mining operations, overburden soil would be removed using scrapers and graders. The soil would be stored until required for reclamation. The topsoil would be stored on-site during mining operations. The stockpiled slopes would not exceed 40-feet. While erosion from the top soil could occur, the project would operate under the requirements of the OCSMO and the OCMP, which require erosion control and topsoil management practices to be implemented.

Specifically, in accordance with Sections 10-4.413 and 10-4.433 of the OCSMO, the stockpiles would be seeded with a vegetative cover, would not exceed 40 feet in height, and would not have slopes steeper than 2:1 for long-term storage to prevent erosion. The stockpiles would also remain a minimum distance of 100 feet from the top of the bank of Cache Creek, which would ensure that the creek quality would not be deteriorated by any potential erosion. Additionally, the SMRO establishes requirements to eliminate erosion, such as mining pit slopes above the average seasonal high groundwater level, using a drought-tolerant weed-free mix of native grass species on reclamation slopes, and phasing of mining to minimize the length of exposed mining slopes during the rainy season.

[18] California Governor's Office of Emergency Services. *My Hazards*. Available at: http://myhazards.caloes.ca.gov/. Accessed February 28, 2019.

During reclamation, the stockpiled soils would be used for fill. Various grading revegetation activities would be carried out to minimize erosion. The finish grading of pit slopes would be performed as soon as practical after the completion of mining activities, and the final land surface would be graded so as to create broad gentle slopes to prevent soil erosion.

Because the proposed project would adhere to all applicable requirements of the OCSMO and SMRO, the project would not result in substantial erosion or loss of topsoil.

Pit Capture

In off-channel mining operations, "pit capture" is a term to describe the process where the earthen material separating the mining pit from an adjacent watercourse is breached by overflowing floodwaters, streambank erosion, and/or channel migration. Outside of mining applications, the process of a water course moving due to stream bank erosion is more generally referred to as lateral migration. Because the process would involve streambank erosion, pit capture is discussed within the context of substantial erosion or soil loss. The northern portion of the site is bordered by Cache Creek. The project plans propose a 200-foot setback from the top of bank to the relocated alignment of Moore Canal, with mining occurring no closer than 300 feet from the top of bank. A 100-foot buffer is proposed between the stockpiled soils and the creek.

To investigate the potential for pit capture due to flood conditions of Cache Creek, Geocon Consulting, Inc. reviewed aerial photographs covering the period of 1958 to 2012. The photographs capture Cache Creek in various stages of flow, including flood conditions. Based on historic channel migration and floodwater conditions in Cache Creek, the floodwaters, when present, do not flow over the south bank of the creek adjacent to the site. The historic imagery comports with the hydrologic models developed by Cunningham Engineering for the project area, which indicate the floodwaters spread to the north of Cache Creek, away from the project site. Historic photographs also show increasing vegetation on the south bank over the course of 54 years. The existing and historic conditions, coupled with the absence of adverse seepage and slope stability conditions, would result in low potential for damage to the relocated Moore Canal or pit capture. Thus, based on the analysis, neither the relocated canal, the mining slopes, or stockpiled soils would be subject to unacceptable risk of overflowing floodwaters. The conclusion that Cache Creek floodwaters generally do not flow over the south bank and that Moore Canal would not be subject to adverse slope stability conditions, further indicate that the relocation of Moore Canal would not subject Moore Canal to substantial hazards related to southward lateral migration of Cache Creek in the site vicinity.[19]

Additional discussion related to the stability of the south bank of Cache Creek along the project reach is provided in Chapter 4.8, Hydrology and Water Quality, of this EIR. In conclusion, the relocation of the Moore Canal to the north is not anticipated to result in exposure to unacceptable risks related to lateral migration (the process of a water

[19] Geocon Consultants, Inc. *Technical Memorandum: Dewatering Shifler Mining and Reclamation Project Yolo County, California.* August 11, 2020.

course moving due to stream bank erosion) of the Cache Creek channel, particularly as a result of Mitigation Measures 4.8-4(a), 4.8-4(b), and 4.8-4(c) identified in the Hydrology and Water Quality Chapter. The proposed mining slopes and stockpiled soils would not be subject to substantial risk of overflowing floodwaters; thus, the proposed project would not result in significant impacts related to pit capture.

Conclusion

Based on the above, the project would not result in substantial erosion or topsoil loss during mining and reclamation or due to pit capture, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None Required.

4.6-3 Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The impact would be *less than significant*.

Below is a discussion of the possible risks associated with being located on a geologic unit or soil that is unstable and could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Evaluation of slopes stability, which is related to unstable soils, is based on a Slope Stability Evaluation performed by Geocon Consultants, Inc. in May 2016. Potential impacts related to liquefaction are discussed in Impact 4.6-1.

Slope Stability

Several regulations exist throughout the OCSMO and SMRO which ensure stability of the mining and reclamation slopes. Sections 10-4.431 and 10-4.433 of the OCSMO require slopes adhere to specific slope angles and heights. Section 10-5.530 of the SMRO also regulates slope stability by requiring all reclaimed slopes have a minimum FOS equal to or greater than critical gradient as determined by an engineering analysis. A discussion of consistency with the OCSMO and SMRO is included in Impact 4.6-8 below.

For the purposes of this EIR two types of slope failures are considered, a shallow surface failure and a global failure, both of which are discussed in relation to the 50-foot buffer that would be maintained between the tops of the mining slopes and the nearest property line or relocated location of Moore Canal. Shallow surface failures are considered to be those that would occur within close proximity of the top of the mining slope, generally within 25 feet of the dedicated 50-foot buffer. Global failures for the mining slope condition are considered failure surfaces that would extend beyond the 50-foot buffer, thus encroaching to distances less than 50-feet from the nearest property line or Moore Canal. For the reclamation slopes, global failure was analyzed.

In limit-equilibrium slope stability analysis, ponded water against a slope tends to increase global slope stability due to the buttressing effect of the mass of water against the slope. Geocon Consultants, Inc. conducted a conservative analysis by assuming that ponded water would not be present under the mining condition. In practice, while certain project-related groundwater pumping scenarios analyzed by Luhdorff & Scalmanini could result in fluctuations of pit water levels by as much as 23 feet, some amount of ponded water would remain present within the mining pit, and would act to buttress the mining slopes. Because Geocon Consultants, Inc. assumed that ponded water would not be present under any mining conditions, the conclusions of the analysis prepared by Geocon Consultants, Inc. are considered conservative and would be valid regardless of the actual level of ponded water within the mining pit.[20] For analysis of the reclamation condition, however, Geocon Consultants, Inc. assumed that ponded water would occur and would be coincident with the groundwater surface. The potential for static failure is presented in Table 6.5 of the Slope Stability Evaluation (see Appendix H of this EIR). The Slope Stability Evaluation concluded that the static FOS against failure during mining ranged from 1.1 to 2.1. The lowest FOS value was found in the shallow surfaces within the outer portion of the 50-foot buffer. Per the Slope Stability Evaluation, the FOS values indicate that the slopes would be globally stable during the mining period.

For the long-term reclamation condition, the static FOS for all slope configurations exceeds 1.5, which would meet the standards established in Section 10-5.530 of the SMRO. Therefore, permanent slopes are anticipated to remain stable relative to global failure provided unanticipated conditions are not encountered during mining or reclamation.

Seepage Analysis

The project plans propose a 200-foot setback from the top of bank to the relocated alignment of Moore Canal, with mining occurring no closer than 300 feet from the top of bank. A 100-foot buffer is proposed between the stockpiled soils and the creek. While the stockpiled soil would be located within 100-feet of the creek, the piles would not be subject to seepage because they would be located aboveground. In the analysis, the initial condition considered for the site was the average high groundwater elevation of 65 feet above MSL. Geocon Consultants, Inc. then modeled the transient 200-year water surface elevation (+98 feet MSL, per Cunningham Engineering, 2014) in Cache Creek for durations of one month, 100 days, and 100 years.

The results of the analyses indicate that the seepage front does not intercept the proposed north mining slope at an elevation higher than the average seasonal high groundwater condition, even when sustained indefinitely (100 years). Therefore, anticipated subsurface seepage conditions at the proposed north mining slope under the 200-year Cache Creek flood event are not expected to be more adverse than normal, average seasonal high groundwater conditions.

[20] Geocon Consultants, Inc. *Technical Memorandum: Dewatering Shifler Mining and Reclamation Project Yolo County, California.* August 11, 2020.

Relocated Moore Canal

A supplemental seepage analysis for the proposed Moore Canal relocation was included in the Slope Stability Evaluation. The proposed north mining slope would be set back from the relocated canal by approximately 50 feet. The analysis considered the initial condition for the site to be the average high groundwater elevation of 60 feet above MSL for the mining condition (2016 groundwater conditions for this analysis). The transient design water surface elevation was then modeled (+105.5 feet MSL, per Cunningham Engineering) in the canal for durations of one month and 100 days as well as steady state conditions.

Two different near-surface soil conditions were evaluated for the relocated Moore Canal (overburden and clayey gravel). The canal is anticipated to be located primarily in overburden soils but would likely be established in the underlying clayey gravels. Although a concrete lining is proposed for the relocated Moore Canal, the analysis conservatively does not assume a concrete lining.

The results of the analyses for the two conditions modeled indicate that the seepage front does not intercept the proposed north mining slope at an elevation higher than the average seasonal high groundwater condition, even when sustained indefinitely (100 years). Seepage is minimal from the canal during transient analysis and does not extend to the mining slope due to the generally clayey nature of the overburden and gravelly soils at the project location and the shallow depth of water in the canal. Therefore, anticipated subsurface seepage conditions at the proposed north mining slope under the design water conditions for the relocated canal are not expected to be more adverse than the normal, average seasonal high groundwater conditions.

Landslide and Lateral Spreading

Landsliding is the natural process of relatively rapid downslope movement of soil, rock, and rock debris as a mass. Lateral spreading is another form of slope failure in which gently sloping ground is displaced as a result of pore pressure build-up. Lateral spreading is typically associated with terrain near free faces such as excavations, channels, or open bodies of water. The potential for landsliding is affected by the type and extent of vegetation, slope angle, degree of water saturation, strength of rocks, and the mass and thickness of the deposit. Per the Yolo County General Plan, the project site is located within an area of low landslide susceptibility.

Per Impact 4.6-1 above, the project site would not be subject to substantial risks related to seismic-related slope failure during the proposed mining and reclamation activities, or after reclamation is complete. In addition, the project would not include any grading or other ground disturbance on the Woodland Plant site that would have the potential to exacerbate landslide potential at the Plant. Thus, the proposed project would not result in substantial risks related to on- or off-site landslide or lateral spreading.

Collapse of Mining and Stockpile Slopes

During mining operations, overburden soil would be removed in order to expose layers of sand and gravel. Prior to mining of aggregate material, approximately five to 10 feet of the top layer of soil would be removed from the site and stockpiled for reclamation.

The soil would be stockpiled to a maximum height of 40 feet, with slopes of 2:1 or gentler, in accordance with Section 10-4.433 of the OCSMO. A 50-foot buffer would be created between the tops of the mining slopes and the relocated Moore Canal. The mining slopes would be subject to the regulations within Section 10-4.406 (which includes requirements from the California Code of Regulations Title 8, Subchapter 17) as well as 10-4.431. Adherence to the foregoing regulations would be achieved by constructing minimum slope depths, as described as a ratio of horizontal to vertical:

- 3/4:1 down to average low groundwater level during mining (52 feet above MSL);
- 2:1 between average low groundwater level during mining (52 feet above MSL) and 5 feet below average low groundwater level during mining (47 feet above MSL); and
- 1:1 below 5 feet below average low groundwater level during mining (47 feet above MSL).

Following mining operations, reclamation slopes would be constructed using the stockpiled overburden soil taken prior to mining. The soil would be placed and compacted to form new slopes ranging in inclination from 2:1 to 4:1 above an elevation of 43 feet MSL and 1:1 at any elevation lower. The reclamation slopes would be constructed in a sequential manner as mining progresses.

See Impact 4.8-1 above. Based on the Slope Stability Evaluation, the proposed slopes would be within an acceptable FOS during both mining and reclamation under seismic and static circumstances. Additionally, the stockpile slopes would be designed in compliance with the steepness and maintenance requirements included in Section 10-4.433 of the OCSMO. The proposed project would not result in substantial risks related to collapse.

Subsidence and Other Soil Stability Issues

Subsidence occurs when the earth's surface sinks due to settlement of soils during earthquake shaking, excessive groundwater extraction, and/or loose soil conditions. Although earthquakes could potentially occur within the region and generate shaking at the site, the distance of the site from any active faults would reduce the severity of shaking. Furthermore, while groundwater pumped from two wells at the nearby Woodland Plant site would be used for aggregate processing and dust suppression at the project site, as occurs with existing mining operations in the project region, the project would not require excessive groundwater extraction.

The Slope Stability Evaluation determined that the soil beneath the overburden generally consists of loose to very dense poorly graded sand and gravel. During mining, aggregate material would be mined up to 40 feet below the surface of the mine. As such, loose soils would be moved and would not be subject to subsidence. During reclamation, the proposed project would use stockpiled soil to construct the reclaimed slopes and return the area to agricultural and other uses. The Slope Stability Evaluation determined that the reclamation fill should be compacted in horizontal lifts not exceeding eight inches. Per the Slope Stability Evaluation, each lift would require moisture-conditioning to at least two percent above optimum and compacted to at least

90 percent relative compaction. The water for the moisture condition would be extracted from the existing wells. Chapter 4.8, Hydrology and Water Quality, of this EIR analyzes the potential for the proposed project to result in impacts related to the ground water level. As further discussed in Chapter 4.8, while implementation of the proposed project could result in fluctuations in groundwater levels during mining and reclamation, as compared to existing levels, ultimately, the project would not result in significant impacts related to ground water levels in the vicinity of the project site. Consequently, the project site, including Moore Canal and Magnolia Canal would not be subject to impacts related to subsidence caused by reductions in groundwater levels.

As noted above, analysis of multiple groundwater pumping scenarios by Luhdorff & Scalmanini demonstrated that under worst-case conditions, water levels within the mining pit could be lowered by a maximum of 23 feet. Water within the pit would act to buttress the mining slopes; thus, fluctuations in the water level within the pit could have an effect on the stability of mining slopes. However, the Slope Stability Evaluation prepared for the project assumed that ponded water would not be present at any level within the mining pit. The absence of water from the mining pit represents a worst-case analysis of slope stability. Even with the conservative assumption of no pit water ponding, Geocon Consulting, Inc. ultimately concluded that the mining slopes would remain stable. Considering that any level of water within the mining pit would increase the stability of the slopes from the level of stability determined in the Slope Stability Evaluation, any groundwater levels or pit water level fluctuations due to groundwater pumping would not result in reductions of slope stability beyond the levels assumed in this analysis.[21]

Based on the above, subsidence due to earthquake shaking is not likely to occur at the project site due to the distance of the site from any active faults. Additionally, substantial dewatering and groundwater extraction would not have the potential to result in subsidence or other soil stability issues. However, without proper moisture conditioning of the proposed slopes, as recommended per the Slope Stability Evaluation, the proposed project could result in significant impacts related to subsidence.

Conclusion

Based on compliance with the CCAP, relevant local and state regulations, and the recommendations from the Slope Stability Evaluation, mining and reclamation at the site would not result in substantial risks related to on- or off-site landslide, lateral spreading, liquefaction, collapse, subsidence, or expansive soils. Consistency with the CCAP is discussed in Impact 4.6-8 below. Specific existing regulations that would ensure that risks related to on- or off-site landslides, lateral spreading, liquefaction, collapse, or subsidence would be reduced to a less-than-significant level include sections 10-4.431, 10-4.431 an 10-4.433 of the OCSMO, as well as the California Code of Regulations Title 8, Subchapter 17 (related to benching of excavated slopes), among others. The project will be conditioned to require adherence to all recommendations within the project-specific Slope Stability Evaluation.

[21] Geocon Consultants, Inc. *Technical Memorandum: Dewatering Shifler Mining and Reclamation Project Yolo County, California.* August 11, 2020.

Based on the above, a ***less-than-significant*** impact would occur with regard to substantial risks related to on- or off-site landslide, lateral spreading, liquefaction, collapse, subsidence, or expansive soils.

Mitigation Measure(s)
None required.

4.6-4 Be located on expansive soils, as defined in Table 18-1-B of the California Building Code, creating substantial risks to life or property. The impact would be *less than significant*.

The Slope Stability Evaluation prepared for the project determined that the existing soil and geologic conditions on-site would be suitable for the proposed project. Thus, expansive soils would not have the potential to result in any risks to life or property related to slope instability. Relocation of Moore Canal and modification of Magnolia Canal would represent the only substantial structures on-site that could be subject to potential effects of expansive soils. However, according to the Natural Resource Conservation Service's Web Soil Survey, only a small portion of the project site (approximately 0.3 percent of the site area) are underlain with soils that experience shrink-swell effects of expansive soils.[22] The expansive soils are located on the southern portion of the project site, whereas both Moore Canal and Magnolia Canal are and would be located on the northern portion of the project site. Consequently, the project would not experience risks to life or property due to expansive soils and a ***less-than-significant*** impact would result.

Mitigation Measure(s)
None required.

4.6-5 Directly or indirectly destroy a unique paleontological resource. The impact would be *significant*.

According to the Yolo County General Plan and a search of the University of California Museum of Paleontology website, eight fossil localities are present within or adjacent to the County. While the Holocene Alluvium geologic unit that underlies the project site is not typically considered to be paleontologically significant, several past discoveries of paleontological resources have taken place near Cache Creek within the project region. Therefore, the potential exists for previously unknown paleontological resources to occur on the project site. Section 10-4.410(b) addresses this potential. In the event that previously unknown resources are discovered during excavation the applicant is required to stop work, record the find, and make appropriate arrangements regarding removal and preservation. Considering the discovery of paleontological resources near Cache Creek, the proposed project could directly or indirectly destroy a unique paleontological resource and ***significant*** impact could occur.

[22] U.S. Department of Agriculture, Natural Resources Conservation Service. *Web Soil Survey*. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed June 2020.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.6-5 *Pursuant to Section 10-4.410(b) of the mining ordinance, should paleontological resources be discovered during ground disturbing activities, work shall be halted in the area within 75 feet of the find. The applicant shall notify the Director (as defined by the OCSMO as the County Administrator or designee chosen by the Administrator) and the Yolo County Department of Community Services and retain a qualified paleontologist to inspect the discovery. The find must be recorded by a qualified archaeologist or paleontologist using relevant professional protocols and a report fully recording the find submitted to the County Administrator or designee chosen by the Administrator and the Yolo County Department of Community Services. This report shall include recommendations for appropriate removal and preservation of the artifact. If deemed appropriate in the report, the resource(s) shall then be salvaged and deposited at the Cache Creek Nature Preserve, or other appropriate venue, where the discovery would be properly curated and preserved for the benefit of current and future generations. The language of this mitigation measure shall be included on any future grading plans, mining plans, and reclamation plans approved by the Department of Community Services for the proposed project, where ground disturbance would be required.*

4.6-6 The loss of availability of a known mineral resource that would be of value to the region and the residents of the State. The impact would be *less than significant*.

The proposed project would result in extraction of aggregate mineral resources from the project site, consistent with the County's long-term plan for the management of aggregates along Cache Creek. The CCAP area is known to contain over 700 million tons of sand and gravel deposits. The Mining Permit for the project site would allow for up to 2.6 million tons of aggregate material to be mined per year. Given that the proposed project would provide for the productive use of existing aggregate resources known to occur within the project site, a ***less-than-significant*** impact would occur related to the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.

Mitigation Measure(s)

None required.

4.6-7 The loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. The impact would be *less than significant*.

The proposed project would result in extraction of aggregate mineral resources from the project site, consistent with the County's long-term plan for the management of aggregates along Cache Creek. Approximately 107 acres of the site is designated by the California State Mining and Geology Board as MRZ-2, reflecting the existence of known significant mineral deposits or a high likelihood for the presence of mineral deposits. The remaining approximately 212 acres of the project site is designated MRZ-3, indicating an area of known reserves of unknown significance. The applicant has submitted an application to the California Department of Conservation (DOC) in July 2020 to change the MRZ-3 State designation of the site to MRZ-2 to reflect the existence of known significant aggregate reserves over the entire project site. Re-designation of the entire site is supported by the fact that the site is known to contain over 700 million tons of sand and gravel deposits. The Mining Permit for the project site would allow for up to 2.6 million tons of aggregate material to be mined per year. Currently, the portion of the project site designated as MRZ-2 is located in the General Plan Mineral Resource Overlay area. With approval of the DOC redesignation request, the remainder of the mining area would be included in the overlay as part of the proposed project. As discussed under Impact 4.6-8, the proposed project would comply with all applicable standards and regulations related to off-channel mining operations. Given that the proposed project would provide for the productive use of existing aggregate resources known to occur within the project site, a ***less-than-significant*** impact would occur related to the loss of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Mitigation Measure(s)
None required.

4.6-8 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to geology and soils, mineral resources, and paleontological resources The impact would be *less than significant*.

Table 4.6-1 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to geologic hazards, mineral resources, and paleontological resources.

As shown in the table below, the proposed project would be generally consistent with applicable standards related to geologic hazards and mineral and paleontological resources. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy HS-1.1 Regulate land development to avoid unreasonable exposure to geologic hazards.	As discussed above, impacts related to geologic hazards would be less than significant. Therefore, the project would be consistent with this policy.
Policy HS-1.3 Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.	As discussed in Impact 4.6-1 above, a Slope Stability Evaluation was prepared to evaluate the seismic impacts associated with the slopes of the mining and reclamation phases. Therefore, the project would be consistent with this policy.
Policy ED-1.2 Support the continued operation of existing aggregate mining activities within the county as well as new aggregate mining in appropriate areas, to meet the long-range construction needs of the region.	The proposed project would result in operation of an aggregate mine and mining activities in order to meet the economic needs of the County.
Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.	The proposed project would result in the production of aggregate resources from the site. All relevant environmental issues associated with the proposed mining and reclamation activities, including impacts to recreation, wildlife, agriculture, aesthetics, and flood control, are discussed throughout this EIR. Where applicable, mitigation is provided to reduce potential impacts to the maximum extent feasible. Therefore, the project would be consistent with this policy.
Policy CO-3.2 Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.	Impacts related to the creation of land use incompatibilities are discussed in Chapter 4.9, Land Use and Planning, of this EIR. The potential for the project to result in adverse impacts to the environment is addressed throughout this EIR as well as in the Initial Study (see Appendix A) prepared for the project. Any impacts identified within this EIR have been reduced to the maximum extent feasible through the imposition of mitigation measures. As such, the project would be consistent with this policy.
Policy CO-3.5 Preserve and protect the County's unique geologic and physical features, which include geologic or soil "type localities", and formations or outcrops of special interest. (DEIR MM GEO-1a)	The project site is underlain by Holocene-aged stream channel deposits typical of the Cache Creek area. Drill hole logs demonstrate that the soil layers are relatively uniform, which is consistent with the alluvial nature of the area. The project site is currently used for agricultural production, which is common within Yolo County and the project area. Consequently, the project site does not contain any unique geologic or physical features that are not found elsewhere in the County or the Cache Creek

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Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	Area. Considering the geologic and physical setting of the project site, the project would not inhibit preservation or protection of any unique physical features, and, consequently, the project would comply with this policy.
Action CO-A37 Designate and zone lands containing identified mineral deposits to protect them from the encroachment of incompatible land uses so that aggregate resources remain available for the future. (Policy CO-3.1)	As discussed in Impact 4.6-7, a portion of the project site is currently included in a Mineral Resource Overlay area, and implementation of the project would include redesignation of the remaining portion of the project site with a Mineral Resource Overlay. Following redesignation of the site, the deposits within the project site would be mined. Accordingly, the project would not result in the loss of availability of mineral resources. The project would comply with this action
Action CO-A39 Encourage the responsible development of aggregate deposits along Cache Creek as significant both to the economy of Yolo County and the region. (Policy CO-3.1)	The proposed project would involve extraction of aggregate deposits within the Cache Creek area in a manner that would be consistent with the CCAP. Thus, the project would be considered to comply with this action.
Action CO-A42 Implement the Cache Creek Area Plan to ensure the carefully managed use and conservation of sand and gravel resources, riparian habitat, ground and surface water, and recreational opportunities. (Policy CO-3.1)	The project was anticipated by the CCAP and would include extraction of sand and gravel resources. Reclamation of the project site would include establishment of riparian habitat within the project site. Impacts to ground and surface water are analyzed in Chapter 4.8, Hydrology and Water Quality. Recreational opportunities would not be afforded at the project site following reclamation; rather the site would be reclaimed for continued agricultural uses and habitat conservation purposes. Based on the analysis presented in this EIR and the Initial Study prepared for the proposed project, the project would comply with this action.
Action CO-A43 Monitor updates to the State Mineral Resource classification map and incorporate any needed revisions to the County's zoning and land use map. (Policy CO-3.1)	As discussed in impact 4.6-6, an application to redesignate the entirety of the site to MRZ-2 has been submitted to the DOC. Although a portion of the project site is currently designated with a Mineral Resource Overlay, implementation of the proposed project would include redesignation of the remaining portion of the site with a Mineral Resource Overlay. Consequently, the project would comply with this action.
Action CO-A47 Ensure that mined areas are reclaimed to a usable condition that is readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities. (Policy CO-3.1)	Reclamation of the project site would result in 117 acres of agricultural uses, a combined total of 47.5 acres of grassland and riparian woodland habitat and 113 acres of lake uses. Thus, the project would comply with this action.
Action CO-A54	As discussed in further depth in Chapter 4.9, Land

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Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Implement the Cache Creek Area Plan (Policy CO-3.2).	Use and Planning, of this EIR, the project would comply with the CCAP, and, as a result, this action.
Action CO-A63 Require cultural resources inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical, or paleontological resources. In addition, require a mitigation plan to protect the resource before the issuance of permits. Mitigation may include: • Having a qualified archaeologist or paleontologist present during initial grading or trenching; • Redesign of the project to avoid historic or paleontological resources; • Capping the site with a layer of fill; and/or • Excavation and removal of the historical or paleontological resources and curation in an appropriate facility under the direction of a qualified professional. (Policy CO-4.1, Policy CO-4.13)	The project is not a development proposal; nevertheless, the project would be subject to the requirements of Section 10-4.410, Cultural Resources, of the OCSMO. Section 10-4.410 contains specific standards for avoiding damage to cultural, historic, and paleontological resources, as well as assessing and preserving any resources discovered during mining activities. Moreover, Mitigation Measure 4.6-5 includes requirements that implement Section 10-4.410. Because the project would be required to comply with Section 10-4.410 and Mitigation Measure 4.6-5, the proposed project would comply with this action as well.
Action CO-A65 Require that when cultural resources (including non-tribal archeological and paleontological artifacts, as well as human remains) are encountered during site preparation or construction, all work within the vicinity of the discovery is immediately halted and the area protected from further disturbance. The project applicant shall immediately notify the County Coroner and the Planning and Public Works Department. Where human remains are determined to be Native American, the project applicant shall consult with the Native American Heritage Commission (NAHC) to determine the person most likely descended from the deceased. The applicant shall confer with the descendant to determine appropriate treatment for the human remains, consistent with State law. (Policy CO-4.1, Policy CO-4.11, Policy CO-4.12, Policy CO-4.13)	Section 10-4.410 of the OCSMO includes requirements that are substantively similar to the requirements included in this action. Moreover, Mitigation Measure 4.6-5 includes requirements that implement Section 10-4.410. Because the project would be required to comply with Section 10-4.410 of the OCSMO and Mitigation Measure 4.6-5, the project would comply with this action.
Off-Channel Surface Mining Ordinance	
Section 10-4.403 The operator shall immediately notify the Director of any events such as fires, explosions, spills, land or slope failures, or other conditions at the site which could pose a hazard to life or property. Action shall be immediately undertaken to alleviate the hazard. The operator shall provide a written report of any such event, within thirty (30) days,	Section 10-4.403 includes enforcement mechanisms that would ensure that any hazards are promptly reported to the County. Impacts 4.6-1 and 4.6-3 demonstrate that the proposed mining activity would not be anticipated to result in impacts such as collapse, subsidence, or landslide. Consequently, the project would comply with this section of the ordinance.

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Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
which shall include, but not be limited to, a description of the facts of the event, the corrective measures used, and the steps taken to prevent a recurrence of the incident. Failure to provide this report shall initiate violation proceedings pursuant to Article 11. This condition does not supersede nor replace any requirement of any other governmental entity for reporting incidents.	
Section 10-4.406 During mining operations, a series of benches may be excavated in a slope provided that the excavations are made in compliance with the requirements of the state Mine Safety Orders (California Code of Regulations, Title 8, Subchapter 17). The vertical height and slope of the benches constructed for permanent reclaimed slopes shall not exceed maximum standards for the specific soil types presented in the California Code of Regulations, Title 8, Article 6. In general, vertical cut slopes between benches shall not exceed four (4) feet in height in topsoil and overburden sediments. Benching shall be allowed in cohesive soil (clay, sandy or silty clay, clayey silt) only. Slopes above the elevation of groundwater (determined at the time of the excavation by the level of exposed water in the excavation) that exceed the maximum vertical height shall be excavated and maintained at slopes not steeper than 2:1 (horizontal:vertical). Slopes located five (5) feet or less below the average summer low groundwater level shall not be steeper than 2:1 (horizontal:vertical). Slopes located more than five (5) feet below the average summer low groundwater level shall not be steeper than 1:1 (horizontal to vertical). Vertical cut slopes in excess of four (4) feet in height may be approved for the development of special habitat (e.g., bank swallows) if a site-specific slope stability analysis, performed by a licensed engineer, indicates that the slope does not exceed critical height for the on-site soil conditions. Projects proposing such slopes shall submit a long-term maintenance plan to ensure that the function of the slopes as habitat is met.	The proposed project was subject to a Slope Stability Evaluation. The results of the analysis are relied upon to support the determinations presented within this chapter, specifically, those presented in Impacts 4.6-1 and 4.6-3 regarding the design of cut slopes and benches. Preparation of a Slope Stability Evaluation fulfills the requirements of Section 10-4.406.
Section 10-4.410 (a) All resource records shall be checked for the presence of and the potential for prehistoric and historic sites. Damaging effects on cultural resources shall be avoided whenever possible.	See discussion of Impact 4.6-5. In the event of the inadvertent discovery of prehistoric, historic, paleontological resources or human remains, the project would implement the provisions of OCSMO

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Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
If avoidance is not feasible, the importance of the site shall be evaluated by a qualified professional prior to the commencement of mining operations. If a cultural resource is determined not to be important, both the resource and the effect on it shall be reported to the Agency, and the resource need not be considered further. If avoidance of an important cultural resource is not feasible, a mitigation plan shall be prepared and implemented. The mitigation plan shall explain the importance of the resource, describe the proposed approach to mitigate destruction or damage to the site, and demonstrate how the proposed mitigation would serve the public interest. (b) If human skeletal remains are encountered during excavation, all work within seventy-five (75') feet shall immediately stop, and the County Coroner shall be notified within twenty-four (24) hours. If the remains are of Native American origin, the appropriate Native American community identified by the Native American Heritage Commission shall be contacted, and an agreement for treating or disposing of, with appropriate dignity, the remains and associated grave goods shall be developed. If any cultural resources, such as chipped or ground stone, historic debris, building foundations, or paleontological materials are encountered during excavation, then all work within seventy-five (75') feet shall immediately stop and the Director shall be notified at once. Any cultural resources found on the site shall be recorded by a qualified archaeologist and the information shall be submitted to the Agency. (§ 1, Ord. 1190, eff. September 5, 1996)	Section 10-4.410. Therefore, the project would be consistent with this regulation.
Section 10-4.431 Except where benches are used, all banks above groundwater level shall be sloped no steeper than 2:1 (horizontal:vertical). Proposed steeper slopes shall be evaluated by a slope stability study, prepared by a Registered Civil Engineer, Certified Engineering Geologist, or Professional Geologist. Slopes below the groundwater level shall be no steeper than 1:1 (horizontal:vertical). Slopes located five (5) feet or less below the summer low groundwater level shall not be steeper than 2:1 (horizontal:vertical). This section applies only to	A Slope Stability Evaluation was prepared for the proposed project by a Registered Civil Engineer. Reclamation of the project site would comply with the following minimum slopes: • 2:1 above average high reclaimed groundwater level (57 feet MSL at the reclaimed lake), except for reclaimed mining slopes that are within 50 feet of the relocated Moore Canal, which will have a minimum slope of 3:1;

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Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
final/reclaimed slopes and not to active mining faces.	• 4:1 between average high reclaimed groundwater level (57 feet MSL) and five feet below average high reclaimed groundwater level (52 feet MSL); • 2:1 between five feet below average high reclaimed groundwater level (52 feet MSL) and five feet below average low reclaimed groundwater level (42 feet MSL); and • 1:1 below five feet below average low reclaimed groundwater level (42 feet MSL). As discussed under Impact 4.6-1 and 4.6-3 above, the stability of the proposed slopes has been evaluated in the Slope Stability Evaluation and would comply with the standards established in the OSCMO. Thus, the project would be consistent with this regulation.
Section 10-4.432 Soil shall be cut in maximum depths in order to minimize traffic and limit compaction. The handling and transportation of soil shall be minimized. To the extent feasible, all handling of topsoil shall be accomplished when the soil is dry in order to avoid undue compaction.	The proposed project would stockpile soil on the project site in order to minimize transport of soil. All topsoil would be handled when the soil is dry. The updated version of the OCSMO did not include significant changes to the regulation. Therefore, the project would be consistent with this regulation.
Section 10-4.433 Soil stockpiles. Topsoil, subsoil, and subgrade materials in stockpiles shall not exceed forty (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles, other than aggregate stockpiles, shall be seeded with a native vegetative cover to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Director. Slopes on stockpiled soils shall be graded to 2:1 (horizontal:vertical) for long-term storage to prevent use by bank swallows. At no time during the active breeding season (May 1 through July 31) shall slopes on stockpiles exceed a slope of 1:1, even on a temporary basis. Stockpiles shall be graded to a minimum 1:1 slope at the end of each work day where stockpiles have been disturbed during the active breeding season.	As discussed in Impact 4.6-3 above, soil stockpiles would not exceed 40 feet in height and would not be steeper than 2:1. Additionally, the stockpiles would be seeded with a native vegetative cover to prevent erosion. During updates to the OCSMO, this regulation was not significantly altered. Thus, the project would be consistent with this regulation.
Section 10-4.434 Technical report recommendations. The recommendations contained within each technical report submitted with a surface mining permit application shall be consistent with the OCMP and	The Slope Stability Evaluation prepared for the proposed project has been discussed throughout this chapter. All recommendations in the report would be incorporated into the proposed project. Therefore, the project would be consistent with this

(Continued on next page)

Table 4.6-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
with all other technical reports submitted. The recommendations of all technical reports shall be implemented.	regulation.
Section 10-4.502(b)(6) A cultural resources survey of the proposed mining area, in order to evaluate the potential for historic and/or prehistoric artifacts. A survey may not be required if a preliminary investigation from the Northwest Information Center indicates that the likelihood of archaeological resources is low for the proposed site;	The Cultural Resource Assessment prepared for the proposed project (see Appendix G) included a survey of the proposed mining area. Thus, the proposed project is consistent with this regulation.
Surface Mining Reclamation Ordinance	
Section 10-5.530 All final reclaimed slopes shall have a minimum safety factor equal to or greater than the critical gradient as determined by an engineering analysis of the slope stability. Final slopes less than five (5) feet below the average summer low groundwater level shall be designed in accordance with the reclaimed use and shall not be steeper than 2:1 (horizontal:vertical). Reclaimed wet pit slopes located five (5) feet or more below the average summer low groundwater level shall not be steeper than 1:1 (horizontal:vertical), in order to minimize the effects of sedimentation and biological clogging on groundwater flow, to prevent stagnation, and to protect the public health. The maximum slope angle for all final reclaimed slopes shall be determined by slope stability analysis performed by a Licensed Geotechnical Engineer or Registered Civil Engineer and submitted with any mining and reclamation application for review by the Director. The slope stability analysis shall conform with industry standard methodologies regarding rotational slope failures under static and pseudostatic (seismic) conditions. The minimum factor of safety for all design reclamation slopes located adjacent to levees or below existing structures shall not be less than 1.5 for static and 1.1 for pseudostatic (seismic) conditions. Other reclamation slopes shall meet a minimum factor of safety that is consistent with the post-reclamation use proposed for the mining area.	As discussed throughout this chapter, and in consistency with Section 10-4.431 of the OCSMO, the proposed project proposes slope angles consistent with the requirements set forth by the County. As such, the proposed project would be consistent with this regulation.

4.7 Hazards and Hazardous Materials

4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7.1 INTRODUCTION

The Hazards and Hazardous Materials chapter of the EIR: describes the potential for existing hazards and hazardous materials to occur within the project area; analyzes the potential for workers at the project site to be exposed to such hazards; assesses the potential for impacts resulting from hazards or hazardous materials that could be used on the project site as a result of the proposed mining and reclamation operations; and analyzes potential wildfire risks at the project site. Information included in this chapter is drawn primarily from the Phase I and Limited Phase II Environmental Site Assessment (ESA) prepared for the project by Nichols Consulting Engineers, Chtd. (NCE) (see Appendix I),[1] the Cache Creek Area Plan (CCAP) Update EIR,[2] as well as the Yolo County General Plan[3] and the Yolo County General Plan EIR.[4]

In response to the NOP, the County received comments related to hazards and hazardous materials from a number of residents in the area. These commenters expressed that the DEIR should consider the following:

- Potential impacts regarding the abandonment of existing well systems (California Department of Conservation – Division of Oil, Gas, and Geothermal Resources);
- Increased mosquito population from the reclaimed lake (Resident);
- Potential impacts from vector-borne diseases (Resident);
- Potential impacts from the disposal of asphalt remnants (Resident);
- Potential impacts from the handling of hazardous materials, hazardous waste generation, aboveground storage tanks, and waste tires (Yolo County Environmental Health Division); and
- Potential impacts related to emergency access and evacuation (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require that the comments be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

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1 Nichols Consulting Engineers, Chtd. *Phase I and Limited Phase II Environmental Site Assessment, Shifler Property, Yolo County APNs 025-430-01, 025-430-02, 025-120-32, and 025-120-33, Yolo County, California.* September 27, 2007.

2 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

3 Yolo County. *2030 Countywide General Plan.* November 10, 2009.

4 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*. April 2009.

Concepts and Terminology

The following terms are used throughout this chapter and have important bearing upon properly evaluating hazards and hazardous materials within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

A Recognized Environmental Condition (RECs) indicates the presence or likely presence of hazardous substances in, on, or at a property due to a release into the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment.

A Fire Hazard Severity Zone (FHSZ) is a designation used by Cal Fire to indicate the potential wildfire risk associated with an area.

4.7.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to hazards and hazardous materials.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and ornamental landscaping.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the

former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), rural residential, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The aggregate mining operations to the north consist of Teichert's Storz mining site to the northwest and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

The following discussion focuses on the potential RECs associated with the project site. A REC indicates the presence or likely presence of hazardous substances in, on, or at a property due to a release into the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment.[5]

Additionally, the following includes a discussion of historical RECs associated with the project site. An historical REC indicates a past release of hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority, such that the property does not include any use limitations in respect to future activities on the property.

On-Site Recognized Environmental Conditions

Based on the Phase I ESA prepared for the project site, NCE determined that the project site did not contain evidence of significant soil staining, stained pavement, septic systems, or stressed vegetation. While a small area of diesel-stained soil was observed at the location of an irrigation water pump, the staining was determined to be insubstantial. In addition, while the site contains two existing electrical transformers, evidence of polychlorinated biphenyl (PCB) leakage was not observed. However, an existing groundwater well is located on-site within the western portion of Parcel 2, as well as a domestic water supply well located at the location of the former ranch headquarters within Parcel 1. In addition, an abandoned gas well is located within the southern portions of Parcels 2. The gas well was abandoned in 1994. Other potential RECs identified in the Phase I ESA include the disposition and potential on-site disposal of waste oil and solvents commonly associated with equipment maintenance, and potential contamination within the refuse piles located to the north and northeast of the former ranch headquarters. The southern portion of Parcel 3 also includes a gas well, abandoned in 1985; however, this gas well is located outside of the project site boundaries, along County Road 22.

Lastly, because the Phase I ESA indicated that storage and disposal of agricultural chemicals may have occurred at the former ranch headquarters, a Phase II ESA was prepared in order to determine whether soils containing pesticide or herbicide contaminants are present within the project site.

[5] ASTM International. *ASTM E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* 2013.

The Limited Phase II ESA consisted of a geophysical investigation to locate buried objects such as underground storage tanks (USTs), wells, septic tanks, or any other anomalous objects in the vicinity of the former ranch headquarters. The geophysical investigation included use of a magnetometer to map a magnetic gradient across the project site. The geophysical investigation was followed by a backhoe investigation, which included excavation of a series of backhoe test pits at the location of anomalies identified by the geophysical investigation, as well as several locations in the vicinity of the existing refuse piles. A total of 25 test pits were excavated. NCE did not note any signs of soil staining, odors, obvious signs of containers of agricultural chemicals, or visible sign of spilled chemicals within the test pits. A deteriorated metal tank of undetermined use was found in one of the test pits; however, signs of soil staining or odors were not noted in the soils around the tank.

It should be noted that while an attempt was made to locate potential septic tanks associated with the former ranch headquarters using radar scans, the clay content of the soil at the study area was too high for the radar to penetrate, and the scans were inconclusive. Thus, the potential exists for the site contain an undocumented septic tank. In addition, NCE identified a steel pipe near the former ranch headquarters that was buried to a depth of approximately four feet below the ground surface, extending to a depth of approximately 20 feet. The purpose and previous use of the pipe is unknown.

Nearby Recognized Environmental Conditions

The Phase I ESA evaluated sites located near the project site that are listed in federal, State, and/or local databases of hazardous materials sites. Per the Phase I ESA, one HAZNET site was identified within 0.5-mile of the project site, and two ASTs were identified within 0.75-mile of the project site. Violations have not been reported at any of the three identified sites; thus, the sites were deemed to not pose a substantial risk to the project site.

In addition, the Phase I ESA identified 27 “Orphan Sites”, which are sites that could not be mapped or "geocoded" due to inadequate address information. A review of the Orphan Site locations revealed that all but two are located downgradient of the project site (with respect to groundwater flows) and are therefore unlikely to impact conditions at the site. The two exceptions included Cache Creek Regional Park, located at 1475 State Route 16, and Monument Hill Memorial Park cemetery, located at 35036 County Road 22. Cache Creek Regional Park is listed in a database for USTs and is located approximately one mile southwest of the project site. Due to the distance and cross-gradient location of the Cache Creek Regional Park, potential USTs are unlikely to impact conditions at the project site. Monument Hill Memorial Park cemetery is also listed in a database for USTs and abuts the southern project site boundary. According to Yolo County Environmental Health Department (YCEHD) records, no regulatory violations related to previous or existing UST(s) at the cemetery have been reported. In addition, the Monument Hill Memorial Park cemetery is not included in the State’s database of leaking UST sites. Thus, the Monument Hill Memorial Park cemetery is not considered to pose a risk to the project site.

Airport Hazards

The nearest airport to the project site is the privately-owned Watts-Woodland Airport, located immediately southwest of the site across County Road 94B. The project site lies within airport safety zones identified in the Watts-Woodland Airport Comprehensive Land Use Plan (CLUP).[6] As shown in Figure 10 of the CLUP, the northwestern portion of the project site north of the Moore

[6] Sacramento Area Council of Governments. *Watts-Woodland Airport, Comprehensive Land Use Plan.* March 1993.

Canal lies within Safety Area 2 (Approach-Departure Zone), while the remainder of the project site lies within Safety Area 3 (Overflight Zone).

Depending on location and type, projects occurring within the vicinity of the airport need to conform to the guidelines stipulated in the LUCP. In addition, the Federal Aviation Administration (FAA) has published guidance regarding the protection of navigable airspace in the Code of Federal Regulations (CFR), Title 14, Part 77. Part 77 establishes standards for determining obstructions to navigable airspace and the effects of obstructions on the safe and efficient use of airspace.

Evacuation Routes

Per the Yolo County Office of Emergency Services, the project site is located within Evacuation Zones 35 and 36.[7] Within Zones 35 and 36, State Route 16 and County Road 20 are identified as evacuation routes. The nearest identified evacuation rally point is at the Willow Oak Fire Station, located at 18111 County Road 94B, to the southwest of the project site. Figure 4.7-1 and Figure 4.7-2 provide an overview of the identified evacuation routes and rally points in the project vicinity.

4.7.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of hazards and hazardous materials under the CEQA process.

Federal Regulations

The following are the federal regulations relevant to hazards and hazardous materials.

Occupational Safety and Health Act of 1970

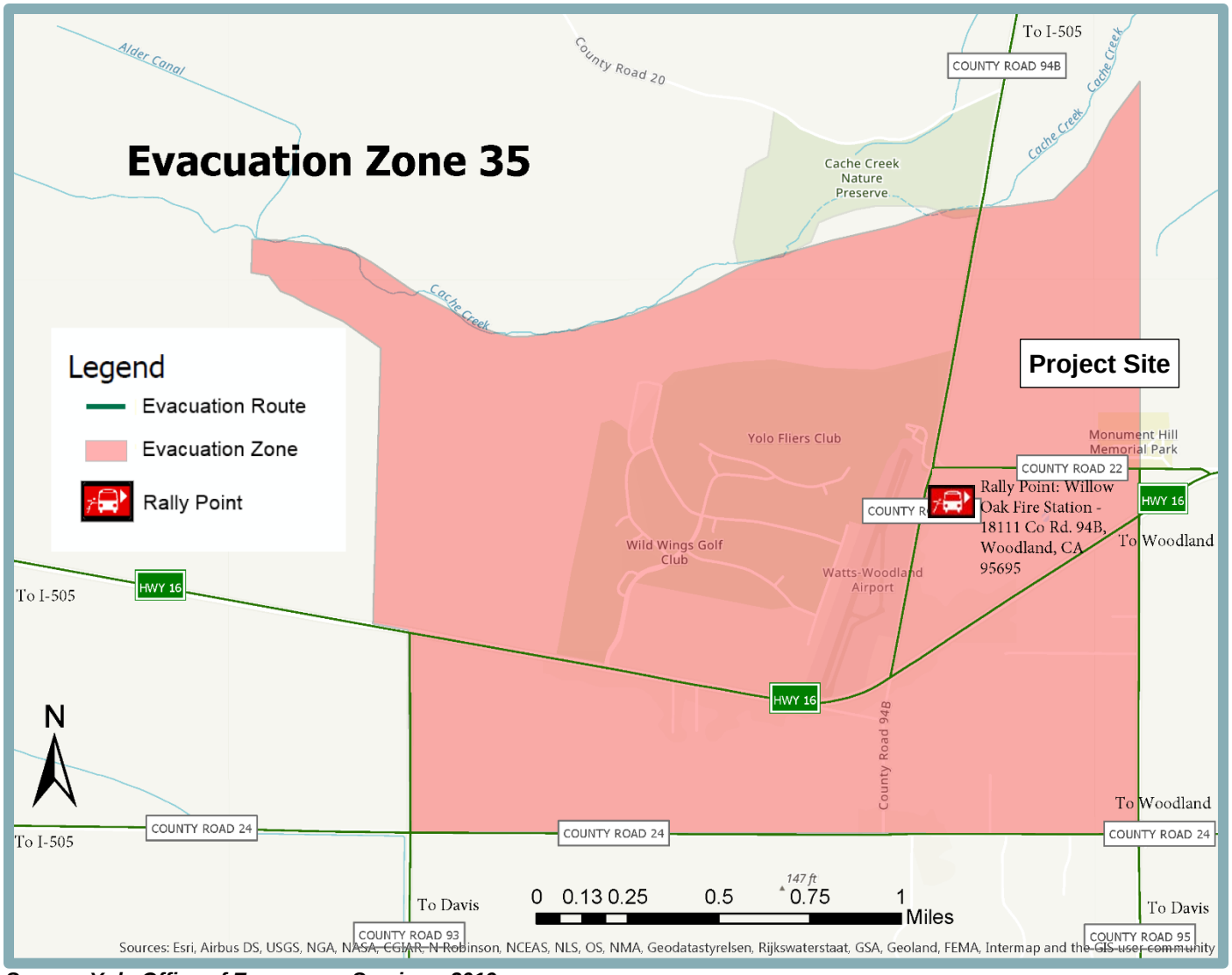
Congress passed the Occupational and Safety Health Act to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. In order to establish standards for workplace health and safety, the Act also created the National Institute for Occupational Safety and Health (NIOSH) as the research institution for the OSHA. OSHA is a division of the U.S. Department of Labor that oversees the administration of the Act and enforces standards in all 50 states. Operations on the project site would be subject to OSHA regulations related to employment conditions.

Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act (SARA) of 1986 reauthorized CERCLA to continue cleanup activities around the country.

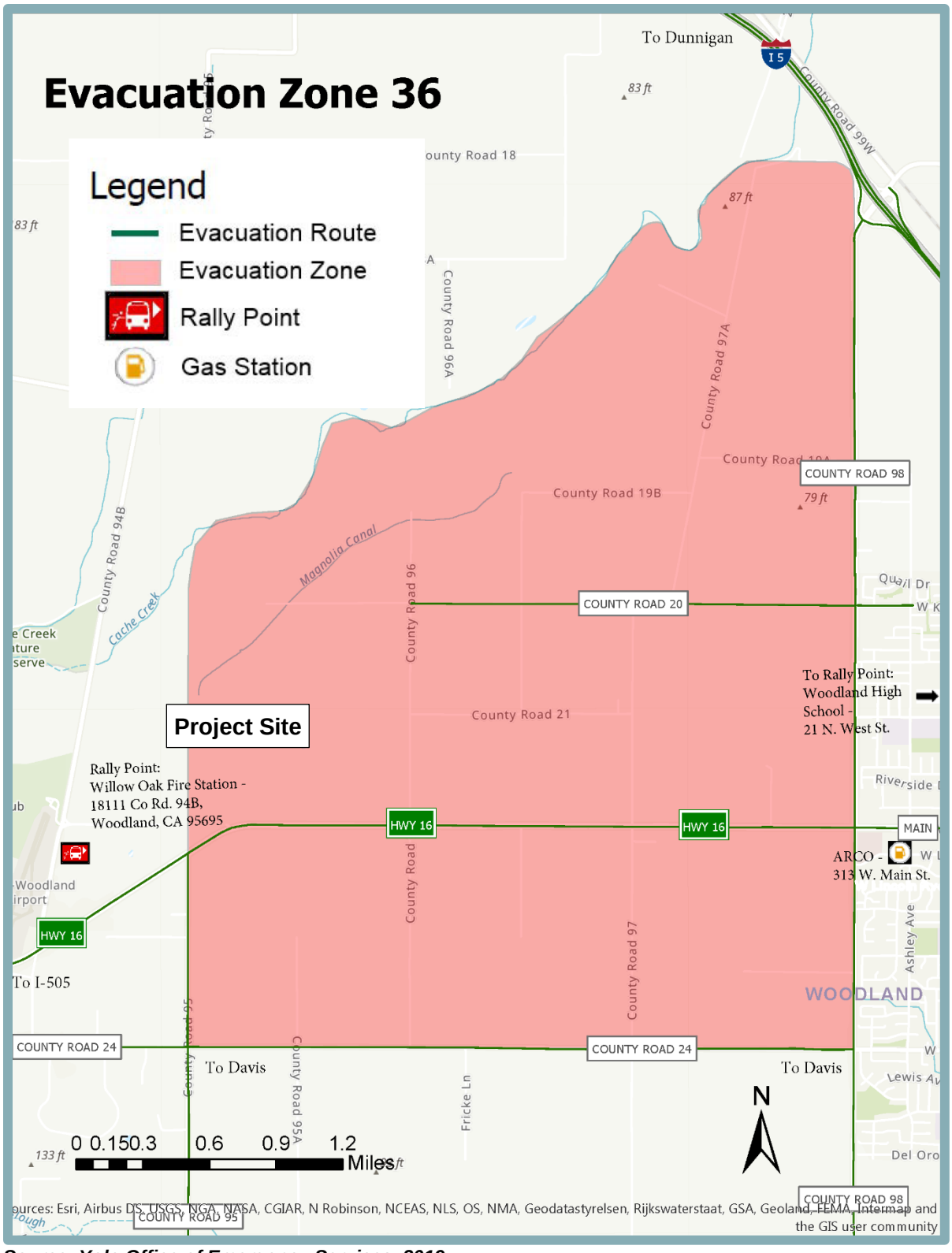
[7] Yolo Office of Emergency Services. *Know Your Zone.* Available at: https://yolo.maps.arcgis.com/apps/webappviewer/index.html?id=5458e2e8c8c54e19923da248ac3add0c/. Accessed August 2019.

Figure 4.7-1
Local Evacuation Routes: Zone 35



Source: Yolo Office of Emergency Services, 2019.

Figure 4.7-2
Local Evacuation Routes: Zone 36



Source: Yolo Office of Emergency Services, 2019.

Several site-specific amendments, definitions clarifications, and technical requirements were added to the legislation, including additional enforcement authorities. In addition, Title III of SARA authorized the Emergency Planning and Community Right-to-Know Act. SARA, Title III provides funding for training in emergency planning, preparedness, mitigation, response, and recovery capabilities associated with hazardous chemicals. Title III of SARA addresses concerns about emergency preparedness for hazardous chemicals, and emphasizes helping communities meet their responsibilities in preparing to handle chemical emergencies and increasing public knowledge and access to information on hazardous chemicals present in their communities.

Toxic Substances Control Act (15 U.S.C. §2601 et seq. [1976])

The Toxic Substances Control Act (TSCA) of 1976 provides USEPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.

State Regulations

The following are the State regulations relevant to hazards and hazardous materials.

Cortese List

Per Government Code Section 65962.5(a), the DTSC shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all of the following:

1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
2. All land designated as hazardous waste property or border zone property pursuant to former Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
3. All information received by the DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
4. All sites listed pursuant to Section 25356 of the Health and Safety Code.

Central Valley Regional Water Quality Control Board

The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. The CVRWQCB's regulations are contained in Title 27 of the California Code of Regulations (CCR). The DTSC, CVRWQCB, and/or a local agency typically oversees investigation and cleanup of contaminated sites.

California Health and Safety Code

The handling and storage of hazardous materials is regulated on the federal level by the USEPA under CERCLA as amended by the SARA. Under SARA Title III, a nationwide emergency planning and response program was established that imposed reporting requirements for businesses which store, handle, or produce significant quantities of hazardous or acutely toxic substances as defined under federal laws. SARA Title III required each state to implement a comprehensive system to inform federal authorities, local agencies, and the public when a significant quantity of hazardous, acutely toxic substances are stored or handled at a facility.

The California Office of Emergency Services regulates a wide range of acutely hazardous materials (AHMs) under the California Accidental Release Program (CalARP), the USEPA under the Risk Management Program (40 CFR 68), and the OSHA under the Process Safety Management Program (OSHA 1910.119). The California Accidental Release Program and Risk Management Program require that all facilities that store, handle, or use AHMs above a minimum quantity, known as the threshold planning quantity, are required to develop a plan and prepare supporting documentation that summarizes the facility's potential risk to the local community and identifies safety measures to reduce potential risks to the public.

The HWCL, Chapter 6.5 of the California Health and Safety Code, is administered by CalEPA to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both the State and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

The handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a Hazardous Materials Business Plan. The plan provides information to the local emergency response agency regarding the types and quantities of hazardous materials stored at a facility, and provides detailed emergency planning and response procedures in the event of a hazardous materials release. In the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by the California code, facilities are also required to prepare a Risk Management Plan and California Accidental Release Plan, which provides information on the potential impact zone of a worst-case release, and requires plans and programs designed to minimize the probability of a release and mitigate potential impacts.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the Governor's Office of Emergency Services (OES), which coordinates the responses of other agencies, including CalEPA, California Highway Patrol, California Department of Fish and Wildlife (CDFW), and CVRWQCB.

Division of Oil, Gas, and Geothermal Resources

The State Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. DOGGR regulations require that for abandoned wells, the following procedures are followed:

> […] the hole and all annuli shall be plugged at the surface with at least a 25-foot cement plug. The district deputy may require that inner strings of uncemented casing be removed to at least the base of the surface plug prior to placement of the plug. All well casing shall be cut off at least 5 feet but no more than 10 feet below the surface of the ground. The district deputy may approve a different cut-off depth, as conditions warrant, including but not limited to excavation or grading operations for construction purposes. As defined in Section 1760(j), a steel plate at least as thick as the outer well casing shall be welded around the circumference of the casing at the top of the casing, after Division approval of

the surface plug. The steel plate shall show the well's identification, indicated by the last five digits of the API well number. Authority: Sections 3013 and 3106, Public Resources Code. Reference: Section 3106, Public Resources Code. § 1723.5.

Sections 3208 and 3255(a)(3) of the Public Resources Code give DOGGR the authority to order the re-abandonment of any well that is hazardous, or that poses a danger to life, health, or natural resources. Responsibility for re-abandonment costs for any well may be affected by the choices made by the local permitting agency, property owner, and/or developer. (Cal. Public Res. Code, § 3208.1.)

Fire Safe Regulations

Section 4291 of the Public Resources Code requires maintenance of at least 100 feet of defensible space for buildings or structures in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material. The amount of fuel modification necessary must take into account the flammability of the structure as affected by building material, building standards, location, and type of vegetation.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Sacramento-Yolo Mosquito and Vector Control District

The Sacramento-Yolo Mosquito and Vector Control District provides ongoing surveillance of mosquitoes and other vectors to determine the threat of disease transmission and lower annoyance levels.

Yolo County General Plan

The relevant goals and policies from the Yolo County General Plan related to hazards and hazardous materials are presented below.

Goal HS-4 Hazardous Materials. Protect the community and the environment from hazardous materials and waste.

- Policy HS-4.1 Minimize exposure to the harmful effects of hazardous materials and waste.
- Policy HS-4.3 Encourage the reduction of solid and hazardous wastes generated in the county.
- Policy CO-2.15 Encourage the use of mosquito abatement methods that are compatible with protecting fish and wildlife, including native insect pollinators.

Off-Channel Mining Plan

Goal 2.2-4 Eliminate or minimize hazards to the public health and safety that are associated with surface mining operations and reclamation.

- Action 2.4-2 Hazardous materials business plans (or equivalent) must be submitted annually, as required by the California Health and

Safety Code, unless the types of hazardous materials used change, in which case revised business plans must be submitted within thirty (30) days of the change. (See Section 10-4.403 of the Mining Ordinance.)

Off-Channel Surface Mining Ordinance

Section 10-4.403 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) provides the following requirements related to accidental reporting:

> ### Section 10-4.403. Accident Reporting
> The operator shall immediately notify the Director of any events such as fires, explosions, spills, land or slope failures, or other conditions at the site which could pose a hazard to life or property. Action shall be immediately undertaken to alleviate the hazard. The operator shall provide a written report of any such event, within thirty (30) days, which shall include, but not be limited to, a description of the facts of the event, the corrective measures used, and the steps taken to prevent a recurrence of the incident. Failure to provide this report shall initiate violation proceedings pursuant to Article 11. This condition does not supersede nor replace any requirement of any other governmental entity for reporting incidents.

Section 10-4.415 of the OCSMO provides the following requirements related to equipment maintenance:

> ### Section 10-4.415. Equipment Maintenance
> All internal combustion engine driven equipment and vehicles shall be kept tuned according to the manufacturer's specifications and properly maintained to minimize the leakage of oils and fuel. No vehicles or equipment shall be left idling for a period of longer than is required by law, recommended by the Air District, or ten (10) minutes, whichever is shorter.
>
> Fueling and maintenance activities of heavy equipment (except draglines and floating suction dredges) are prohibited within one-hundred (100) feet of open bodies of water during mining and reclamation. All Storm Water Pollution Prevention Plans shall include provisions for releases of fuels during fueling activities for draglines and floating suction dredges.

Section 10-4.417 of the OCSMO states the following regarding groundwater monitoring requirements:

> ### Sec. 10-4.417. Groundwater Monitoring Programs
> All surface mining operations that propose off-channel excavations extending below the groundwater level shall develop and maintain a groundwater monitoring program consisting of two components: water level measurements and water quality testing. A groundwater level monitoring program shall be initiated at least six months prior to the removal of overburden. At a minimum, the groundwater level monitoring program shall consist of three monitoring wells, with at least one well upgradient of the wet pit and one well downgradient of the wet pit. Monitoring programs for proposed mining areas exceeding one-hundred (100) acres (total proposed mining area over the life of the project) shall include one additional well for each one-hundred (100) acres of wet pit mining. Therefore, wet pit mining areas of 1 to 99 acres would require three (3) wells, 100 to 199 acres would require four (4) wells, 200 to 299 acres would require five (5) wells, and so on. These wells shall be distributed through the vicinity of the wet pit mining area and used for

groundwater level measurements. Groundwater levels shall be collected from the monitoring wells on a quarterly basis for six (6) months prior to mining and for the duration of the mining period. All wellheads shall be surveyed with horizontal and vertical control to allow calculation of groundwater elevations and development of groundwater contour maps. Groundwater levels shall be measured with an accuracy of plus or minus 0.01 foot, at minimum.

Water quality in the vicinity of each active wet pit mining location shall be evaluated by analyzing samples from selected monitoring wells (one upgradient and one downgradient) and wet pit surface water sampling locations. Since mining may be conducted in phases over a relatively long period of time, pit boundaries may change with time. Selection, and installation if necessary, of downgradient monitoring wells, which would be critical to adequately characterize the groundwater quality in the vicinity of the wet pits, shall be submitted by the operator for review and approval by the County. The selected monitoring wells shall be installed and sampled at least six (6) months prior to the removal of overburden. The downgradient wells shall be located as near to the active wet pit mining areas as is practical. The upgradient wells shall be located an adequate distance from the proposed mining area to ensure that the effect of the wet pit on water quality in the well would be negligible. The water samples from the wet pit shall be collected in a manner so as to ensure that they are representative of water quality within the wet pit. The minimum sampling schedule and required analyses are described below.

(a) Groundwater level and pit water surface level measurements shall be performed quarterly in all wells for the duration of mining and reclamation.
(b) For monitoring the groundwater quality of proposed wet pit mining, sample collection and analysis of physical, chemical, and biological constituents shall be conducted according to the following specifications:

    (1) Prior to the removal of overburden – one upgradient and one downgradient well shall be sampled at least six (6) months prior to the removal of overburden and again at the start of excavation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; total petroleum hydrocarbons (TPH) as diesel and motor oil, benzene, toluene, ethylbenzene, and xylenes (BTEX); pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation).
    (2) During wet pit mining and active reclamation – the wet pit shall be sampled semi-annually for the duration of mining and active reclamation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation).

        One upgradient and one downgradient well shall be analyzed, at minimum, for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). The wells shall be sampled according to the following schedule: semi-annually for the first two years, and annually every year thereafter.
    (3) After active reclamation – one (1) year after all heavy equipment work has been completed in the vicinity of the pit, the TPH and BTEX analyses may be discontinued. The wet pit and one upgradient and one downgradient well shall be sampled and analyzed for pH; temperature; nutrients (phosphorous and nitrogen); total dissolved solids; total coliform (with E. coli confirmation); and biological oxygen demand. This monitoring shall be conducted every two (2) years for a ten (10) year period after completion of reclamation.

A report to the Agency and Department of Environmental Health shall be submitted within thirty (30) days of the required groundwater testing.

Additional tests and analysis shall be required only if a new condition is recognized that may threaten water quality or if the results of previous tests fall outside allowable ranges. If at any time during the monitoring period, testing results indicate that sampling parameters exceed Maximum Contaminant Levels (MCLs), as reported in the California Code of Regulations, or established background levels, a qualified professional shall evaluate potential sources of the contaminants. The evaluation shall determine the source and process of migration (surface or subsurface) of the contaminants. A report shall be submitted to the regulatory agencies (the Agency, Yolo County Department of Environmental Health, the Central Valley Regional Water Quality Control Board, and the U.S. Environmental Protection Agency) which identified the source of the detected contaminants and specifies remedial actions to be implemented by the operator for corrective action. If it is determined that the source of water quality degradation is off-site, and the County and the RWQCB are in agreement with this conclusion, the operator shall not be responsible for corrective action.

If corrective action is ineffective or infeasible, the responsible party must provide reparation to affected well owners, either by treatment of water at the wellhead or by procurement of an alternate water supply.

If, at the completion of the mining and reclamation period, water quality has not been impacted, all monitoring wells shall be destroyed in accordance with the California Department of Water Resources Well Standards. If the County, landowner, or other agency wishes to maintain the wells for future water resources evaluation, selected wells may be preserved for this use. Monitoring wells may remain useful for post-mining land uses.

The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrologic reports related to monitoring.

Section 10-4.403 of the OCSMO provides the following requirements related to haul routes:

Section 10-4.419. Haul Routes

Trucks accessing a mining site to pick up a load, or leaving a mining site to deliver a load, are restricted to the approved/designated haul routes identified in the operator's permit which applies to the route taken from the mining site access/driveway to a state /federal highway. If a truck subsequently exists the state/federal highway while within Yolo County, this too may only occur on an approved/designate haul route. This applies to all truck trips serving the mining site, unless making a local delivery. Those portions of designated truck haul routes that include County-maintained roads shall be posted as such, in accordance with the Public Works Department, to facilitate law enforcement and public safety. Private truck haul routes or conveyors shall be used to transport material within the mining site, in order to reduce impacts to public roads.

Yolo County Environmental Health Department

Routine hazardous materials management in California is administered under the Certified Uniform Program Agency (CUPA) program. The CUPA program was established under California Senate Bill 1082 to reduce the cost and improve the efficiency of hazardous materials regulations. Yolo County's hazardous materials programs are administered and enforced by the YCEHD under the CUPA program. The CUPA program encompasses several hazardous materials programs: Hazardous Materials Management Plans (HMMP) program, California Accidental Release Prevention (CalARP) program, UST programs, aboveground storage tank (AST)



programs, and hazardous waste generation and disposal. YCEHD is regularly evaluated by Cal/EPA to ensure that the CUPA programs are being administered in accordance with State guidelines.

Hazardous Materials Business Plan

Consistent with the California Health and Safety Code regulations noted previously, businesses that store hazardous materials in excess of specified quantities must report their chemical inventories to the YCEHD by preparing a Hazardous Materials Business Plan. Approximately 1,200 facilities in Yolo County are required to file a Hazardous Materials Business Plan with YCEHD. This information informs the community on chemical use, storage, handling, and disposal practices, and is intended to provide essential information to fire fighters, health officials, planners, elected officials, workers, and their representatives to assist in planning for, and responding to, potential exposures to hazardous materials.

The Business Plan must:

- List all the hazardous materials stored at a site;
- Identify emergency response procedures for spills and personnel;
- Identify evacuation plans and procedures; and
- Identify training records for personnel to substantiate annual refresher training.

If hazardous materials are used or stored at a site, all employees are also required to receive hazard communication training. The purpose of the training is to ensure that employees understand the nature of the hazardous materials that they handle and can safely use, store, and dispose of the materials in accordance with Title 8 of the CCR. The hazard communication standard requires that employers must:

- Prepare an inventory of hazardous materials;
- Make Material Safety Data Sheets available to employees;
- Conduct employee training on chemical hazards and safe handling of materials; and
- Ensure that hazardous material containers are properly stored and labeled.

Inspections of businesses that store hazardous materials are performed by YCEHD. The hazard communication requirements are enforced by California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA).

The proposed project would qualify as a business storing and using hazardous materials. As such, the project would be subject to all of the regulations and laws described above.

4.7.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to hazards and hazardous materials. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A hazards and hazardous materials impact is considered significant if the proposed project would:

- Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires; and/or
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:
    - Substantially impair an adopted emergency response plan or emergency evacuation plan;
    - Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
    - Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
    - Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts related to hazards and hazardous materials.

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) determined that the implementation of the proposed project would have no impact or a less-than-significant impact related to the issue areas discussed below. Therefore, the impacts are not discussed further in this EIR.

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires;
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:
    - Substantially impair an adopted emergency response plan or emergency evacuation plan;
    - Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
    - Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
    - Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

As determined in the Initial Study (see Appendix A), the project site is not located within a Very High or High Fire Hazard Severity Zone (FHSZ). Fire protection services within the project area are provided by the Willow Oak Fire Protection District. The nearest fire station is located directly south of the project site at 18111 CR 94B. The proposed mining activities would reduce total amount of on-site combustible vegetation, thereby preventing fire risks at the nearby residential developments. Upon completion of mining operations, approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. Post-reclamation recreation, parkway, and passive open space uses could result in accidental fire associated with use of trails and open space, however access to dedicated properties will be improved over existing conditions and post-reclamation vegetation load would be improved through reclamation to native species as well as ongoing oversight and management.

Method of Analysis

Analysis of existing on-site conditions was based on information contained within the County's General Plan and the General Plan EIR, as well as site visits. Additional sources of information included the CCAP and the OCSMO. Where potentially significant impacts are identified, this EIR includes mitigation measures to reduce impacts to less-than-significant levels.

Site conditions and impacts for this chapter are based primarily on the Phase I and Limited Phase II ESAs conducted for the proposed project. The goal of a Phase I ESA is to identify whether RECs exist at a property. RECs are defined by ASTM as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. […]." The Phase I ESA was prepared in accordance with the requirements of the ASTM "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-05."

The Phase I ESA included a review of federal, State, and local environmental databases for information regarding documented and suspected releases of regulated materials within the project site vicinity based upon reference to an environmental database search performed by EDR, an environmental database search firm. In addition, the Phase I ESA included interviews of readily available persons knowledgeable about the site, a review of readily available maps and aerial photographs, and conducting a site visit. The site visit was conducted on June 4, 2007. Photographs of the site were taken during the site reconnaissance.

The Phase II investigation consisted of a geophysical investigation to locate buried objects such as USTs, wells and septic tanks, or any other anomalous objects that may be of potential concern, in the vicinity of the former ranch headquarters. The geophysical investigation was followed by a backhoe investigation where a series of backhoe test pits were excavated at the location of anomalies identified by the geophysical investigation and at several locations within the refuse piles to a maximum depth of the refuse encountered.

The geophysical investigation was conducted on August 6, 2007, and included use of a Geometrics 856 magnetometer to map a magnetic gradient across the area of investigation. Perturbations in the magnetic gradient (anomalies) are formed by buried metal objects that that produce magnetic anomalies with characteristic shapes and magnitudes. Prior to conducting the geophysical investigation, Teichert removed existing vegetation in the vicinity of the former ranch headquarters to provide open accessible areas to perform the investigation. Magnetic data was collected on a grid with data points recorded on 10-foot centers along lines spaced 10 feet apart. The results of the geophysical investigation are included in Appendix I.

The backhoe investigation was conducted on August 9, 2007 by NorCal Construction of Woodland, California. Backhoe test pits were excavated at locations designated by NCE. NCE personnel were present to observe and record conditions within the test pits. A total of 17 test pits were excavated, including six test pits at the locations of the five anomalies noted during the geophysical investigation. In addition, two test pits were also excavated at 11 locations within the refuse piles. Test pits were excavated to a maximum depth at which refuse was encountered. The results of the test pit observations are included in Appendix I.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to hazards and hazardous materials is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.7-1 Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials. The impact would be *less-than-significant*.

The proposed project would include permitting of the project site as an aggregate mine. Excavated material would be processed at the existing Teichert Woodland Plant facility (to the northeast of the site) which would be expanded to process proposed increased capacity. Upon completion of mining activities, the project site would be reclaimed to agricultural and open space uses. The proposed project would delay reclamation at the Woodland Plant until processing of aggregate from the project site is completed. Proposed mining, processing, and reclamation activities would involve

the use of heavy equipment, which would contain hydraulic fluid, fuels, and oils. The proposed project would require installation of a new water pipe running from the project site to the Woodland Plant, to be located alongside the existing conveyor belt alignment.

The applicant would be required to comply with the California Health and Safety Code and local regulations for the handling, storage, and transportation of hazardous and toxic materials. Pursuant to California Health and Safety Code Section 25510(a), except as provided in subdivision (b),[8] employees or other on-site authorized personnel shall, upon discovery, immediately report any release or threatened release of a hazardous material to the unified program agency (in the case of the proposed project, YCEHD). The employee/authorized personnel shall provide all State, City, or County fire or public health or safety personnel and emergency response personnel with access to the facilities. In the case of the proposed project, the mine operator would be required to notify the YCEHD in the event of an accidental release of a hazardous material, who would then monitor the conditions and recommend appropriate remediation measures.

The YCEHD has confirmed that the Teichert Woodland Plant is currently registered in the CUPA program for hazardous materials, hazardous waste, aboveground storage tanks, and waste tires, and would continue to be registered under the program with approval of the project. The YCEHD has not received reports of any prior substantial hazardous materials releases at the Woodland Plant.[9]

The proposed mining would generally be conducted with the same equipment, technology, and design consideration as utilized or permitted at the Teichert Esparto and Teichert Schwarzgruber operations. Topsoil or "overburden" would be removed and stockpiled. The marketable sand and gravel deposits below would be continuously loaded and hauled to the plant by conveyor. Removal of overburden on the project site would be accomplished using scrapers, motor graders and bull dozers. Overburden would be progressively removed ahead of mining and stockpiled in setback areas and internal storage locations until retrieved for reclamation. The top layers of topsoil would be placed in temporary berms and/or stockpiles and seeded with naturalized annual grasses and forbs. Aggregate above the groundwater level would be harvested by scrapers and dozers. Aggregate mined below the water table would be extracted by a combination of equipment such as excavators, draglines, and potentially a floating dredge. Water trucks would be used to control dust. After mining has ceased on the project site, all mining equipment would be removed from the site. Reclamation of the project site would occur as soon as feasible.

Canal operations and maintenance activities of the YCFCWCD that occur under existing conditions would continue after the proposed relocation of the Moore Canal and removal of a segment of the Magnolia Canal. During the summer irrigation season, the canal road is driven multiple times a day to deliver water, measure flows,

[8] Section 25510(b) states the following: "Subdivision (a) does not apply to a person engaged in the transportation of a hazardous material on a highway that is subject to, and in compliance with, the requirements of Sections 2453 and 23112.5 of the Vehicle Code."

[9] Moushumi Hasan. Personal Communication [email] with Stephanie Cormier, Principal Planner, Yolo County Department of Community Services. June 18, 2020.



check and adjust gates, inspect the canals and infrastructure, perform gate maintenance, control terrestrial and aquatic weeds, and maintain native habitat plantings. During winter, major maintenance occurs, such as removing silt with an excavator, and rebuilding roads, if needed, with bulldozers, dump trucks, backhoes, and graders. Erosion repairs and gate replacements also occur in the winter time. Culverts, bridge crossings, and drop structures also need periodic maintenance or replacement.

During winter rain storms, the canal system receives storm runoff, and the system must be patrolled to find and remove blockages. During non-storm periods in the winter, winter water from Cache Creek is placed (when available and by State permit), into the canals for groundwater recharge purposes.

Canal roads are also traveled for water quality sample collection, groundwater monitoring, access to other canal locations, and similar activities related to delivering water. Temporary storage of equipment and material will also occur along canal rights-of-way, along with burning of downed vegetation and woody debris, when permitted by air quality regulations. Encroachment permits are also sometimes granted for installation of private infrastructure, such as field drains and backwash disposal from pump station filters.

Generally, the proposed project would not produce substantial quantities of hazardous waste, and waste associated with the project would be handled in accordance with applicable federal, State, and local regulations. Hazardous materials used on-site would consist primarily of fuels and oils for operation of mining equipment, similar to what is currently used on the adjacent Woodland Plant site. Given that the project applicant has indicated that the proposed project would involve use or storage of hazardous materials on-site, the applicant would be required by the State to prepare a Hazardous Materials Business Plan, which would document the types and quantities of hazardous materials stored at the project site, along with detailed emergency planning and response procedures in the event of a hazardous materials release. The Hazardous Materials Business Plan must be submitted to the YCEHD prior to initiation of mining activities on the project site. Section 10-4.403 requires mine operators to notify the County of events such as fires, explosions, spills, land or slope failures, or other conditions at the site which could pose a hazard to life or property. Compliance with the requirements of Section 10-4.403 of the OCSMO would further reduce the potential for the proposed operations to result in hazards to the public or the environment.

Processing activities at the Woodland Plant include asphalt production and no change to capacity of this operation is proposed. As promoted by the CCAP and in compliance with job specifications, the plant includes recycling facilities for reuse of asphalt and concrete. Recycled material is inspected for content and quality and to ensure no hazardous materials are present. When material is brought in from jobsites, it is stockpiled in a designated area for crushing/processing, and crushed/processed for reuse. Asphalt remnant material from operating the asphalt plant is also returned to the recycling area for processing and reuse. The crushing and processing results in a marketable product called Recycled Asphalt Pavement (RAP). Each asphalt job includes specifications regarding allowable RAP. This can range from as low as zero to as high as 25 percent. For example, the City of Woodland allows 15 percent RAP



by weight for every job. Use of recycled material in this manner reduces the amount of previously unused raw rock material and asphalt oil (the binding agent in asphalt) needed for the job.

The Woodland Plant also accepts concrete material for recycling. This material is stockpiled and processed separately from the asphalt material, but in the same general recycling area. This material is not used in asphalt; it is used as recycled base rock material and replaces the need for previously unused raw aggregate base material. Thus, new hazards related to asphalt remnant disposal would not occur as a result of the project.

The potential for increases in mosquito populations, and resulting increases in vector-borne diseases, associated with the proposed reclaimed lake is addressed by the County through a standard condition of approval that requires the applicant to coordinate with the Sacramento-Yolo Mosquito and Vector Control District to identify and implement project-specific best management practices for mosquito reduction and control at the proposed reclaimed lake and elsewhere on the project site as appropriate. This condition will be applied to the project if approved.

Based on the above, the proposed project would not create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.7-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The impact would be *significant*.

The Phase I ESA discloses that the project site contains two existing water wells. The applicant proposes to fill and seal the domestic well, and retain the unused agricultural well as a groundwater monitoring well. The domestic well would require abandonment and destruction prior to initiation of mining activities associated with the proposed project in order to ensure that the well does not a pose a hazard to workers or the general public. In addition, the site contains one abandoned gas well. Consistent with DOGGR regulations, a permit would be obtained, the well would be cut off at the maximum depth of proposed excavation, and a cement plug would be placed at least 25 feet below the final elevation.[10] Subsequently, the casing would need to be cut off five to 10 feet below the final ground surface and a steel plate affixed to the top of the casing with the well identifier number welded onto the plate.

A limited Phase II ESA was conducted to evaluate potential hazardous materials associated with the former ranch headquarters within the project site. Within the test

[10] California Division of Oil, Gas, and Geothermal Resources. *Teichert Shifler Mining and Reclamation Project*. August 22, 2019.

pits, NCE did not note any signs of soil staining, odors, obvious signs of containers of agricultural chemicals, or visible sign of spilled chemicals. A deteriorated metal tank of undetermined use was found in one of the test pits; however, signs of soil staining or odors were not noted in the soils around the tank.

The Phase II ESA concluded that the potential exists for the project site to contain a septic tank associated with the former ranch headquarters. However, such a tank was not found as a result of the geophysical investigation or subsequent radar investigations. In addition, NCE concluded that improper disposal of materials has occurred in the vicinity of the former ranch headquarters. Given that the proposed project would include mining activities at the site of the former ranch headquarters, the potential exists for project workers to be exposed to potential hazards.

Per the *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (*CBIA*), the California Supreme Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future users. In those specific instances, it is the impact of the project on the environment – and not the impact of the environment on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions." (*Id.* at pp. 377-378.).

Given that the project would include mining activities in the vicinity of the existing on-site water and gas wells and the former ranch headquarters, the potential exists for the project to exacerbate existing hazards at the project site, thereby resulting in risks to the environment, project workers, or the general public. Therefore, this analysis assumes that the proposed project could result in a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment. As a result, a ***significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.7-2(a) *Prior to initiation of ground-disturbing activities within 50 feet of the domestic water well on the project site, the project applicant shall obtain a water well abandonment permit from the Yolo County Environmental Health Division (YCEHD), and coordinate with the YCEHD regarding procedures for abandonment of the on-site domestic water well.*

4.7-2(b) *Prior to initiation of ground-disturbing activities within 50 feet of the natural gas well on the project site, the project applicant shall submit a Notice of Intention (Form OG106) to the California Division of Oil, Gas, and Geothermal Resources (DOGGR) stating the applicant's intent to re-abandon the existing on-site gas well. Subsequent to acquisition of an approved gas well abandonment permit from DOGGR, the project applicant shall retain a licensed contractor to cut off the well at the*

maximum depth of the proposed excavation and install a cement plug at least 25 feet below the final proposed elevation of the well. Subsequently, the casing of the well shall be cut off five to 10 feet below the final ground surface and a steel plate affixed to the top of the casing with the well identifier number, indicated by the last five digits of the API well number, welded onto the plate. The location of the well shall be surveyed for future reference. The project applicant shall submit a copy of the approved well abandonment permit to the Yolo County Department of Community Services. Records of all re-abandonment activities shall be submitted to the Yolo County Department of Community Services and DOGGR.

4.7-2(c) *During removal of overburden associated with the proposed project, potentially hazardous materials identified in the vicinity of the former ranch headquarters on the project site, shall be removed from the site and disposed of in accordance with the following regulations and requirements:*

- *Hazardous materials identified on the project site shall be handled in accordance with Chapter 6.5, Division 20, of the California Health and Safety Code.*
- *Hazardous materials shall be disposed of at an approved disposal site and shall only be hauled by a current California registered hazardous waste hauler using correct manifesting procedures and vehicles displaying a current Certificate of Compliance. The project applicant shall identify by name and address the site where toxic substances shall be disposed of. Disposal shall be coordinated with the Yolo County Environmental Health Division, and the necessary applications shall be filed. The applicant shall provide CEHD with a valid certification from the approved disposal site that the material was delivered.*

The applicant shall notify the Yolo County Department of Community Services and the Yolo County Environmental Health Division when this measure has been fulfilled and provide supporting documentation.

4.7-3 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area. The impact would be *less than significant*.

The project site lies within airport safety zones identified in the Watts-Woodland Airport CLUP. As shown in Figure 10 of the CLUP (see Figure 4.7-4), the northwestern portion of the project site north of the current alignment of the Moore Canal lies within Safety Area 2 (Approach-Departure Zone), while the remainder of the project site lies within Safety Area 3 (Overflight Zone). It should be noted that non-aircraft related noise is discussed in Chapter 4.10, Noise, of this EIR.

The CLUP lists incompatible land uses within Safety Area 2 as residential development greater than five acres per residence and uses that would attract people, such as shopping centers, restaurants, schools, factories, hospitals, office complexes, stadiums, auditoriums, arenas, recreation facilities, or churches. For Safety Area 3, incompatible uses include any use that would result in large assemblies of people, such as hospitals, stadiums and arenas, auditoriums and concert halls, regional shopping centers, and jails and detention centers. The proposed project would not include any such uses.

The CLUP recognizes certain land uses as hazards to air navigation, including land uses that attract large concentrations of birds within approach-climbout areas.[11] Consequently, CLUP Policy 2.b.3 identifies such uses as incompatible within Safety Areas 1 and 2 (Clear and Approach-Departure Zones). Given that the proposed project would include future reclamation of a portion of the project site with a lake, the potential exists for the final reclamation of the project site to result in increased bird activity at the site. However, the proposed lake area is located outside of the designated boundaries for Safety Areas 1 and 2, as identified in Figure 9 and 10 of the CLUP (see Figure 4.7-3 and Figure 4.7-4 below). Therefore, the project would not create substantial safety hazards related to the creation of new bird habitat.

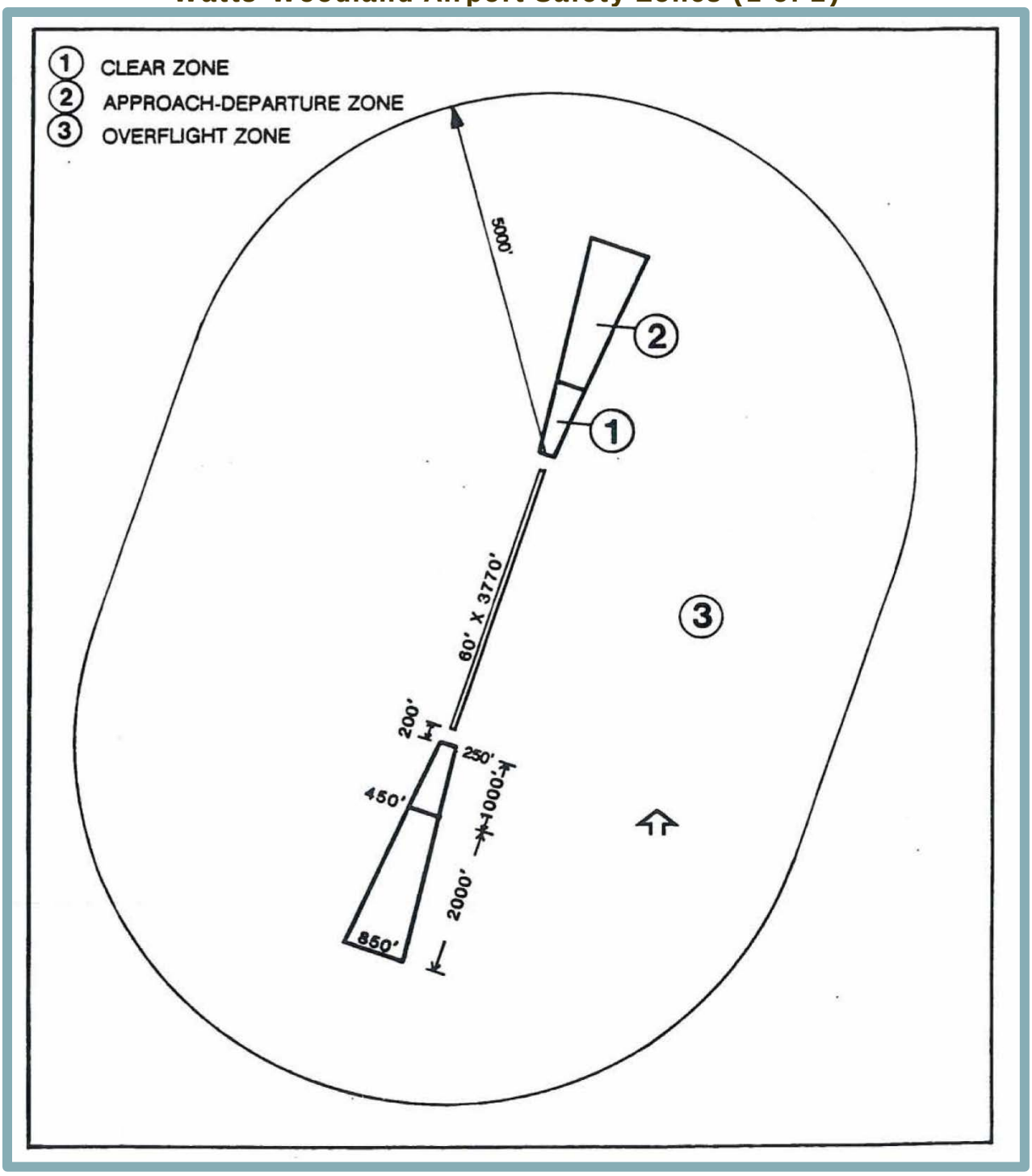
Based on the above, the proposed project would not create a safety hazard for people residing or working in the project area, resulting in a ***less-than-significant*** impact.

Mitigation Measure(s)

None required.

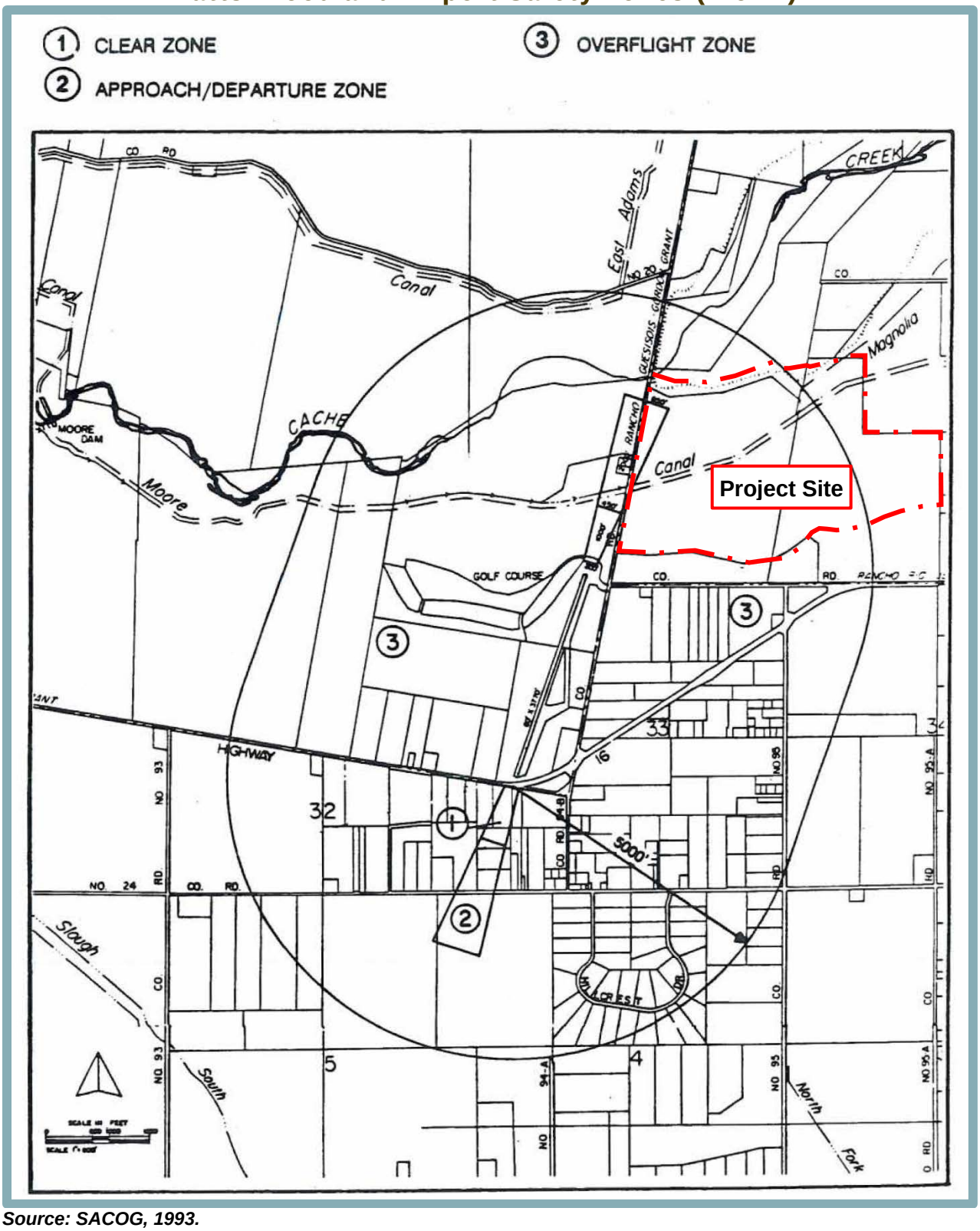
[11] Sacramento Area Council of Governments. *Watts-Woodland Airport, Comprehensive Land Use Plan* [pg. 19]. March 1993.

Figure 4.7-3
Watts-Woodland Airport Safety Zones (1 of 2)



Source: SACOG, 1993.

Figure 4.7-4
Watts-Woodland Airport Safety Zones (2 of 2)



Source: SACOG, 1993.

4.7-4 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The impact would be *less than significant*.

Within Yolo County, emergency planning is guided by the 2018 Yolo Operational Area Multi-Jurisdictional Hazard Mitigation Plan, which identifies measures to reduce the impacts of natural and manmade hazards and to facilitate the recovery and repair of structures if damage should occur from hazardous events. As noted previously, per the Yolo County Office of Emergency Services, the project site is located within Evacuation Zones 35 and 36. Within Zones 35 and 36, State Route 16 and County Road 20 are identified as evacuation routes. The nearest identified evacuation rally point is at the Willow Oak Fire Station, located at 18111 County Road 94B, to the southwest of the project site.

The proposed project would not include substantial modifications to the existing roadway system in the project area, including State Route 16 and County Road 20. While the project would add truck traffic to County Road 20, County Road 20 is a designated haul route. Thus, the project would not conflict with the 2018 Yolo Operational Area Multi-Jurisdictional Hazard Mitigation Plan or limit access to evacuation routes in the event of an emergency. Also, the equipment associated with the mining operation could be beneficial to the area in the event of an emergency

Consistent with Section 10-4.419 of the OCSMO, all haul truck traffic associated with the project would be limited to approved haul routes. Furthermore, as noted previously, the project would be required to include preparation of a project-specific Business Emergency Response Plan.

Therefore, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.7-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to hazards and hazardous materials. The impact would be *less than significant*.

Table 4.7-1 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to hazards and hazardous materials. It should be noted that consistency with other standards in the SMARA, the County Zoning Ordinance, and the SMRO that are specific to land use and planning issues are discussed in Chapter 4.9, Land Use and Planning, of this EIR. As shown in the table, the proposed project would be generally consistent with applicable standards

related to hazards and hazardous materials. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Table 4.7-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy HS-4.1 Minimize exposure to the harmful effects of hazardous materials and waste.	As discussed under Impact 4.7-1 above, per Chapter 6.95 of the California Health and Safety Code, the project applicant would be required to prepare and submit a Hazardous Materials Business Plan that would provide information to the local YCEHD regarding the types and quantities of hazardous materials stored at the project site, along with detailed emergency planning and response procedures in the event of a hazardous materials release. Such a plan would minimize exposure of hazardous materials and waste. Therefore, the project would be consistent with this policy.
Policy HS-4.3 Encourage the reduction of solid and hazardous wastes generated in the county.	The proposed project would be required to report chemical inventories to the YCEHD by preparing a Hazardous Materials Business Plan. The Hazardous Materials Business Plan would reduce generation of wastes to the extent feasible. Therefore, the project would be consistent with this policy.
Policy CO-2.15 Encourage the use of mosquito abatement methods that are compatible with protecting fish and wildlife, including native insect pollinators.	The County would include a Condition of Approval that requires the applicant to coordinate with the Sacramento-Yolo Mosquito and Vector Control District to identify and implement project-specific best management practices for mosquito reduction and control at the proposed reclaimed lake and elsewhere on the project site as appropriate. Thus, the proposed project would be consistent with this policy.
Off-Channel Mining Plan	
Action 2.4-2 Hazardous materials business plans (or equivalent) must be submitted annually, as required by the California Health and Safety Code, unless the types of hazardous materials used change, in which case revised business plans must be submitted within thirty (30) days of the change. (See Section 10-4.403 of the Mining Ordinance)	See OCSMO Section 10-4.403 below.
Off-Channel Surface Mining Ordinance	
Section 10-4.403 The operator shall immediately notify the Director of	The project operator would be required to submit a Hazardous Materials Business Plan, to the

(Continued on next page)

Table 4.7-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
any events such as fires, explosions, spills, land or slope failures, or other conditions at the site which could pose a hazard to life or property. Action shall be immediately undertaken to alleviate the hazard. The operator shall provide a written report of any such event, within thirty (30) days, which shall include, but not be limited to, a description of the facts of the event, the corrective measures used, and the steps taken to prevent a recurrence of the incident. Failure to provide this report shall initiate violation proceedings pursuant to Article 11. This condition does not supersede nor replace any requirement of any other governmental entity for reporting incidents.	YCEHD. As discussed previously, the Hazardous Materials Business Plan must include all of the following: • List all the hazardous materials stored at a site; • Identify emergency response procedures for spills and personnel; • Identify evacuation plans and procedures; and • Identify training records for personnel to substantiate annual refresher training. Submittal of a Hazardous Materials Business Plan to the YCEHD would ensure that the project would be consistent with OCSMO Section 10-4.403.
Section 10-4.415 All internal combustion engine driven equipment and vehicles shall be kept tuned according to the manufacturer's specifications and properly maintained to minimize the leakage of oils and fuel. No vehicles or equipment shall be left idling for a period of longer than is required by law, recommended by the Air District, or ten (10) minutes, whichever is shorter. Fueling and maintenance activities of heavy equipment (except draglines and floating suction dredges) are prohibited within one-hundred (100) feet of open bodies of water during mining and reclamation. All Storm Water Pollution Prevention Plans shall include provisions for releases of fuels during fueling activities for draglines and floating suction dredges.	Off-road equipment used during implementation of the proposed project would be required to comply with the In-Use Off-Road Diesel Vehicle Regulation, which includes restrictions on idling time as well as standards for reducing emissions from off-road equipment. One means of reducing emissions is to keep equipment tuned according to the manufacturer's specification. Furthermore, the proposed mining and reclamation activities would comply with OCSMO standards related to fueling and maintenance of equipment in the vicinity of the proposed mining pit. Thus, the project would comply with this regulation.
Section 10-4.417 All surface mining operations that propose off-channel excavations extending below the groundwater level shall develop and maintain a groundwater monitoring program consisting of two components: water level measurements and water quality testing. A groundwater level monitoring program shall be initiated at least six months prior to the removal of overburden. At a minimum, the groundwater level monitoring program shall consist of three monitoring wells, with at least one well upgradient of the wet pit and one well downgradient of the wet pit. Monitoring programs for proposed mining areas exceeding one-hundred (100) acres (total proposed mining area over the life of the	A condition of approval would be recommended to ensure that the proposed project would comply with all applicable groundwater monitoring and reporting requirements established by OCSMO Section 10-4.417. Therefore, the proposed project would comply with this regulation.

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Table 4.7-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
project) shall include one additional well for each one-hundred (100) acres of wet pit mining. Therefore, wet pit mining areas of 1 to 99 acres would require three (3) wells, 100 to 199 acres would require four (4) wells, 200 to 299 acres would require five (5) wells, and so on. These wells shall be distributed through the vicinity of the wet pit mining area and used for groundwater level measurements. Groundwater levels shall be collected from the monitoring wells on a quarterly basis for six (6) months prior to mining and for the duration of the mining period. All wellheads shall be surveyed with horizontal and vertical control to allow calculation of groundwater elevations and development of groundwater contour maps. Groundwater levels shall be measured with an accuracy of plus or minus 0.01 foot, at minimum. Water quality in the vicinity of each active wet pit mining location shall be evaluated by analyzing samples from selected monitoring wells (one upgradient and one downgradient) and wet pit surface water sampling locations. Since mining may be conducted in phases over a relatively long period of time, pit boundaries may change with time. Selection, and installation if necessary, of downgradient monitoring wells, which would be critical to adequately characterize the groundwater quality in the vicinity of the wet pits, shall be submitted by the operator for review and approval by the County. The selected monitoring wells shall be installed and sampled at least six (6) months prior to the removal of overburden. The downgradient wells shall be located as near to the active wet pit mining areas as is practical. The upgradient wells shall be located an adequate distance from the proposed mining area to ensure that the effect of the wet pit on water quality in the well would be negligible. The water samples from the wet pit shall be collected in a manner so as to ensure that they are representative of water quality within the wet pit. The minimum sampling schedule and required analyses are described below. (a) Groundwater level and pit water surface level measurements shall be performed quarterly in all wells for the duration of mining and reclamation. (b) For monitoring the groundwater quality of proposed wet pit mining, sample collection	

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Table 4.7-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
and analysis of physical, chemical, and biological constituents shall be conducted according to the following specifications: (1) Prior to the removal of overburden – one upgradient and one downgradient well shall be sampled at least six (6) months prior to the removal of overburden and again at the start of excavation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; total petroleum hydrocarbons (TPH) as diesel and motor oil, benzene, toluene, ethylbenzene, and xylenes (BTEX); pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). (2) During wet pit mining and active reclamation – the wet pit shall be sampled semi-annually for the duration of mining and active reclamation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). One upgradient and one downgradient well shall be analyzed, at minimum, for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). The wells shall be sampled according to the following schedule: semi-annually for the first two years, and annually every year thereafter. (3) After active reclamation – one (1) year after all heavy equipment work has been completed in the vicinity of the pit, the TPH and BTEX analyses may be discontinued. The wet pit and one upgradient and one downgradient well shall be sampled	

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Table 4.7-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
and analyzed for pH; temperature; nutrients (phosphorous and nitrogen); total dissolved solids; total coliform (with E. coli confirmation); and biological oxygen demand. This monitoring shall be conducted every two (2) years for a ten (10) year period after completion of reclamation. A report to the Agency and Department of Environmental Health shall be submitted within thirty (30) days of the required groundwater testing. Additional tests and analysis shall be required only if a new condition is recognized that may threaten water quality or if the results of previous tests fall outside allowable ranges. If at any time during the monitoring period, testing results indicate that sampling parameters exceed Maximum Contaminant Levels (MCLs), as reported in the California Code of Regulations, or established background levels, a qualified professional shall evaluate potential sources of the contaminants. The evaluation shall determine the source and process of migration (surface or subsurface) of the contaminants. A report shall be submitted to the regulatory agencies (the Agency, Yolo County Department of Environmental Health, the Central Valley Regional Water Quality Control Board, and the U.S. Environmental Protection Agency) which identified the source of the detected contaminants and specifies remedial actions to be implemented by the operator for corrective action. If it is determined that the source of water quality degradation is off-site, and the County and the RWQCB are in agreement with this conclusion, the operator shall not be responsible for corrective action. If corrective action is ineffective or infeasible, the responsible party must provide reparation to affected well owners, either by treatment of water at the wellhead or by procurement of an alternate water supply. If, at the completion of the mining and reclamation period, water quality has not been impacted, all monitoring wells shall be destroyed in accordance with the California Department of Water Resources Well Standards. If the County, landowner, or other	

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Table 4.7-1
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
agency wishes to maintain the wells for future water resources evaluation, selected wells may be preserved for this use. Monitoring wells may remain useful for post-mining land uses. The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrologic reports related to monitoring.	
Section 10-4.419 Trucks accessing a mining site to pick up a load, or leaving a mining site to deliver a load, are restricted to the approved/designated haul routes identified in the operator's permit which applies to the route taken from the mining site access/driveway to a state /federal highway. If a truck subsequently exists the state/federal highway while within Yolo County, this too may only occur on an approved/designate haul route. This applies to all truck trips serving the mining site, unless making a local delivery. Those portions of designated truck haul routes that include County-maintained roads shall be posted as such, in accordance with the Public Works Department, to facilitate law enforcement and public safety. Private truck haul routes or conveyors shall be used to transport material within the mining site, in order to reduce impacts to public roads.	The haul truck traffic associated with the proposed project would be restricted to the haul routes identified in Chapter 3, Project Description, of this EIR, which are currently in use for Teichert's neighboring mining operations. Therefore, the proposed project would be consistent with this regulation.
Surface Mining Reclamation Ordination	
None applicable.	

4.8 Hydrology and Water Quality

4.8. HYDROLOGY AND WATER QUALITY

4.8.1 INTRODUCTION

The Hydrology and Water Quality chapter of the EIR describes existing drainage patterns on the project site, including current stormwater flows and stormwater infrastructure. The chapter also evaluates potential impacts of the proposed project with respect to changes in on-site drainage patterns, degradation of water quality, changes in groundwater levels, and increases in on- and off-site flooding. Information used for this chapter was primarily drawn from the Yolo County General Plan,[1] the Yolo County General Plan EIR,[2] the Cache Creek Area Plan (CCAP) Update FEIR,[3] and the following: *Cache Creek Hydraulics Study* (Hydraulics Study) (Appendix J)[4] and *Cache Creek Channel Stability Analysis* (Channel Stability Analysis) prepared by Cunningham Engineering Corporation (CEC) (see Appendix J);[5] *Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations* (2016 Groundwater Study) prepared by Luhdorff & Scalmanini Consulting Engineers (LSCE) in February 2016;[6] supplemental analyses prepared by LSCE on December 9, 2019 (2019 Groundwater Memo)[7] and February 5, 2020 (2020 Groundwater Memo) (see Appendix K);[8] Slope Stability Evaluation prepared by Geocon Consultants, Inc. (Geocon) (see Appendix H);[9] and Technical memorandum prepared by Geocon regarding geology in the project area (Local Geology Memo) (see Appendix H).[10]

In response to the NOP, the County received comments related to Hydrology and Water Quality from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Existing issues with water supply and quality (Resident);
- Current concentrations of boron and arsenic in the water (Resident);
- Water quality impacts regarding the removal of the natural filtering system of topsoil, natural rocks, and minerals (Resident);

1 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
2 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*. April 2009.
3 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.
4 Cunningham Engineering Corporation. *Cache Creek Hydraulics Study for Shifler Mining Reach.* January 26, 2016.
5 Cunningham Engineering Corporation. *Shifler Off-Channel Mining and Reclamation Application Cache Creek Channel Stability Analysis.* Updated October 30, 2020.
6 Luhdorff & Scalmanini Consulting Engineers. *Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations, Shifler Property.* February 2016.
7 Luhdorff & Scalmanini Consulting Engineers. *Technical Memorandum, Groundwater Conditions in the Vicinity of Planned Wetpit Mining Operations, Shifler Property.* December 9, 2019.
8 Luhdorff & Scalmanini Consulting Engineers. *Technical Memorandum, Supplemental Analyses of Groundwater Conditions, Planned Mining and Reclamation Activities, Shifler Property, Woodland, Yolo County*. February 5, 2020.
9 Geocon Consultants, Inc. *Slope Stability Evaluation, Teichert Shifler Mining and Reclamation Project, Yolo County, California.* May 2016.
10 Geocon Consultants, Inc. *Technical Memorandum – Local Geology, Shifler Mining and Reclamation Project, Yolo County, California.* November 27, 2019.

- Potential impacts to the groundwater table (Resident);
- Potential impacts to water supply (Resident);
- Depth to the groundwater table following reclamation of the site (Resident);
- Potential impacts from the connectivity of the reclaimed lake and the active creek channel (Resident);
- Sand and other debris which could enter water wells during mining operations (Resident);
- Potential impacts to water supply in the event of a drought (Resident);
- Potential impacts to water flows from the Moore Canal relocation (Resident); and
- Potential impacts regarding the rising water levels of Cache Creek (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following terms are used throughout this chapter and have important bearing upon properly evaluating hydrology and water quality within the context of the CEQA. As a result, this section begins by providing definitions of key terms, as follows:

The Channel Form Template (CFT) is a conceptual channel configuration developed by the Technical Advisory Committee (TAC) to guide maintenance of, and improvements to, the Cache Creek channel.

The Hydrologic Engineering Center River Analysis System (HEC-RAS) is a computer program that models one-dimensional, steady state, gradually-varied water flow in order to compute water surface profiles.

MODFLOW is a computer program developed by the U.S. Geological Service that models three-dimensional groundwater flow.

4.8.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to hydrology and water quality.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and ornamental landscaping.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the Cache Creek Area Plan (CCAP) boundaries.

Yolo County has a Mediterranean climate characterized by hot, dry summers and temperate, wet winters.[11] Much of the precipitation received in Yolo County falls on the Vaca Mountains to the west of the County. The highest elevation in the County is Berryessa Peak which is 3,046 feet above sea level, the lowest elevation is approximately five feet above sea level near the Sacramento River on the eastern edge of the County. The average annual precipitation is 17 inches per year in the northeast portion of the County, increasing to 34 inches along the western edge of the County.

Description of Local Environment

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The sections below describe the surface water features, drainage patterns, groundwater levels, and water quality associated with the project area.

Surface Water

The primary surface water feature in the project area is Cache Creek, which is located north of the project site boundary. Cache Creek is the outfall of Clear Lake, which is located in Lake County, 50 miles northwest of Yolo County. The north fork of Cache Creek is dammed to create the 300,000-acre-foot Indian Valley Reservoir, also located in Lake County.

Several ditches were constructed to divert water from Cache Creek in the 1850's and 1860's, diversifying the agricultural base of the area.[12] Technological advances in water pumps during the 1880's led to widespread use of groundwater irrigation and the expansion of orchard crops, especially in the Capay Valley. As both surface irrigation and the groundwater pumping improved, agriculture intensified in areas previously dry farmed. Due to Cache Creek's unique hydraulic and

[11] Yolo County. *Yolo County General Plan Update Background Report.* January 2005.
[12] Yolo County. *Cache Creek Resources Management Plan (CCRMP) for Lower Cache Creek*. December 17, 2019.

geologic characteristics, the creek soon proved to be an important source of construction grade aggregate. In the early 1900s, in-channel mining expanded to meet the demand and several new gravel operators moved into the area. The amount of sand and gravel removed from the channel increased over time as demand increased with expanding development and population. In the late 1970s the County started examining better methods to regulate the industry. In 1996 the County adopted the CCAP.

Hydraulic Character of Lower Cache Creek

The project site lies between County Roads 94B and 96 in Yolo County, near the south bank of Cache Creek. The reach of Cache Creek abutting the project site, the Hoppin Reach, begins near County Road 94B (Creek Station 1123+95), and extends downstream (east) approximately 3,400 feet (Creek Station 1090+00). For the purposes of the project Hydraulic Study, the study area was assumed to begin just upstream of the County Road 94B bridge (at Creek Station 1144+30) and extend east to a point approximately 1,500 feet downstream of the existing Schwarzgruber mining site (Station 1000+00).

Surface water hydrology in Cache Creek is dependent on winter rainfall – although in some cases, releases from upstream dams can influence base flow in the creek, particularly during the summer irrigation season. Rainfall generally begins in December, and peaks in January and February. Depending on number and timing of storms, surface water flows begin to recede in late spring, although gaining reaches and pools will retain water into the summer. By fall, many segments of the creek are typically dry.

As summarized in the project Hydraulics Study, numerous hydrologic studies of Cache Creek have been performed over the years. In 1994, the U.S. Army Corps of Engineers (USACE) completed a reconnaissance level report titled Westside Tributaries to Yolo Bypass that established peak flow rates for the Capay Gauge located approximately 14 miles upstream of County Road 94B. The 100-year peak discharge was 63,500 cubic feet per second (cfs).

In previous hydraulic studies within Cache Creek, CEC conducted sensitivity analyses to determine the magnitude of change in the 100-year water surface elevation (WSE) using the range of flow rates presented by the USACE in a 2001 *City of Woodland and Vicinity Flood Reduction Study, F3 Milestone Conference Report*. A comparison of the two values presented for the Capay Gauge site (63,500 cfs for 1994 study versus 61,500 cfs for 2001 study) conducted by CEC showed that the modeled 100-year WSE is not substantially altered by variations in peak discharge rates on the order of 2,000 cfs.[13] Such flows are generally consistent with the most recent 2010 Flood Insurance Study (FIS) for the City of Woodland, which shows 100-year flows of approximately 63,700 cfs in the subject study reach. Thus, this EIR analysis uses a flow rate of 63,700 cfs, consistent with the CEC Hydraulics Study.

As part of the Hydraulic Study, the approximate surface water profile for the reach of Cache Creek in the project vicinity was evaluated to determine the 100-year WSE under existing channel conditions. Based on HEC-RAS modeling conducted as part of the Hydraulics Study, between station 1000+00 and 1030+00 of the existing channel boundary conditions, the 100-year WSE extends above the northern bank of the channel. However, within the subject mining reach, the 100-year discharge associated with Cache Creek will be contained within the high banks on the

[13] Cunningham Engineering Corporation. *Cache Creek Hydraulics Study for Shifler Mining Reach.* January 26, 2016.

south side of the creek channel. The modeled 100-year floodplain limits do not extend into the project site boundaries. In addition, recent modeling conducted by the California Department of Water Resources (DWR) indicates that the estimated 200-year and 500-year discharges will also stay within the creek's south bank along the project site reach.

Historical and Current Cache Creek Channel Characteristics

According to the Channel Stability Analysis prepared by CEC, based on U.S. Geological Service (USGS) historical topographic map data, the bank to bank geometry of Cache Creek has not changed significantly in the last century.

Interior to the banks, the geometry of the main channel tends to meander and shift after high-flow seasons; channel migration and sediment transport is apparent based on a review of aerial imagery dating back to 1993. High flow events during the 2016 storm season removed in-channel sediment and vegetation immediately downstream of the County Road 94B bridge. Based on a review of topographic data from 2010, 2015, and 2019 provided by Yolo County, CEC determined that approximately four to five vertical feet of sediment removal occurred in the central portion of the active channel during the 2016 winter flows. However, based on aerial photo review, negligible evidence of erosion of the south bank was noted resulting from the 2016 event, even though high volumes of water were documented to have flowed across the southern bank. Furthermore, the alignment of the southern bank has not changed significantly between the 2010 and 2019 topography, suggesting minimal erosion has occurred at the bank.

Based on the results of a November 1, 2019 site visit conducted by CEC, little to no evidence exists of erosion along the southern bank of Cache Creek in the project vicinity. The bank is 90 to 95 percent vegetated with mature trees, willows, shrubs, and grasses present, which increases the roughness coefficient of the stream in the flood stage, as well as assists with additional bank reinforcement and stabilization. Throughout the entire reach along the project site, the southern bank has a mid-slope terrace. The portion above the terrace is armored with an asphalt-like material that is likely part of fill material that was placed sometime in the past. The resistant bank material provides additional protection against erosion. Recent sediment deposition noted upon the mid-slope terrace bench is evidence that the flow velocities decrease once the WSE reaches the bench therein, quickly widening the overall creek cross section. Such widening further reduces the erosion potential on the southern bank.

According to the Local Geology Memo prepared by Geocon, the floodplain near-surface soil consists of "predominately fine sand and silt, which is indicative of lower-energy alluvial deposition." The upper bank consists of predominately a clay-rich "overburden material" with some slope armoring material. The active stream channel is underlain with a coarse granular material of sand and gravel which is associated with active stream channels.

Project Site Drainage

The topography of the project site slopes gently to the north towards Cache Creek. The ground surface is relatively flat. Existing surface elevations on the project site range from approximately 98 to 112 feet above mean sea level (MSL), with the proposed mining area elevations between approximately 103 and 112 feet above MSL. In addition, Moore Canal, a concrete-lined water conveyance structure, bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure that intersects the Moore Canal on the northeastern portion of the project site.

Currently, the project site contains minimal impervious surfaces. The site consists primarily of actively managed agricultural land. Thus, stormwater runoff is allowed to naturally infiltrate through the on-site soils and flow toward Cache Creek.

Groundwater

The project site is located within the Yolo Subbasin, which is a portion of the larger Sacramento Valley groundwater basin. Applicable regulations related to sustainable management of groundwater within the Yolo subbasin are discussed under the Regulatory Context section.

The following sections describe the current groundwater levels and direction of flow within the project area, based on the Groundwater Study prepared by LSCE. Additional information related to historic groundwater monitoring is described further below under the Method of Analysis section.

Shallow Groundwater Levels

Within the project region, historic groundwater conditions have varied at each of the Teichert Woodland properties. Shallow groundwater levels beneath the project site have been observed to fluctuate seasonally and over the long-term since monitoring on the site began in 1987. Groundwater levels in the Stephens water supply well, located to the west of the project site, were lowest during the 1987 to 1992 drought and highest during the 1993 to 1998 wet period and in 2006. Seasonal fluctuations varied from about 10 feet during the comparatively-stable hydrologic conditions observed since 1998, to as much as 15 feet during the 1993 to 1998 wet period and as little as four feet during the prolonged dry conditions in the early 1990s.

Beneath the nearby Muller, Storz, Haller, and Schwarzgruber properties, which are located east of the Plainfield Ridge, similar groundwater level fluctuations have been observed, both seasonally and over the long-term. Shallow monitoring and/or water supply wells on such properties completed in the uppermost aggregate materials have been monitored since as early as 1986. Groundwater levels beneath the Muller and Storz properties fluctuate such that the shallowest wells (Muller TA-11 and -13, Storz TA-7 and -8) repeatedly go dry during drought, shorter dry periods, and following each spring. The deeper monitoring well (TA-13A) shows long-term and seasonal groundwater level fluctuations similar to those beneath the project site, as indicated by the Stephens water supply well. Groundwater levels at the Haller and Schwarzgruber properties also fluctuate in a manner similar to those at the project site.

Further upstream and west of the Plainfield Ridge, the Coors property has had groundwater levels instead show a long-term stability with minor seasonal fluctuation, typically less than three feet. As discussed in further detail under the Groundwater Flow section below, groundwater generally flows from west-northwest to east-southeast, and groundwater beneath the Coors property is directed toward Cache Creek by the adjacent Dunnigan Hills and partially dammed behind the Plainfield Ridge. Such effects on groundwater levels extend as far east as the western-most portion of the Haller property at monitoring well TA-10, in which seasonal water level fluctuations are typically less than two feet.

Per the Groundwater Study, groundwater level fluctuations beneath the project site are similar to those in the surrounding areas where wells have been monitored by the YCFCWCD as far back as the 1950s.

Deep Groundwater Levels

Groundwater levels in existing deep-water supply wells in the project area exhibit a similar pattern of seasonal fluctuations in response to summer pumping for irrigation and subsequent winter recovery. Further, deep wells show similarities in long-term fluctuations with declines in drought or dry periods, apparently due to increased dependence on groundwater, and partial or full recovery during wet periods, likely due to greater availability of surface water deliveries from the YCFCWCD. Groundwater elevations in the deep wells are typically lower than those in shallow wells, and with greater seasonal fluctuation, as indicated by composite groundwater level hydrographs for the shallow Stephens well, which is 75 feet deep, and the deep Storz well, which is 168 feet deep.

Deep groundwater levels are significantly influenced by seasonal pumping conditions and not directly indicative of shallow groundwater conditions. Instead, shallow groundwater conditions are directly related to and affected by the direct recharge of streamflow and other surface waters, as well as the percolation of agricultural return flows, to the shallow aquifer. While the deep aquifer experiences significant seasonal water level fluctuations, on the order of 25 to 40 feet in some deep wells, the shallow aquifer levels have remained relatively stable, as its water levels generally respond quickly to streamflow and other surface activities but not directly to deep pumping.

Groundwater Flow

Contours of equal groundwater elevation (i.e., mapping of groundwater flow rate and direction) developed for spring 1986 indicate groundwater has historically flowed generally in an east-southeasterly direction, with some steepening of the gradient across the Plainfield Ridge area. By fall 1992, which comprised the sixth and last consecutive year of a prolonged drought period in the area, groundwater continued to flow in an east-southeasterly direction; however, groundwater elevations had declined in the western part of the area and were substantially lower in the eastern portion, including beneath the Shifler property. Following several years of above-average rainfall generally from 1993 through 1998, groundwater levels by spring 1998 had recovered to those observed in spring 1986.

Groundwater levels in spring 2006, another long-term high, were similar and even slightly higher than in spring 1998; groundwater flowed generally in an east-southeasterly direction with some steepening of the gradient across the Plainfield Ridge area. More recently, and following below-average rainfall during years 2007 and 2008, groundwater elevations by fall 2008 had declined substantially, including beneath the project site. However, groundwater continued to flow in an east-southeasterly direction and groundwater levels did not decline to the degree observed in fall 1992.

Summary of Project Area Groundwater Levels

Within the project site, groundwater levels fluctuate seasonally from 10 to more than 15 feet. Further, long-term water level fluctuations reflect the regional climatological conditions. Groundwater levels declined on the Shifler property to near historical lows during the prolonged drought from 1987 through 1992, then recovered to near historical highs during a subsequent prolonged wet period through 1998 on the order of 25 feet, to an elevation reaching almost 75 feet, NAVD88. Subsequently, water levels beneath the project site primarily showed minor individual-year fluctuations; however, groundwater levels exhibit overall relative stability at elevations well within the range of drought and wet year extremes, reflecting the pattern of local climatological conditions. Such variations included a sharp rise to the historical high in

groundwater levels during 2006 that corresponded to higher than average rainfall that year. Most recently, beginning in 2011, groundwater levels declined sharply to the historical low by fall 2014 with only minor recovery during 2015.

Groundwater levels in numerous area wells show long-term fluctuations similar to those observed in the Shifler property well, including declines during the 1987 to 92 drought, recovery during the 1993 to 98 wet period, relative stability during 1999 through 2008, and the sharp decline through 2014. Over the long term, groundwater levels in the Teichert Woodland Plant area have reflected regional climatological conditions, though not in direct response to incident precipitation. Rather, precipitation records are useful as a broad indicator of climatological conditions because the regional distribution of precipitation historically affects the amount and availability of water for storage and release from Clear Lake and Indian Valley Reservoir, both of which feed Cache Creek through the adjacent Capay Valley and across the Sacramento Valley. The availability of storage water in turn affects the availability of water for recharge from the creek to the aquifer system and for diversion by YCFCWCD from the creek to area farmers for irrigation purposes. The latter affects the amount of groundwater pumping required to meet remaining irrigation requirements, and the overall amounts of water recharged to and pumped from the aquifer system affect area groundwater levels in any given year and on a long-term basis.

Water Quality

The following sections describe existing water quality and groundwater quality in the project area.

Water Quality

Groundbreaking and clearing activities have the potential to cause erosion and sedimentation, which could cause unstabilized soil to be washed or wind-blown into nearby surface water. In addition, the use of heavy equipment during mining and reclamation activities, especially during rainfall events, have the potential to cause petroleum products and other pollutants to enter nearby drainages.

Cache Creek is known to be impaired by mercury originating from historic mining practices upstream. Boron, nitrogen, orthophosphate, and fecal coliforms are also elevated in Cache Creek and likely originate from agricultural sources in the watershed. The Cache Creek Resources Management Plan (CCRMP) water quality monitoring program has involved sampling in the creek since 1999, and few spatial or temporal trends are evident. The CCRMP water quality sampling program has identified Gordon Slough as a major contributor of many of the agriculturally-originating pollutants detected, most notably fecal coliforms and orthophosphate.

Groundwater Quality

As required under the CCAP and project conditions of approval, groundwater quality monitoring has been conducted on at least a semi-annual basis in selected shallow monitoring wells located up- and down-gradient from the Teichert Muller, Coors, Storz, Shifler (up-gradient only), and, most recently, Schwarzgruber properties. All wells sampled are immediately adjacent to, and well within 500 feet of, their respective mining properties, thus providing for the earliest detection of any groundwater quality impacts from mining. Groundwater samples are analyzed for general mineral and inorganic constituents, aromatic and petroleum hydrocarbons, pesticides, and coliform bacteria, as specified in the Yolo County Off-Channel Surface Mining Ordinance (OCSMO), Section 10-4.417, and implemented through Teichert's mining permit conditions.

The results of the groundwater and lake water sampling performed as part of the 2016 Groundwater Study conducted by LSCE indicate that general mineral and inorganic constituent concentrations do not limit the beneficial use of water. Furthermore, the results of analyses for organic compounds (aromatic and petroleum hydrocarbons, pesticides) indicate that water quality is not impaired. The full results of the groundwater quality monitoring are included in Appendix K to this EIR.

In addition to wells located at the Teichert properties in the project vicinity, two water production wells (Pintail well and Canvas Back well) are used to supply the Wild Wings subdivision to the southwest of the project site, as noted in LSCE's 2020 Groundwater Memo. Both wells are located outside of the County-specified radii of influence for model analyses (i.e., 1,000 and 500 feet from wet pit boundaries for water level and water quality concerns, respectively). Of the two wells, the Canvas Back well is located closest to the project site, at a distance of 1,150 feet from the limits of the proposed mining area. The well extends to a depth of 425 feet below ground surface (bgs) and the well screen resides between 364 to 415 feet bgs. Pintail well is significantly deeper than the Canvas Back well, with well screens extending from 935 to 992 and from 1,021 to 1,061 feet bgs. Both wells produce groundwater with total arsenic concentrations that have been gradually increasing, such that operation of the Canvas Back well ceased in 2019 due to concentrations exceeding arsenic's Maximum Contaminant Level (MCL) for regulated drinking water contaminants in California (10 µg/L). Arsenic concentrations in the Pintail well have been approaching, but remain below, the MCL.

4.8.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of hydrology and water quality under the CEQA process.

Federal Regulations

The following are the federal regulations relevant to hydrology and water quality.

Federal Clean Water Act

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

Nonpoint sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff, but is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements. However, two types of nonpoint source discharges are controlled by the NPDES program – nonpoint source discharge caused by general construction activities, and the general quality of stormwater in municipal stormwater systems. The 1987 amendments to the CWA directed the federal EPA to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by EPA that are not included in Phase I.

Section 402 of the CWA mandates that certain types of construction activities comply with the requirements of the NPDES stormwater program. The Phase II Rule, issued in 1999, requires that construction activities that disturb land equal to or greater than one acre require permitting under the NPDES program. In California, permitting occurs under the General Permit for Stormwater Discharges Associated with Construction Activity, issued to the State Water Resources Control Board (SWRCB), implemented and enforced by the nine Regional Water Quality Control Boards (RWQCBs).

As of July 1, 2015, covered industrial facilities, including mineral mining operations, are required to obtain compliance under NPDES Industrial General Permit Order 2014-0057-DWQ. The Industrial General Permit requires all dischargers to take the following measures:

1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to include a site map(s) of existing and proposed building and roadway footprints, drainage patterns and stormwater collection and discharge points, and pre- and post- project topography;
2. Describe types and placement of Best Management Practices (BMPs) in the SWPPP that will be used to protect stormwater quality;
3. Provide a visual and chemical (if non-visible pollutants are expected) monitoring program for implementation upon BMP failure; and
4. Provide a sediment monitoring plan if the area discharges directly to a water body listed on the 303(d) list for sediment.

To obtain coverage, a SWPPP must be submitted to the RWQCB electronically and a copy of the SWPPP must be submitted to Yolo County. When ground-disturbing activity is completed, the landowner must file a Notice of Termination (NOT).

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). The FIRMs identify the locations of special flood hazard areas, including the 100-year floodplains.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within flood hazard areas, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). These standards are implemented at the State level through construction codes and local ordinances; however, these regulations only apply to residential and non-residential structure improvements. Although roadway construction or modification is not explicitly addressed in the FEMA regulations, the California Department of Transportation (Caltrans) has also adopted criteria and standards for roadway drainage systems and projects situated within designated floodplains. Standards that apply to floodplain issues are based on federal regulations (Title 23, Part 650 of the CFR). At the State level, roadway design must comply with drainage standards included in Chapters 800-890 of the Caltrans Highway Design Manual. CFR Section 60.3(c)(10) restricts cumulative development from increasing the WSE of the base flood by more than one foot within the floodplain.

State Regulations

The following are the State regulations relevant to hydrology and water quality.

Surface Mining and Reclamation Act

Acceptable practices and performance standards have been developed as part of the Surface Mining and Reclamation Act (SMARA) while providing protection to wildlife and the successful revegetation of mined lands. Per Section 2712 (b), "The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment." The relationship of the SMARA to the Cache Creek Area Plan (CCAP) is discussed in Section 1.3 of the OCMP. For more detail, see Chapter 4.9, Land Use and Planning, of this EIR.

State Water Resources Control Board

The SWRCB and the RWQCBs are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. The project site is situated within the jurisdictional boundaries of the Central Valley RWQCB (CVRWQCB) (Region 5). The CVRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within their jurisdiction.

Central Valley Regional Water Quality Control Board

As authorized by the Porter-Cologne Water Quality Control Act, the CVRWQCB's primary function is to protect the quality of the waters within its jurisdiction for all beneficial uses. State law defines beneficial uses of California's waters that may be protected against quality degradation to include, but not be limited to: domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

The CVRWQCB implements water quality protection measures by formulating and adopting water quality control plans (referred to as basin plans, as discussed below) for specific groundwater and surface water basins, and by prescribing and enforcing requirements on all agricultural, domestic, and industrial waste discharges. The CVRWQCB oversees many programs to support and provide benefit to water quality, including the following major programs: Agricultural Regulatory; Above-Ground Tanks; Basin Planning; CALFED; Confined Animal Facilities; Landfills and Mining; Non-Point Source; Spills, Leaks, Investigations, and Cleanups (SLIC); Stormwater; Total Maximum Daily Load (TMDL); Underground Storage Tanks (UST), Wastewater Discharges (including the NPDES); Water Quality Certification; and Watershed Management.

The CVRWQCB is responsible for issuing permits for a number of varying activities. Activities subject to the CVRWQCB permitting requirements include stormwater, wastewater, and industrial water discharge, disturbance of wetlands, and dewatering. Permits issued and/or enforced by the CVRWQCB include, but are not limited to, the NPDES Construction General Permit, NPDES Municipal Stormwater Permits, Industrial General Permits, Clean Water Act Section 401 and 404 Permits, and Dewatering Permits.

Basin Plans and Water Quality Objectives

The Porter-Cologne Water Quality Control Act provides for the development and periodic review of water quality control plans (basin plans) that are prepared by the regional water quality control boards. Basin plans designate beneficial uses of California's major rivers and groundwater basins, and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are primarily implemented through the NPDES permitting system and by issuing waste discharge regulations to ensure that water quality objectives are met.

Basin plans provide the technical basis for determining waste discharge requirements and taking regulatory enforcement actions if deemed necessary. The project site is located within the jurisdiction of the CVRWQCB. A basin plan has been adopted for the Sacramento and San Joaquin River Basin (Basin Plan), which covers all of the project area.

The Basin Plan sets water quality objectives for the surface waters in its region for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, radioactivity, salinity, sediment, settleable material, suspended material, taste and odor, temperature, toxicity, turbidity, and pesticides. For groundwater, water quality objectives applicable to all groundwater have been set for bacteria, chemical constituents, radioactivity, taste, odors, and toxicity.

Sustainable Groundwater Management Act

The DWR has developed a Strategic Plan for its Sustainable Groundwater Management (SGM) Program. DWR's SGM Program will implement the new and expanded responsibilities identified in the 2014 Sustainable Groundwater Management Act (SGMA). The expanded responsibilities include the following:

1) Developing regulations to revise groundwater basin boundaries;
2) Adopting regulations for evaluating and implementing Groundwater Sustainability Plans (GSPs) and coordination agreements;
3) Identifying basins subject to critical conditions of overdraft;
4) Identifying water available for groundwater replenishment; and
5) Publishing best management practices for the sustainable management of groundwater.

The SGMA applies to the 127 High and Medium Priority groundwater basins, which account for approximately 96 percent of groundwater use in California. The Yolo subbasin is designated as High Priority under the SGMA. The SGMA requires High and Medium Priority basins under the California Statewide Groundwater Elevation Monitoring (CASGEM) program subject to critical conditions of overdraft to be managed under a groundwater sustainability plan by January 31, 2020 (Water Code § 10720.7(a) (1)), and requires all other groundwater basins designated as High or Medium Priority basins to be managed under a groundwater sustainability plan by January 31, 2022 (Water Code § 10720.7 (a) (2)). According to Bulletin 118[14] and the Urban Water Management Plan (UWMP)[15], the Yolo subbasin is not subject to critical conditions of overdraft.

[14] Department of Water Resources. *Bulletin 118* [pg. 98]. 2003.
[15] City of Davis. *Final 2015 Urban Water Management Plan.* June 2016.

The SGMA requires the formation of local groundwater sustainability agencies (GSAs) that must assess conditions in their local water basins and adopt locally-based management plans. The SGMA provides substantial time (20 years) for GSAs to implement plans and achieve long-term groundwater sustainability. The SGMA protects existing surface water and groundwater rights and does not impact current drought response measures. Yolo County has partnered with various other local agencies to form the Yolo Subbasin Groundwater Agency (YSGA), which is currently in the process of preparing the Yolo Subbasin Groundwater Sustainability Plan in compliance with the SGMA.[16]

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The following goals and policies from the Yolo County General Plan related to hydrology and water quality are applicable to the proposed project:

Policy CO-2.31 Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.

Policy CO-5.14 Require that proposals to convert land to uses other than agriculture, open space, or habitat demonstrate that groundwater recharge will not be significantly diminished.

Action CO-A94 Adopt development design standards that use low-impact development techniques that emulate the natural hydrologic regime and reduce the amount of runoff and associated pollutants. Examples include vegetated swales, landscaped detention basins, permeable paving, and green roofs.

Action CO-A97 Continue to monitor water quality in Lower Cache Creek and annually make the resulting data publicly available.

Goal HS-2 Flood Hazards. Protect the public and reduce damage to property from flood hazards.

Policy HS-2.7 Manage the floodplain to improve the reliability and quality of water supplies.

Action HS-A5 Require a minimum of 100-year flood protection for new construction, and strive to

[16] Yolo Subbasin Groundwater Agency. *Yolo Subbasin Groundwater Sustainability Plan.* Available at: https://yologroundwater.org/index.php/yolo-subbasin-groundwater-sustainability-plan/. Accessed July 2019.

achieve 200-year flood protection for unincorporated communities. Where such levels of protection are not provided, require new development to adhere to the requirements of State law and the County Flood Damage Prevention Ordinance. (Policy HS-2.1)

Action HS-A13 Review development proposals to ensure that the need to maintain flood control capacity is balanced with consideration of the environmental health of watercourses that convey floodwaters so as not to cause significant erosion, sedimentation, water quality problems, or loss of habitat. (Policy HS-2.1)

Off-Channel Mining Plan

The following policies from the adopted Yolo County Off-Channel Mining Plan (OCMP) related to hydrology and water quality are applicable to the proposed project:

Goal 3.2-1 Promote the conjunctive use of surface and groundwater to maximize the availability of water for a range of uses, including habitat, recreation, agriculture, water storage, flood control, and urban development.

Goal 3.2-2 Maintain the quality of surface and groundwater so that nearby agricultural productivity and available drinking water supplies are not diminished.

Action 3.2-5. Require that surface mining operations demonstrate that proposed off-channel excavations extending below the groundwater level will not adversely affect the producing capacity or water quality of local active wells.

Action 3.4-3. Include a groundwater monitoring program as a condition of approval for any surface mining and reclamation operation that proposes off-channel excavations that extend below the groundwater level. The monitoring program shall require regular groundwater level data, as well as a water quality monitoring program based on a set of developed standards.

Goal 4.2-1 Recognize that Cache Creek is a dynamic stream system that naturally undergoes gradual and sometimes sudden changes during high flow events.

Goal 4.2-2 Coordinate land uses and improvements along Cache Creek so that the adverse effects of flooding and erosion are minimized.

Goal 4.2-3 Establish a more natural channel floodway capable of conveying floodwaters without damaging essential structures, causing excessive erosion, or adversely affecting adjoining land uses.

Action 4.4-4. Manage activities and development within the floodplain to avoid hazards and adverse impacts on surrounding properties. This shall be accomplished through enforcement of the County Flood Damage Ordinance and ensuring that new development complies with the requirements of the State Reclamation Board.

Action 4.4-5. Allow for the design of spillways or other engineered features that provide controlled flooding of off-channel mining pits during events which exceed the 100-year flood.

Off-Channel Surface Mining Ordinance

Section 10-4.421 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding dewatering activities:

Section 10-4.412. Dewatering

"Dewatering" shall mean lowering the water level in a wet pit by pumping water from the pit, regardless of the purpose of the pumping. Water generated from dewatering activities must be beneficially used and discharged on-site. Pumps systems used to dewater the wet pits shall be powered by electricity (i.e., through connection to power lines) or solar power. This ordinance does not permit water generated from dewatering activities to be used or discharged off-site. No off-channel excavation shall use dewatering as a part of surface mining operations, unless site-specific technical analysis performed by a qualified Professional Engineer or Professional Geologist with experience in hydrogeology demonstrates that the proposed dewatering will not adversely affect off-site wells with respect to groundwater level and quality. The Professional Engineer or Professional Geologist shall demonstrate, using appropriate hydrogeologic analysis (i.e., using data-supported empirical, analytical, and/or numerical investigative tools), that the proposed dewatering activity will not adversely impact active off-site wells or other water resources (e.g., creeks and wetlands) within 1,000 feet of the proposed dewatering pit boundary. Average historic low groundwater levels in the subject well, shall be used for the analysis. Site-specific aquifer testing shall be conducted, if needed, to determine aquifer properties for the analysis. Consistent with the OCMP EIR, an effect shall be considered adverse if the reduction in simulated groundwater levels exceeds two (2) feet at any well located within 1,000 feet of the pit boundary or results in well failure.

The hydrogeologic analysis shall be submitted to the County for review and approval prior to implementation of any dewatering activities. If an adverse impact is identified by the analysis (either impacts to existing wells or other water resources, including creeks and wetlands), dewatering activities will be modified to eliminate any adverse impacts, and/or the applicant shall otherwise mitigate adverse impacts to the satisfaction of the County.

Approval to dewater requires Planning Commission approval pursuant to 10-4.506 and 10-4.602.

Prior to and for the duration of dewatering activities, the applicant shall: 1) monitor water levels in the wet pit(s), and nearby monitoring wells on a quarterly basis; and 2) quantify the amount of water pumped from and returned to the wet pit(s). This monitoring data shall



be reviewed by the applicant's Professional Engineer or Professional Geologist to determine whether any adverse impacts are occurring. Documentation of the monitoring and data evaluation shall be submitted the County annually. If adverse impacts are found to be occurring, dewatering activities will be modified to eliminate adverse impacts, or the applicant shall otherwise mitigate impacts to the satisfaction of the County. Any measures designed to mitigate adverse impacts identified after implementation of dewatering activities shall be approved by the Planning Commission at a regularly scheduled meeting, with written notice of the adverse impact and proposed mitigation measures given by mail to all property owners within 1,000 feet of the pit boundary, in addition to any notice otherwise required by law.

For purposes of this section, mitigation measures of adverse impacts may include, but are not limited to well modification, well relocation, compensation of well owners for increased pumping cost, or providing an alternative water supply. Such mitigation measures shall be paid for by the mining operator, with sufficient financial security to ensure completion of the measures.

Pumping of water from the wet pit in lieu of pumping of groundwater from a well shall not require predictive impact analysis in addition to analysis provided in the approved, site-specific CEQA document, unless the total annual water demand, as set forth in the CEQA document, is exceeded. This does not remove the requirement for monitoring and reporting activities described above.

Section 10-4.413 of the OCSMO states the following regarding drainage standards:

Section 10-4.413. Drainage

Surface water may be allowed to enter mined areas, through either perimeter berms or ditches and grading, when designed and engineered pursuant to an approved reclamation plan and where effective best management practices (BMPs) to trap sediment and prohibit contamination are included. Appropriate erosion control measures shall be incorporated into all surface water drainage systems. Stormwater drainage systems shall be designed to connect with natural drainages so as to prevent flooding on surrounding properties and County rights-of-way. Storm water runoff from mining areas shall be conveyed to lowered areas (detention basins) to provide detention of runoff generated during a 20-year, one-hour storm event. All drainage conveyance channels or pipes (including spillways for detention areas) shall be designed to ensure positive drainage and minimize erosion. The drainage conveyance system and storm water detention areas shall be designed and maintained in accordance with Best Management Practices for the reduction of pollutants associated with runoff from mined areas. The design and maintenance procedures shall be documented in the Storm Water Pollution Prevention Plan required for mining operations. The drainage system shall be inspected annually by a Registered Civil Engineer, Registered Geologist, or Certified Erosion and Sediment Control Specialist to ensure that the drainage system is functioning effectively and that adverse erosion and sedimentation are not occurring. The annual inspection shall be documented in the Annual Mining and Reclamation Report. If the system is found to be functioning ineffectively, the operator shall promptly implement the recommendations of the engineer.

Section 10-4.416 of the OCSMO states the following regarding flood protection standards:

Section 10-4.416. Flood Protection

All off-channel surface mining operations shall be provided with a minimum one-hundred (100) year flood protection. Off-channel excavations shall be designed to minimize the

potential for levee breaching and/or pit capture. In addition, excavations shall be designed to prevent overtopping of channel banks or levees along Cache Creek and all tributaries and drainage channels (including, but not limited to, Willow Slough and Lamb Valley Slough).

The flood protection upgrades shall be designed and constructed to provide the necessary 100-year protection without creating a net increase of in upstream or downstream flooding elevations. Upstream flooding could be increased if additional levee construction serves to confine flows to a narrow width, thereby increasing the water surface elevation. Downstream flooding could be increased if floodplain storage areas were removed from the drainage system by constructing levees in areas where they did not exist before (or raising levees that are overtopped in floods up to the 100-year event). Where feasible, alternative or non-structural flood management designs (potentially using detention basins, infiltration galleries, and/or floodplain storage in noncritical areas) shall be incorporated. New development (such as buildings, levees, or dikes) located within the floodplain shall conform to all applicable requirements of the Yolo County Flood Protection Ordinance and the Federal Emergency Management Agency (FEMA).

Section 10-4.417 of the OCSMO states the following regarding groundwater monitoring requirements:

Section 10-4.417. Groundwater Monitoring Programs

All surface mining operations that propose off-channel excavations extending below the groundwater level shall develop and maintain a groundwater monitoring program consisting of two components: water level measurements and water quality testing. A groundwater level monitoring program shall be initiated at least six months prior to the removal of overburden. At a minimum, the groundwater level monitoring program shall consist of three monitoring wells, with at least one well upgradient of the wet pit and one well downgradient of the wet pit. Monitoring programs for proposed mining areas exceeding one-hundred (100) acres (total proposed mining area over the life of the project) shall include one additional well for each one-hundred (100) acres of wet pit mining. Therefore, wet pit mining areas of 1 to 99 acres would require three (3) wells, 100 to 199 acres would require four (4) wells, 200 to 299 acres would require five (5) wells, and so on. These wells shall be distributed through the vicinity of the wet pit mining area and used for groundwater level measurements. Groundwater levels shall be collected from the monitoring wells on a quarterly basis for six (6) months prior to mining and for the duration of the mining period. All wellheads shall be surveyed with horizontal and vertical control to allow calculation of groundwater elevations and development of groundwater contour maps. Groundwater levels shall be measured with an accuracy of plus or minus 0.01 foot, at minimum.

Water quality in the vicinity of each active wet pit mining location shall be evaluated by analyzing samples from selected monitoring wells (one upgradient and one downgradient) and wet pit surface water sampling locations. Since mining may be conducted in phases over a relatively long period of time, pit boundaries may change with time. Selection, and installation if necessary, of downgradient monitoring wells, which would be critical to adequately characterize the groundwater quality in the vicinity of the wet pits, shall be submitted by the operator for review and approval by the County. The selected monitoring wells shall be installed and sampled at least six (6) months prior to the removal of overburden. The downgradient wells shall be located as near to the active wet pit mining areas as is practical. The upgradient wells shall be located an adequate distance from the proposed mining area to ensure that the effect of the wet pit on water quality in the well would be negligible. The water samples from the wet pit shall be collected in a manner so

as to ensure that they are representative of water quality within the wet pit. The minimum sampling schedule and required analyses are described below.

(a) Groundwater level and pit water surface level measurements shall be performed quarterly in all wells for the duration of mining and reclamation.
(b) For monitoring the groundwater quality of proposed wet pit mining, sample collection and analysis of physical, chemical, and biological constituents shall be conducted according to the following specifications:

(1) Prior to the removal of overburden – one upgradient and one downgradient well shall be sampled at least six (6) months prior to the removal of overburden and again at the start of excavation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; total petroleum hydrocarbons (TPH) as diesel and motor oil, benzene, toluene, ethylbenzene, and xylenes (BTEX); pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation).
(2) During wet pit mining and active reclamation – the wet pit shall be sampled semi-annually for the duration of mining and active reclamation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation).

One upgradient and one downgradient well shall be analyzed, at minimum, for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). The wells shall be sampled according to the following schedule: semi-annually for the first two years, and annually every year thereafter.
(3) After active reclamation – one (1) year after all heavy equipment work has been completed in the vicinity of the pit, the TPH and BTEX analyses may be discontinued. The wet pit and one upgradient and one downgradient well shall be sampled and analyzed for pH; temperature; nutrients (phosphorous and nitrogen); total dissolved solids; total coliform (with E. coli confirmation); and biological oxygen demand. This monitoring shall be conducted every two (2) years for a ten (10) year period after completion of reclamation.

A report to the Agency and Department of Environmental Health shall be submitted within thirty (30) days of the required groundwater testing.

Additional tests and analysis shall be required only if a new condition is recognized that may threaten water quality or if the results of previous tests fall outside allowable ranges. If at any time during the monitoring period, testing results indicate that sampling parameters exceed Maximum Contaminant Levels (MCLs), as reported in the California Code of Regulations, or established background levels, a qualified professional shall evaluate potential sources of the contaminants. The evaluation shall determine the source and process of migration (surface or subsurface) of the contaminants. A report shall be submitted to the regulatory agencies (the Agency, Yolo County Department of Environmental Health, the Central Valley Regional Water Quality Control Board, and the U.S. Environmental Protection Agency) which identified the source of the detected contaminants and specifies remedial actions to be implemented by the operator for corrective action. If it is determined that the source of water quality degradation is off-site,

and the County and the RWQCB are in agreement with this conclusion, the operator shall not be responsible for corrective action.

If corrective action is ineffective or infeasible, the responsible party must provide reparation to affected well owners, either by treatment of water at the wellhead or by procurement of an alternate water supply.

If, at the completion of the mining and reclamation period, water quality has not been impacted, all monitoring wells shall be destroyed in accordance with the California Department of Water Resources Well Standards. If the County, landowner, or other agency wishes to maintain the wells for future water resources evaluation, selected wells may be preserved for this use. Monitoring wells may remain useful for post-mining land uses.

The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrologic reports related to monitoring.

Section 10-4.420.1 of the OCSMO states the following regarding mercury levels:

> Section 10-4.420.1. Mercury Bioaccumulation in Fish
> Each mining area to be reclaimed to a permanent lake as part of each approved long-range mining plan shall be evaluated annually by the operator for five years after the pit fills with groundwater with an intensive fish mercury monitoring program described in Section 10-5.517 of the Reclamation Ordinance.

Section 10-4.427 of the OCSMO states the following regarding well water quality:

> Section 10-4.427. Protection of Nearby Drinking Water Wells
> If any off-channel excavation proposes to extend below the level of seasonal high groundwater, then six months prior to the commencement of excavation below the average high groundwater level, the operator shall identify and locate all off-site municipal wells within one-thousand (1,000) feet and all domestic wells within five hundred (500) feet of the proposed wet pit mining boundary. If active wells are identified, well characteristics (pumping rate, depth, and locations of screens) shall be determined. If wells are not located within one-thousand (1,000) feet, the pre-mining impact evaluation shall be considered complete.
>
> If wet pit mining is proposed within one-thousand (1,000) feet of a municipal water supply or within five-hundred (500) feet of a domestic water supply well, a capture zone analysis shall be conducted using the U.S. Environmental Protection Agency model WHPA (or a similar model of equal capability and proven reliability, as approved by the Director). The simulation shall assume thirty (30) days of continuous pumping of the water supply well (at its maximum probable yield) under analysis. A mining setback shall be established so that the capture zone and the pit do not coincide. Alternatively, the operator shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County). The analysis shall be prepared and signed by a Registered Civil Engineer or Certified Hydrogeologist and submitted to the County for review and approved at least six months prior to the commencement of excavation below the seasonal high groundwater level.
>
> Any new drinking water wells proposed for installation within one-thousand (1,000) feet of an approved wet pit mining area shall be subject to review by the Yolo County Environmental Health Department. The County shall determine, based on site-specific



hydrogeology and available water quality data, whether to approve the proposed well installation. Analysis of environmental impact for projects in the vicinity of the wet pits shall include consideration of potential water quality impacts on the open water bodies.

The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrogeologic reports related to mining applications.

Section 10-4.429 of the OCSMO states the following regarding minimum setback standards:

Sec. 10-4.429. Setbacks

All off-channel surface mining operations shall comply with the following setbacks:

(a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented;

(b) Soil stockpiles shall be located a minimum of five-hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented;

(c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place.

(d) Off-channel excavations shall provide a minimum 50-foot setback from the neighboring property line to allow for access around the pit during mining and after reclamation for maintenance, safety, and other purposes.

(e) Proposed off-channel excavations located within the streamway influence zone shall be set back a minimum of seven-hundred (700) feet from the existing channel bank, unless it is demonstrated that a smaller distance will not adversely affect channel stability. Under no circumstances should off-channel excavations be located within 200 feet of the existing channel bank. Evaluations of proposed off-channel excavations within 700 feet of the channel bank shall demonstrate, at a minimum, the following:

    (1) The two-hundred (200) foot setback area does not include portions of the historically active channel.
    (2) The two-hundred (200) foot setback area does not include formerly mined lands separated from the active channel by levees or unmined areas less

than two-hundred (200) feet wide (measured perpendicular to the active channel).

(3) Acceptable channel hydraulic conditions (based on existing or site-specific hydraulic models) for the Cache Creek channel adjacent to the site and extending not less than one-thousand (1,000) feet upstream and downstream of the site.

(4) Acceptable level of erosion potential of the channel bank adjacent to the site based on predicted stream flow velocity and shear stress on bank materials during a 100-year flow and historical patterns of erosion.

(5) Acceptable level of stability of the slopes separating the mining area from the creek channel based on an analytical slope stability analysis in conformance with Sections 10-4.426 and 10-5.517 of this title that includes evaluation of stability conditions during 100-year peak flows in the channel.

(6) Appropriate bank stabilization designs, if needed, consistent with channel design recommendations of the Cache Creek Resource Management Plan or approved by the Technical Advisory Committee.

(7) The condition of flood protection structures and the integrity of the land within the approved setback zone separating the mining areas and the channel shall be inspected annually by a Registered Civil Engineer and reported to the Director. The annual report shall include recommendations for remedial action for identified erosion problems (see also Reclamation Ordinance Section 10-5.506).

Approval of any off-channel mining project located within seven-hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project operator to participate in the completion of identified channel improvement projects along the frontage of their property, consistent with the CCRMP and CCIP, including implementation of the Channel Form Template. The agreement shall require that the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features required of the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner.

(f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation; and

(g) Recreational facilities shall be located a minimum of one-hundred and fifty (150) feet from private dwellings, with a landscaped buffer provided to reduce noise and maintain privacy, unless the dwelling is proposed to be an integral component of the recreational facility.

(h) No mining activities shall occur within two-thousand (2,000) feet of the community boundaries of Capay, Esparto, Madison, Woodland, and/or Yolo. This setback may be reduced by up to five-hundred (500) feet when existing mature vegetation, proposed landscape buffers of a sufficient height and density to create a visual buffer (consisting of native species and fence-row habitat appropriate to the area), or other site-specific characteristics reduce potential incompatibilities between urban land uses and mining. Commercial mining shall not take place east of County Road 96.

Section 10-4.437 of the OCSMO states the following regarding wastewater discharge limitations:

> Section 10-4.437. Wastewater Discharge
> No wastewater shall be directly discharged to Cache Creek. Sediment fines generated by aggregate processing shall either be used for agricultural soil enhancement, habitat restoration sites, or shall be placed in settling ponds, designed and operated in accordance with all applicable regulations, and used for backfill materials in off-channel excavations. Agricultural tailwater shall be diverted to catchment basins prior to its release to the creek.

Cache Creek Resource Management Plan

The CCRMP is a river management plan that eliminated in-channel commercial mining, established an "improvement program" for implementing on-going projects to improve channel stability, encouraged restoration along the creek banks pursuant to a carefully developed policy and regulatory framework, and established a framework for future recreation along the Creek. The CCRMP was adopted August 20, 1996 (Board Resolution 96-132), underwent a focused update (July 23, 2002 Board Resolution 02-130), and a comprehensive update in 2019. The CCRMP is implemented by the Cache Creek Improvement Program (CCIP) and the In-Channel Ordinance.

Cache Creek Improvement Program

The Technical Advisory Committee (TAC) was established to provide scientific and technical oversight for the CCRMP and the CCIP. The TAC collects and analyzes data, identifies maintenance needs and priorities, and provides critical review of the design and construction of improvement projects. As part of project approval, the TAC would review the proposed project for consistency with the CCIP.

The 1995 Technical Studies for previous versions of the CCRMP proposed a conceptual channel configuration, referred to as the Test 3 Run Boundary, which reflected more uniform channel conditions and included armoring of the channel bed underneath bridges to prevent scour. The Test 3 Run Boundary served as a general goal for developing a more stable channel for Cache Creek. Updated technical evaluations completed in 2017 (2017 Technical Studies) indicated that significant deposition of sediment has occurred in the CCRMP area and resulted in recovery of more natural channel sinuosity and slope in certain locations. While this recovery appears to be occurring faster than originally anticipated in 1996, Cache Creek still exhibits unstable hydraulic and sediment transport conditions in the CCRMP area.

As part of the recent update to the CCAP, the County has implemented an update to the Test 3 Run Boundary, called the Channel Form Template (CFT), which is the result of new topography and modeling data associated with the 2017 Technical Studies. The CFT replaces the Test 3 Run Boundary, but provides similar guidance for smoothing abrupt channel width transitions.

Surface Mining Reclamation Ordinance

Section 10-5.503 of the Surface Mining Reclamation Ordinance (SMRO) states the following regarding groundwater levels:

> Section 10-5.503. Backfilled Excavations: Groundwater Flow Impacts
> The area of backfilled off-channel excavations extending below the groundwater table shall be minimized in order to reduce changes to groundwater levels and flow. Backfilled pits shall be oriented with regard to the direction of groundwater flow to prevent localized

obstructions. If a backfilled off-channel excavation is proposed to penetrate either fifty (50) feet or one-half (1/2) into the saturated thickness of the shallow aquifer, then at least six months prior to the commencement of excavation below the average high groundwater level, the applicant shall demonstrate in a manner consistent with the Technical Studies that the pit design will not adversely affect active off-site wells within one-thousand (1,000) feet of the proposed pit boundary. If the application includes a series of backfilled pits, then the applicant shall also demonstrate that the cumulative effects of the multiple backfilled pits will not adversely affect groundwater flow, if there are any active off-site wells within one-thousand (1,000) feet of the pit boundaries.

The applicant shall demonstrate, using MODFLOW (or a similar model of equal capability and proven reliability, as approved by the Director), that the proposed pit design would not adversely impact active off-site wells within one-thousand (1,000) feet of the proposed pit boundary or result in well failure. Average, historic low groundwater levels, which represent the condition of maximum threat to water levels in the subject well, shall be used for this simulation. If an adverse impact is identified by the MODFLOW (or other approved model) simulation, the mining and reclamation plan shall be modified, or the applicant shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County).

Site-specific aquifer testing shall be conducted, if needed, to determine aquifer properties for the required modeling.

Section 10-5.507 of the SMRO states the following regarding stormwater drainage:

Section 10-5.507. Drainage

Upon the completion of operations, grading and revegetation shall minimize erosion and convey storm water runoff from reclaimed mining areas to natural outlets or interior basins. The condition of the land shall allow sufficient drainage to prevent water pockets or undue erosion. Stormwater drainage shall be designed so as to prevent flooding on surrounding properties and County rights-of-way.

Drainage and detention facilities within the proposed mining areas and vicinity shall be designed to prevent discharges to the wet pits and surface water conveyances (i.e., creeks and sloughs) from the 20-year/1-hour storm or less. For events greater than the 20-year/1-hour storm, runoff from around the perimeter of the mining areas shall be directed into surface water conveyances. Runoff from within the lowered mining area shall be directed away from wet pits to detention/infiltration areas. Drainage plans shall not rely solely on ditches and berms to direct runoff away from the wet pit. Without proper maintenance, berms and ditches may deteriorate with time and become ineffective. Drainage plans shall emphasize grading of disturbed areas that results in broad, gentle slopes that drain away from the pits. Grading plans shall be reviewed by the County to evaluate compliance with drainage plan objectives prior to project approval.

In addition, a restriction shall be recorded on the deed that requires berms and ditches to be permanently maintained in a condition consistent with the final approval. The deed restriction shall require an inspection easement which allows County staff or other authorized personnel access for the inspection of berms and ditches. If the County determines that evidence of damage to those facilities exists, the County shall require that the owner have an inspection report for the property prepared by a Registered Geologist or Registered Civil Engineer. The inspection report, including recommendations for corrective action, if needed, shall be submitted to the Director. The property owner shall be required to implement recommended corrective actions, if any.

Section 10-5.508 of the SMRO states the following regarding erosion control:

> Section 10-5.508. Erosion Control
> The grading of final slopes, the replacement of soil, and associated erosion control measures shall take place prior to November 1 in areas where mining has been completed. To minimize erosion, the finish grading of mining pit slopes above the average seasonal high groundwater level, with the exception of the location of designated haul roads, shall be performed as soon as practical after the mining of overburden and unsaturated aggregate resources has been completed. A drought-tolerant, weed-free mix of native grass species shall be established on slopes prior to November 1 or alternate erosion control (mulch or netting) shall be placed on exposed soil on the slopes prior to this date. Phasing of mining to minimize the length of exposed mining slopes during the rainy season is encouraged.

Section 10-5.511 of the SMRO states the following regarding post-mining drainage conditions:

> Section 10-5.511. Field Drainage
> Reclaimed agricultural surfaces shall be graded to provide adequate field gradients to allow surface/furrow irrigation of crops and allow for adequate storm water drainage.

Section 10-5.516 of the SMRO states the following regarding groundwater levels in areas proposed for reclamation with agricultural uses:

> Section 10-5.516. Lowered Elevations for Reclaimed Agricultural Fields
> The final distance between lowered surfaces reclaimed to agriculture and the average high groundwater shall not be less than five (5) feet. The average high groundwater level shall be established for each proposed mining area. The degree of groundwater level fluctuation varies with location throughout the basin and within relatively small areas (proposed mining sites). The determination of the average high groundwater level shall be conducted by a Registered Civil Engineer or Certified Hydrogeologist and shall be based on wet season water level elevation data collected at the proposed site or adjacent areas with similar hydrogeological conditions. Water level records prior to 1977 shall not be used since they would reflect conditions prior to the installation of the Indian Valley Dam. The dam caused a significant change in hydrology of the basin and data collected before its installation shall not be used in estimating current average high groundwater levels. The wells shall be adequately distributed throughout the proposed mining site to reflect spatial variation in groundwater levels and fluctuations.

Section 10-5.517 of the SMRO states the following regarding mercury bioaccumulation issues:

> Section 10-5.517. Mercury Bioaccumulation in Fish
> As part of each approved long-term mining plan involving wet pit mining to be reclaimed to a permanent pond, lake, or water feature, the operator shall maintain, monitor, and report to the Director according to the standards given in this section. Requirements and restrictions are distinguished by phase of operation as described below.
>
> (a) Mercury Protocols. The Director shall issue and update as needed "Lower Cache Creek Off-Channel Pits Mercury Monitoring Protocols" (Protocols), which shall provide detailed requirements for mercury monitoring activities. The Protocols shall include procedures for monitoring conditions in each pit lake, and for monitoring ambient mercury level in the lower Cache Creek channel within the

CCAP planning area, as described below. The Protocols shall be developed and implemented by a qualified aquatic scientist or equivalent professional acceptable to the Director. The Protocols shall identify minimum laboratory analytical reporting limits, which may not exceed the applicable response threshold identified in subsection (e) below. Data produced from implementing the Protocols shall meet or exceed applicable standards in the industry.

(b) Ambient Mercury Level. The determination of the ambient or "baseline" fish mercury level shall be undertaken by the County every ten years in years ending in 0. This analysis shall be undertaken by the County for use as a baseline of comparison for fish mercury testing conducted in individual wet mining pits. The work to establish this baseline every ten years shall be conducted by a qualified aquatic systems scientist acceptable to the Director and provided in the form of a report to the Director. It shall be paid for by the mining permit operators on a fair-share basis. The results of monitoring and evaluation of available data shall be provided in the report to substantiate the conclusions regarding ambient concentrations of mercury in fish within the lower Cache Creek channel within the CCAP planning area.

(c) Pit Monitoring.

(1) Mining Phase (including during idle periods as defined in SMARA). The operator shall monitor fish and water column profiles in each pit lake once every year during the period generally between September and November for the first five years after a pit lake is created. Fish monitoring should include sport fish where possible, together with other representative species that have comparison samples from the creek and/or other monitored ponds. Sport fish are defined as predatory, trophic level four fish such as bass, which are likely to be primary angling targets and have the highest relative mercury levels. The requirements of this subsection apply to any pit lake that is permanently wet and navigable by a monitoring vessel. If, in the initial five years after the pit lake is created, the applicable response threshold identified in subsection (e) is exceeded in any three of five monitoring years, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).

(2) Reclamation Phase. No monitoring is required after mining has concluded, during the period that an approved reclamation plan is being implemented, provided reclamation is completed within the time specified by SMARA or the project approval, whichever is sooner.

(3) Post-Reclamation Phase. After reclamation is completed, the operator shall monitor fish and water column profiles in each pit lake at least once every two years during the period of September-November for ten years following reclamation. Monitoring shall commence in the first calendar year following completion of reclamation activities. If fish monitoring results from the post-reclamation period exceed the applicable response threshold described in subsection (e) or, for ponds that have implemented mitigation management, results do not exhibit a general decline in mercury levels, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).

(4) Other Monitoring Obligation. If monitoring conducted during both the mining and post-reclamation phase did not identify any exceedances of the ambient mercury level for a particular pit lake, and at the sole discretion of the Director no other relevant factors substantially support that continued monitoring is merited, the operator shall have no further obligations.

(d) Reporting.

(1) Pit Monitoring Results. Reporting and evaluating of subsection (c) pit monitoring results shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Monitoring activities and results shall be summarized in a single report (addressing all wet pit lakes) and submitted to the Director within six months following each annual monitoring event. The report shall include, at a minimum: (1) results from subsection (b) (pit monitoring), in relation to subsection (a) (ambient mercury levels).

(2) Expanded Analysis Results. Reporting and evaluation of subsection (f) expanded analysis shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Results shall be summarized in a single report (addressing all affected wet pit lakes) and submitted to the Director within six months following each annual monitoring event. The report shall include, at a minimum, the results of the expanded analysis undertaken pursuant subsection (f).

(3) Data Sharing. For pit lakes open to the public, the Director may submit the data on mercury concentrations in pit lake fish to the state Office of Environmental Health Hazard Assessment (or its successor) for developing site-specific fish consumption advisories.

(e) Response Thresholds.

(1) Fish Consumption Advisory. If at any time during any phase of monitoring the pit lake's average sport fish tissue mercury concentration exceeds the Sport Fish Water Quality Objective, as it may be modified by the state over time (as of 2019, the level was 0.2 mg/kg), the operator shall post fish consumption advisory signs at access points around the lake and around the lake perimeter. Catch-and-release fishing may still be allowed. Unless site-specific guidance has been developed by the state's Office of Health Hazard Assessment or the County, statewide fish consumption guidance shall be provided.

(2) Mining Phase Results. If, during the mining phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three of five monitoring years, annual monitoring shall continue for an additional five years, and the operator shall undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g).

(3) Post-Reclamation Phase Results. If during the first ten years of the post-reclamation phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three of five monitoring years, biennial monitoring shall continue for an additional ten years, and the operator shall undertake expanded analysis pursuant to subsection(f) and preparation of a lake management plan pursuant to subsection(g).

(f) Expanded Analysis.

(1) General. If during the mining or post-reclamation phase, any pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three years, the operator shall undertake expanded analyses. The analysis shall include expanded lake water column profiling (a minimum of five profiles per affected wet pit lake plus one or more nonaffected lakes for control purposes) conducted during the warm season (generally May through October) in an appropriate deep profiling location for each pit lake. The following water quality parameters shall be collected at regular depth intervals, from surface to bottom of each lake,

following protocols identified in subsection (a): temperature, dissolved oxygen, conductivity, pH and oxidation-reduction potential (ORP), turbidity or total suspended solids, dissolved organic matter, and algal density by Chlorophyll or Phycocyanin. The initial analysis shall also include one-time collections of fine grained (clay/silt) bottom sediments from a minimum of six well distributed locations for each affected lake, and from one or more non-affected lakes for control purposes, to be analyzed for mercury and organic content.

(2) Scope of Analysis. The purpose of the expanded analyses is to identify and assess potential factors linked to elevated methylmercury production and/or bioaccumulation in each pit lake. The scope of the expanded analyses shall include monitoring and analysis appropriate to fulfill this purpose, invoking best practices in the industry. In addition to the analyses described in subsection (f)(1) above, the analysis should also consider such factors as: electrical conductivity, bathymetry (maximum and average depths, depth-to-surface area ratios, etc.), and trophic status indicators (concentrations, Secchi depth, chlorophyll a, fish assemblages, etc.). Additional types of testing may be indicated and appropriate if initial results are inconclusive.

(3) Use of Results. The results of the expanded analyses undertaken pursuant to this subsection shall be used to inform the preparation of a lake management plan described below under subsection (g).

(g) Lake Management Activities

(1) General. If monitoring conducted during the mining or post-reclamation phases triggers the requirement to undertake expanded analysis and prepare and implement a lake management plan, the operator shall implement lake management activities designed by a qualified aquatic scientist or equivalent professional acceptable to the Director, informed by the results of subsection (f). Options for addressing elevated mercury levels may include (A) and/or (B) below at the Director's sole discretion and at the operator's sole expense.

(A) Lake Management Plan. Prepare a lake management plan that provides a feasible, adaptive management approach to reducing fish tissue mercury concentrations to at or below the ambient mercury level. Potential mercury control methods could include, for example: addition of oxygen to or physical mixing of anoxic bottom waters; alteration of water chemistry (modify pH or organic carbon concentration); and/or removal or replacement of affected fish populations. The lake management plan may be subject to external peer review at the discretion of the Director. Lake management activities shall be appropriate to the phase of the operation (e.g., during mining or post-reclamation). The Lake Management Plan shall include a recommendation for continued monitoring and reporting. All costs associated with preparation and implementation of the lake management plan shall be solely those of the operator. Upon acceptance by the Director, the operator shall immediately implement the plan. The lake management plan shall generally be implemented within three years of reported results from the expanded analyses resulting from subsection (f). If lake management does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three years of implementation, at the sole discretion of the Director, the operator may prepare an alternate



management plan with reasonable likelihood of mitigating the conditions.

(B) Revised Reclamation Plan. As an alternative to (A), or if (A) does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three years of implementation, at the sole discretion of the Director, the operator shall prepare and submit revisions to the reclamation plan (including appropriate applications and information for permit amendment) to fill the pit lake with suitable fill material to a level no less than five (5) feet above the average seasonal high groundwater level, and modify the end use to agriculture, habitat, or open space at the discretion of the Director, subject to Article 6 of the Mining Ordinance and/or Article 8 of the Reclamation Ordinance as may be applicable.

(2) Implementation Obligations.

(A) If a lake management plan is triggered during the mining or post-reclamation phase and the subsequent lake management activities do not achieve acceptable results and/or demonstrate declining mercury levels, the operator may propose different or additional measures for consideration by the Director and implementation by the operator, or the Director may direct the operator to proceed to modify the reclamation plan as described in subsection (g)(1)(B).

(B) Notwithstanding the results of monitoring and/or lake management activities during the mining phase, the operator shall, during the post-reclamation phase, conduct the required ten years of biennial monitoring.

(C) If monitoring conducted during the post-reclamation phase identifies three monitoring years of mercury concentrations exceeding the ambient mercury level, the operator shall implement expanded analyses as in subsection (f), to help prepare and implement a lake management plan and associated monitoring.

(D) If subsequent monitoring after implementation of lake management activities, during the post-reclamation phase, demonstrates levels of fish tissue mercury at or below the ambient mercury level for any three monitoring years (i.e., the management plan is effective), the operator shall be obligated to continue implementation of the plan and continue monitoring, or provide adequate funding for the County to do both, in perpetuity.

Section 10-5.511 of the SMRO states the following regarding groundwater monitoring:

> Section 10-5.524. Post-Reclamation Groundwater Monitoring
> Monitoring during the mining and reclamation period shall be a condition of the permit. The applicant shall ensure that the groundwater monitoring of wet pit mining continues for (10) years after the completion of reclamation.

4.8.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to hydrology and water quality. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A hydrology and water quality impact is considered significant if the proposed project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to hydrology and water quality.

The proposed project's impacts associated with erosion or siltation on- or off-site are discussed in Chapter 4.6, Geology and Soils, Mineral Resources, and Paleontological Resources, of this EIR.

Impacts Found Less than Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) did not identify any less-than-significant impacts related to hydrology and water quality.

Method of Analysis

Issues related to groundwater levels and groundwater quality were evaluated in the 2016 Groundwater Study, 2019 Groundwater Memo, and 2020 Groundwater Memo prepared by LSCE. Issues related to flooding and erosion were evaluated in the Hydraulics Study and Channel Stability Analysis prepared by CEC. The methodologies employed in each of the studies is

described below. Methodologies employed in the Slope Stability Evaluation prepared by Geocon are discussed in Chapter 4.6 of this EIR.

2016 Groundwater Study

The potential impacts on groundwater levels and quality from the proposed reclamation activities were analyzed as part of the Groundwater Study prepared by LSCE in 2016. The Yolo County SMRO and OCSMO require the following analyses to be completed as input to the reclamation planning for all wet pit mining projects:

1. Water Supply Well Identification: Identify and determine characteristics of active off-site wells within 1,000 feet of the proposed wet pit mining boundary and domestic wells within 500 feet of the pit boundary (OCSMO Sec. 10-4.427);
2. Potential Groundwater Level Impacts: Demonstrate using MODFLOW that the proposed wet pit mining project, in this case the reclamation of the mining pit to agricultural land and a seasonal lake, will not adversely impact active off-site wells within 1,000 feet of the pit boundary (SMRO Sec. 10-5.503); and
3. Potential Groundwater Quality Impacts: Conduct a capture zone analysis for domestic wells within 500 feet of the lake boundary (OCSMO Sec. 10-4.427).

Requirement 3 above regarding capture zone analysis (OCSMO Sec. 10-4.427) is not applicable to the proposed project, as off-site domestic water supply wells are not located within the specified boundary (within 500 feet) of the proposed reclamation lake location. However, in order to address water quality concerns, LSCE conducted an assessment of mining and reclamation activities at the Teichert off-channel mining properties, as well as of the historical water quality conditions at such properties. The methodology used to address requirements 1 and 2 are described below. In addition, while not required per OCSMO Section 10-4.427, a discussion of methods used to evaluate groundwater quality at water wells associated with the Wild Wings subdivision is provided under the 2020 Groundwater Memo section below.

Water Supply Well Identification

While SMRO Section 10-5.503 requires identification of wells within 1,000 feet of the future mining lake boundary, the 2016 Groundwater Report conservatively analyzed all wells within 1,000 feet of the proposed mining boundary, which encompasses a larger area and results in the inclusion of a greater number of wells.

Per the Groundwater Report, as many as 21 active off-site water supply wells exist within 1,000 feet of the proposed mining boundary. During 2015, Teichert contacted and requested water supply well information from neighboring landowners within 1,000 feet of the proposed mining boundary by way of original and follow-up letters. The well and water usage information provided by the neighbors responding to Teichert's request were incorporated into the Groundwater Report. Subsequently, publicly available Yolo County parcel maps and aerial photos were used to estimate the location of additional wells, with the assumption that each individual parcel had a water supply well. Well depth and water usage for the additional wells were estimated based on known information about similar water supply wells in the project area. Pertinent information about the off-site water supply wells is provided in Table 1 of the 2016 Groundwater Report, including well depth, aquifer production zones (MODFLOW model layers), and pumping rates.

Potential Groundwater and Seasonal Lake Water Level Impacts

As specified by the Yolo County SMRO (Section 10-5.503), the required method of investigating potential impacts on groundwater from the backfilling of mined parcels includes using a MODFLOW model to simulate such impacts. For the project site, changes in groundwater levels due to the proposed backfilling associated with the reclamation of the mining pit to agricultural land and a lake were simulated, in particular at the active off-site water supply well locations.

A steady-state numerical model was developed based on a previous model (LSCE, 2011) to conduct the groundwater level simulations. The model is a three-dimensional groundwater flow model, which uses a finite-difference modeling code termed MODFLOW, developed by the U.S. Geological Survey. MODFLOW uses a collection of subroutines called "packages" to simulate different groundwater flow components such as aquifer characteristics, well pumping, and recharge/discharge such as from/to streams. For the proposed project, input parameters for the model included aquifer (layer) top and bottom elevations, starting heads, hydraulic conductivity, leakance, river bed conductance, recharge, and well pumping.

Calibration of the model was performed by varying the initial input parameters, specifically the hydraulic conductivity of all layers (active cells), the conductance values of all layers (general head cells), the leakances between layers, and the conductance of the Cache Creek streambed. The calibrated model was used to simulate the effect of the proposed Shifler reclamation on groundwater levels beneath the Teichert Woodland Plant area. With respect to the model design, the mining and reclamation of the project site would occur in layer 1 only. The bottom of the reclaimed agricultural land and seasonal lake would be near the base of layer 1, and layer 2 would remain undisturbed by mining. The model simulated full reclamation of the project site, including development of the proposed reclamation lake.

2019 Groundwater Memo

The 2019 Groundwater Memo was prepared to evaluate potential effects to groundwater associated with project operations that were not previously evaluated in LSCE's 2016 Groundwater Study; specifically, pumping all or partial water supply for aggregate processing from the proposed mining wet pit (requested dewatering), with all aggregate wash water discharged back to the wet pit. This contrasts with the 2016 analyses, wherein mining operations were assumed to derive all water supply solely from the Teichert Woodland Plant well. Analyses were conducted using the calibrated MODFLOW groundwater flow model of 2016, but simulating groundwater and lake levels under two additional main scenario categories:

- Scenario 1: The initial wet pit mining, within the western portion of the project site; and
- Scenario 2: The remaining wet pit mining, within the central portion of the project site, with the western portion of the site reclaimed to agricultural land.

For both main scenario categories, the 2019 Groundwater Memo included several focused scenarios evaluating the predicted impacts to groundwater and lake levels from varying wet pit sediment lining permeability and thickness, and water supply source, as shown in Table 4.8-1 below.

2020 Groundwater Memo

The 2020 Groundwater Memo is focused on two primary issues: potential effects of the planned mining and reclamation activities on groundwater levels and quality in the Pintail and Canvas

Back production wells of the Wild Wings subdivision, and the comparability of two different laboratory analytical methods used for groundwater quality testing at the Wild Wings subdivision and at the Teichert Woodland properties in Teichert's long-term monitoring effort.

Wild Wings Subdivision Wells

As a result of proximity and construction, potential effects from the proposed mining and reclamation activities, were they to occur, would first manifest in the Canvas Back well. Therefore, model analysis conducted as part of the 2020 Groundwater Memo focused on predicted effects on the Canvas Back well, as opposed to the Pintail well.

Table 4.8-1
Groundwater Analysis Scenarios: 2019 Groundwater Memo

Focused Scenario	Sediment Permeability K (feet/day)	Sediment Thickness b (feet)	Supply from Pit (% of Total)	Supply from Woodland Plant Well (% of Total)	Discharge to Mining Pit (% of Total)
Scenario 2 (West Pit)					
1A	100	1	100	0	100
1B	100	1	50	50	100
1C	2.67	1	100	0	100
1D	2.67	3	100	0	100
1E	2.67	3	50	50	100
Scenario 1 (Central Pit)					
2A	2.67	1	100	0	100
2B	2.67	1	50	50	100
2C	2.67	3	100	0	100
2D	2.67	3	50	50	100

Source: LSCE, 2019.

The 2020 Groundwater Memo follows several lines of investigation to examine potential effects of the proposed mining and reclamation activities on groundwater levels and quality in the Canvas Back well, in addition to evaluating mining pit water budgets and the model domain water budget to ascertain mutual interference between mining/reclamation activities and operation of the Canvas Back well. The 2020 Groundwater Memo includes the following components:

1. Comparison of simulated versus observed head for the calibrated Baseline Model (i) without Canvas Back extraction and (ii) with Canvas Back extraction at 125 gallons per minute (gpm);
2. Comparison of mining pit water budgets (volumetric flow rates and water level elevations);
3. Comparison of model domain water budgets (volumetric flow rates);
4. Proportional sources of Canvas Back well extraction; and
5. Canvas Back well particle tracking analysis.

The Canvas Back well extraction rate of 125 gpm is a steady-state model rate based on available well production data provided by Wild Wings representatives. Specifically, the well produced a total of 58, 62, and 69 million gallons per year (MGY) in years 2011, 2012, and 2013, respectively. Most recently, total well production was about 65 MGY in 2018 and was on track for 65 MGY in 2019 (until ceasing production in September). From this production data, a typical annual

production was designated as 65 MGY. The model rate of 125 gpm then derives from this typical annual production, with 65 MGY converted to an average 125 gpm continuously produced for 60 minutes per hour, 24 hours per day, every day of the year into the future. Given the pump operating capacity of approximately 1,380 gpm, and typical annual production of 65 MGY, LSCE determined that the pump has been operated, on average, for 2 to 2.5 hours per day.

The fate of all extraction was assumed to be consumptive use (i.e., not including return flows to groundwater). In practice, a portion of the extracted water applied to landscaping (e.g. irrigation for Wild Wings golf course and residential landscaping) returns to groundwater by way of deep percolation. Attribution of all groundwater extraction to consumptive use provides "worst-case" scenarios predicting maximum potential impacts. To facilitate comparison to the predictive model scenarios presented in LSCE's 2019 Groundwater Memo, the same terminology is used in the 2020 Groundwater Memo. Specifically, mining activities are examined with Scenarios A, B, and AB, where:

- "A" denotes that all water used for aggregate processing and dust control is obtained directly from the active mining pit;
- "B" denotes that 50 percent of the supply is obtained from the active mining pit and 50 percent is provided by the on-site production well (Teichert plant well); and
- "AB" denotes that all water supply is derived from the Teichert plant well.

As is the case for the 2019 Groundwater Report, Scenario 1 pertains to the initial mining phase (only the west portion of project site is mined) and Scenario 2 pertains to an advanced mining phase where the central portion of the Shifler property is actively mined and the west portion has been reclaimed to agricultural land.

Groundwater Quality Laboratory Methods

Regarding laboratory analytical methods used for groundwater quality testing, LSCE consulted with the laboratory director of California Laboratory Services (CLS), Dr. James Liang, about descriptions and comparison of analytical methods for arsenic in water.

Arsenic analysis has been part of Teichert Materials' historical and ongoing long-term groundwater monitoring and reporting efforts at their properties along Cache Creek. Groundwater analyses are carried out by California Laboratory Services (CLS) in Rancho Cordova and the method of choice for arsenic has been EPA Method 6020/7000. The analytical reporting limit is 5.0 µg/L. This method is typically used in the context of groundwater and surface water studies including environmental assessment and cleanup. In contrast, for drinking water applications (e.g., municipal supply wells), EPA Method 200.8 is typically used. The analytical reporting limit is 2.0 µg/L.

Both methods are National Institute of Standards and Technology (NIST) certified and produce the same results (i.e., same accuracy and precision), consistent with the EPAs acceptance criteria. EPA's only acceptable difference for analytical methods quantifying the same constituent is the methods' sensitivity, as reflected by their reporting limit. The reporting limit of EPA Method 6020/7000 accounts for the potential of matrix interferences often associated with environmental studies due to the presence of multiple metals, high constituent concentrations, turbidity, and complex chemical makeup. In drinking water applications, such interferences are very rare, and in the absence of interferences, EPA Method 200.8 achieves a lower reporting limit. If interference

is a concern, EPA Method 200.8 employs a dynamic reaction chamber (DRC) to improve results and must state so in the laboratory documentation. The DRC can also be used with EPA Method 6020/7000, but it need not state so in the laboratory documentation.

Hydraulics Study

The purpose of the Hydraulics Study prepared by CEC, dated 2016, was to estimate approximate 100-year water surface profiles in Cache Creek abutting the project site under the two channel bank geometries, as follows:

1. Current bank geometry (same geometry as that which was used in the 2011 analysis for the adjacent Schwarzgruber reach).
2. Bank geometry translated such that the north and south banks coincide with the 1996 Test 3 Line (now known as CFT).

The Hydraulics Study was completed using the Hydrologic Engineering Center River Analysis System (HEC-RAS) computer program, which models one-dimensional, steady state, gradually-varied flow in order to compute water surface profiles. As noted previously, for design purposes, the Hydraulics Study assumed a peak flow rate of 63,700 cfs for the Cache Creek channel, based on the 2010 Flood Insurance Study (FIS) for the City of Woodland and previous hydraulic studies conducted within Cache Creek.

To determine the 100-year water surface approximation, a numerical model of the creek topography and flow characteristics was created using HEC-RAS. The creek centerline was approximated based on the existing bank geometry, and begins approximately 9,500 feet downstream of the Shifler site (i.e., at Station 1000+00). Since the hydraulic model addresses a high-flow condition, the HEC-RAS centerline does not necessarily follow the stream thalweg at all locations. Cross-sections were spaced approximately every 500 feet, with additional cross-sections added to model the County Road 94B bridge and the Teichert Conveyor bridge crossing at approximate Station 1071+10. A starting WSE of 94 (NAVD 88) was applied as a downstream boundary condition at Station 1000+00, based on the 100-year WSE as previously determined in the 2010 FIS for the City of Woodland and indicated on FEMA FIRM Panel# 06113C0430G. The Hydraulics Study relied on a roughness coefficient (Manning's "n") of 0.038 for channel flow, consistent with the 2010 City of Woodland FIS and previous Cache Creek studies done by CEC in neighboring reaches in 1996, 2001, 2007 and 2009. A roughness value of 0.070 was applied to overbank flow.

Channel Stability Analysis

At the request of the County, CEC prepared a Channel Stability Analysis focused on the stability of the embankment of Cache Creek adjacent to the project site. To address the potential erodibility, CEC completed the following tasks:

- Reviewed historical topographic maps and aerial photographs;
- Reviewed flow velocity data based on the 2D HEC-RAS model of Cache Creek prepared by FlowWest from 2018;
- Conducted a site visit on November 1, 2019 to observe the condition of the south bank; and
- Reviewed the current stream bank alignment in conjunction with the CFT.

Project Specific Impacts and Mitigation Measures

The following discussion of impacts related to hydrology and water quality is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.8-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. This impact would be *less than significant*.

Mining activities associated with the proposed project would include removal of overburden on the project site, thereby resulting in exposed soils. Exposed soils could result in an increased risk of erosion and sediment transport. Soils exposed by the aforementioned types of ground disturbing activities have the potential to affect water quality in two ways: 1) suspended soil particles and sediments transported through runoff; or 2) sediments transported as dust that reach Cache Creek to the north of the site. Spills or leaks from heavy equipment and machinery involved in the proposed mining and reclamation activities also have the potential to enter stormwater runoff. Typical pollutants include, but are not limited to, petroleum and heavy metals from equipment. Discharge of polluted stormwater or non-stormwater runoff could violate waste discharge requirements. Issues related to groundwater quality are discussed under Impact 4.8-2 below. Issues related to slope stability, erosion, loss of topsoil, and pit capture are addressed in Chapter 4.6, Geology and Soils, Mineral Resources, and Paleontological Resources, of this EIR, under Impact 4.6-3. As discussed in Chapter 4.6, pit capture is not anticipated to occur at the project site; thus, the risk of physical connection between the proposed reclaimed lake and Cache Creek and any resultant water quality impacts is not considered significant.

The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate or evaporate. At the conclusion of mining, the site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. New stormwater detention basins would be provided within the western and eastern reclaimed agricultural areas of the site. Based on the above, stormwater runoff would not leave the site during, or after completion of, the proposed mining activities.

Because the proposed project would include mineral mining activities the project applicant would be required by the State to comply with the most current Industrial General Permit requirements. Per the Industrial General Permit requirements and Section 10-4.413 of the OCSMO, a SWPPP would be prepared for the overall project, which would specify the design and maintenance procedures for all proposed stormwater controls, including Best Management Practices (BMPs) for the reduction of pollutants associated with runoff from mined areas. The BMPs would include, but would not be limited to, the following:

- Measures for controlling erosion and sedimentation such as ground covers, revetment systems, or bioengineering stabilization (e.g., live staking or vegetated geogrids);

- Procedures for handling and disposing of hazardous materials (e.g., fuel and lubricants) and construction waste; and
- Methods to eliminate or reduce non-storm water discharges to receiving waters.

In addition, a Notice of Intent (NOI) would be filed with the CVRWQCB. Consistent with Section 10-4.413 of the OCSMO, the drainage system would be inspected annually by a Registered Civil Engineer, Registered Geologist, or Certified Erosion and Sediment Control Specialist to ensure that the drainage system is functioning effectively and that adverse erosion and sedimentation are not occurring. The annual inspection would be documented in the Annual Mining and Reclamation Report. If the system is found to be functioning ineffectively, the project applicant would be required to promptly implement the recommendations of the Registered Civil Engineer.

Per Section 10.4.415 of the OCSMO, all internal combustion engine driven equipment and vehicles on the project site would be kept tuned according to the manufacturer's specifications and properly maintained to minimize the leakage of oils and fuel. Fueling and maintenance activities of heavy equipment (except draglines and floating suction dredges) are prohibited within 100 feet of open bodies of water during mining and reclamation. The SWPPP would be required to include provisions for releases of fuels during fueling activities for draglines and floating suction dredges.

Compliance with the State NPDES Industrial General Permit and the applicable requirements of the OCSMO, as described above, would minimize the potential degradation of stormwater quality and downstream surface water associated with the proposed project. As discussed in further depth in Impact 4.8-2 below, the project is not anticipated to result in impacts related to groundwater quality; therefore, the project would not result in any impacts to surface water through groundwater connection of the reclaimed lake and Cache Creek. Based on the above, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.8-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be *less than significant*.

The proposed project includes the following key elements: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3)

continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project. The Magnolia Canal modification would include removal of a 1,200-foot-long segment of the canal. The proposed expansion of equipment at the Woodland Plant would accommodate processing of aggregate from the proposed mining operation.

Dewatering of the Shifler mining area will be required once excavation reaches the groundwater level. Groundwater from the Shifler mining area would be pumped to the adjacent Woodland Plant to supply the aggregate processing operations at the plant. As allowed under OCSMO Section 10-4.412, Teichert proposes to conduct dewatering in-lieu of pumping groundwater solely from a well as part of the proposed surface mining operations on the project site. The proposed water transfer to the Woodland Plant would require installation of a new water pipe, to be located alongside the existing conveyor belt alignment. Installation of the pipe would not require trenching in areas that have not already been subject to substantial prior disturbance associated with the conveyor belt. Processing water from the project site and the Woodland Plant would be recycled through the use of settling ponds located at the Woodland Plant site. The discharge of aggregate wash water to the settling ponds at the Woodland Plant site would continue to be regulated through Waste Discharge Requirements (WDRs) issued by the CVRWQCB. The project would include modifications to the existing WDRs to allow for the use of fine sediment from aggregate processing (i.e., “fines”) in the eventual reclamation of the project site. The processing fines would be pumped from the Woodland Plant site as a slurry (mix of water and fines) and discharged into the mining pit in accordance with the requirements of the revised WDRs.

Teichert requests the ability to conduct limited dewatering activities at the project site subject to the following conditions:

- Groundwater pumping rate from the Shifler mining area may not exceed 3,500 gallons per minute (gpm), consistent with the maximum pumping rate for dewatering at Esparto.
- Annual water use may not exceed 1,910 acre-feet/year (average steady state flow rate of 1,184 gpm or 227,920 cubic feet per day based on 24 hours/day, 365 days/year operations).
- Off-site discharge of pumped groundwater shall not occur. Groundwater from the Shifler mining area would be pumped to the adjacent Woodland Plant for use in aggregate processing. Aggregate wash water from the Woodland Plant would be discharged to the Shifler mining area in accordance with WDRs to be specified by the RWQCB.
- Groundwater levels would be monitored quarterly, as required under OCSMO Section 10-4.412.
- Groundwater pumping volumes would be recorded, as required under OCSMO Section 10-4.412.

As required under Section 10-4.412 of the OCSMO, Teichert would conduct monitoring of water levels in the wet pit(s), evaluate nearby monitoring wells on a quarterly basis, and quantify the amount of water pumped from and returned to the wet pit(s).

Groundwater Levels in Project Vicinity

Consistent with SMRO Section 10-5.503, LSCE has provided an analysis of potential impacts to groundwater levels for all active off-site wells within 1,000 feet of the proposed mining pit. In addition, LSCE analyzed water levels associated with the proposed lake that would be constructed as part of project reclamation activities. As described in the Method of Analysis section above, groundwater and lake levels were analyzed for two main scenario categories: Scenario 1, which includes the initial wet pit mining planned within the western portion of the project site; and Scenario 2, which includes the remaining wet pit mining in the central portion of the project site, with the western portion of the site reclaimed to agricultural land.

The results of the scenario model simulations are provided in Tables 1 and 2 of the 2019 Groundwater Memo (Appendix K to this EIR) for Scenarios 1 and 2, respectively. The tables show, including in each area well and in each model layer, the following information:

- The model layer, row, and column;
- The simulated calibrated model baseline groundwater and lake levels;
- The predicted scenario groundwater and lake levels; and
- The predicted change in groundwater and lake levels, baseline vs. scenario.

It should be noted that groundwater level changes are calculated from comparison of the scenario results (proposed mining and reclamation) to the baseline conditions (no mining or reclamation).

The model simulations predict the greatest changes in groundwater levels under the scenarios with 100 percent of pumping derived from the wet pits. Such changes are predicted to occur only in shallow groundwater of the uppermost portion of the aquifer (model layer 1) in which wet pit mining is planned. Groundwater levels are predicted to range between a two-foot decline under Scenario 1A (west pit mined) and 23 feet of lowering under Scenario 2A (central pit mined and west pit reclaimed). Under Scenario 1A, shallow groundwater levels are predicted to decline upgradient of the west wet pit and rise downgradient of the pit, presumably in response to the flattening of the sloped water table (pre-mining) into the wet pit (during mining). Under Scenario 2A, shallow groundwater levels are predicted to rise upgradient of the property and decline on and downgradient of the project site, likely in response to the impedance of shallow groundwater flow through the fine materials of the reclaimed west wet pit. Wet pit levels are predicted to remain essentially the same under the scenarios of 50/50 percent pumping from the proposed mining pit and the Woodland Plant well.

In contrast, under Scenarios 1A and 2A, the predicted changes in groundwater levels of the deeper portions of the aquifer (model layers 2 and 3), that would be undisturbed by the proposed mining, range between 1 foot of decline to 1 foot of rise around the

project site. Given that water supply well constructions in the project area are completed in the lower portions of the aquifer, per LSCE, the water levels in such wells are predicted to be essentially unaffected by the proposed mining and reclamation.

Groundwater Levels at Wild Wings Subdivision Wells

As noted previously, two water production wells (Pintail well and Canvas Back well) are used to supply the Wild Wings subdivision to the southwest of the project site, as noted in the 2020 Groundwater Memo. Both wells are located outside of the County-specified radii of influence for model analyses (i.e., 1,000 and 500 feet from wet pit boundaries for water level and water quality concerns, respectively).

As a result of proximity and construction, potential effects from the proposed mining and reclamation activities, were they to occur, would first manifest in the Canvas Back well. Therefore, model analysis conducted as part of the 2020 Groundwater Memo focused on predicted effects on the Canvas Back well, as opposed to the Pintail well. As described in the Method of Analysis section above, the 2020 Groundwater Memo included detailed water level, water budget, and particle tracking analyses at the Canvas Back well.

The results indicate that the proposed mining and reclamation activities at the project site would not cause water levels to decline or water quality impacts at the Canvas Back well associated with the Wild Wings subdivision. Such findings are mainly attributed to the well's upgradient location with respect to the project site and the fact that the well terminates in an aquifer zone that is deeper than the depth of the proposed mining activities. The results were found to not be sensitive to the well's pumping rate; even a 10-fold increase of the pumping rate at the Canvas Back well, up to 1,250 gpm (comparable to daily operation at capacity of approximately 22 hours, every day of the year), would not substantially affect the findings presented in the 2020 Groundwater Memo. Thus, the proposed project would not result in substantial adverse effects to groundwater levels at either of the Wild Wings subdivision wells.

Groundwater Quality

Given that off-site domestic water supply wells are not located within 500 feet of the proposed reclamation lake location, OCSMO Section 10-4.427 related to capture zone analysis requirements is not applicable to the proposed project.

Nonetheless, in order to address water quality concerns, the 2016 Groundwater Study included an assessment of past and proposed mining and reclamation activities at the Teichert off-channel mining properties, as well as the historical water quality monitoring results for the Teichert mining properties. This assessment indicates that mining and reclamation activities are protective of water quality; impacts to mining pond, reclaimed seasonal lake, or groundwater quality have not been observed historically. Thus, while topsoil and subsurface material may generally act as filters for groundwater, the removal of material at other nearby Teichert mining properties has not been demonstrated to result in negative impacts to water quality, and, similarly, mining of material at the project site would not be anticipated to result in degradation of groundwater quality, particularly at wells in the area. The results of the 2020 Groundwater Memo demonstrated that wells in the Wild Wings subdivision would not



be impacted by the project, whether in terms of water level or quality (such as debris and contaminants). Further, the proposed project would include groundwater level and quality monitoring at the project site, as well as mining pit and reclaimed seasonal lake water quality monitoring, in accordance with Yolo County OCSMO Section 10-4.417 requirements. Thus, with past monitoring results as an indication of potential water quality impacts from the proposed project, and the planned water level and quality monitoring program, the proposed setback distance between nearby domestic water supply wells and the reclaimed seasonal lake is considered sufficient for protection of groundwater quality.

Conclusion

Based on the above, the proposed project would not substantially decrease groundwater levels at active off-site wells within 1,000 feet of the proposed mining pit or result in substantial adverse effects to groundwater levels at either of the Wild Wings subdivision wells. In addition, the project would not adversely affect groundwater quality. Therefore, the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the Yolo Subbasin or conflict with or obstruct implementation of the Yolo Subbasin Groundwater Sustainability Plan, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.8-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. This impact would be *less than significant*.

The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate or evaporate. At the conclusion of mining, the site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. New stormwater detention basins would be provided within the western and eastern reclaimed agricultural areas of the site. Based on the above, stormwater runoff would not leave the site during, or after completion of, the proposed mining activities. Consistent with OCSMO Section 10-4.437, the proposed project would not include discharge of any stormwater or wastewater to Cache Creek during the proposed mining activities or upon reclamation of the site to agricultural and recreational uses.

Based on the above, the proposed project would not substantially alter the existing drainage pattern of the project area in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Thus, a ***less-than-significant*** impact would occur.

As a component of the Development Agreement, the applicant is proposing to design and complete a gravel bar removal project to help prevent further channel bank erosion and provide for addition capacity in the Cache Creek channel. The proposed in-channel bar skimming would take place over a five-year period in the area in-channel segment bounded by the County Road 87 bridge to the west and the Interstate 505 bridge to the east. The project would remove approximately 3,000,000 tons of excess sand and gravel material from the Cache Creek channel, realign the low-flow channel of Cache Creek away from the banks and toward the center of the creek channel, remove invasive species from the project area, and complete bank repairs adjacent to the Teichert Esparto Plant consistent with the CRMP/CCIP Channel Form Template. The amount of material removed in any one year would be governed by Section 10.3-409 of the In-Channel Maintenance Mining Ordinance and would generally not exceed 690,800 tons in any one year.

This work is anticipated and encouraged in the CCRMP/CCIP and associated impacts are addressed in the CCAP Update EIR (certified December 2019). The work would require issuance of a subsequent Flood Hazard Development Permit (FHDP) by the County and would require subsequent hydraulic analysis to confirm public benefit through reduction of flood risk. All removal would be subject to review and oversight by the Cache Creek Technical Advisory Committee (TAC).

Mitigation Measure(s)
None required.

4.8-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows. This impact would be *less than significant*.

The proposed mining and reclamation activities would not include the creation of substantial new impervious surfaces within the project site. However, given that the project would include the excavation of a mining pit, the project has the potential to alter the existing drainage pattern of the project area.

As proposed, the relocated alignment of the Moore Canal would be set back 200 feet and the proposed mining would be set back approximately 300 feet from the 100-year floodplain associated with Cache Creek. Section 10-4.429 of the OCSMO requires a 700-foot setback between off-channel excavations and the existing bank of Cache Creek (see Figure 3-21 and Figure 3-22 of the Project Description chapter of this EIR).

The setback may be reduced to 200 feet if the project applicant can demonstrate compliance with specific standards, including the following:

- The lesser setback will not adversely affect channel stability;
- The existing bank configuration or proposed bank stabilization measures would provide protection from lateral erosion and pit capture equivalent to a 700-foot setback, and;
- Channel maintenance and reshaping activities along the proposed mining reach are consistent with the CFT established by the County for Cache Creek, previously referred to as the "Test 3 Line."

Per the Channel Stability Analysis, historic excessive bank erosion has not occurred within the reach of Cache Creek located within the vicinity of the proposed mining pit location. Periods of low flow channel migration and in-channel sand and gravel bar transport and deposition are noted; however, such events did not appear to result in bank erosion. Based on visual observation of the channel bank, evidence of significant current bank erosion does not exist, even though the winter of 2016 experienced well above average flows (20,500 cfs max daily mean flow, which represents the third-highest flow recorded in the last 20 years). Vegetation on the southern bank, the terraced slope configuration, and the asphalt-like bank material within the upper terrace may be providing additional bank reinforcement and stabilization.

The *Lower American River - Erosion Susceptibility Analysis for Infrequent Flood Events* completed by Ayers Associates in 2004 cited the following references as velocity thresholds, presented in feet per second (fps), for the initiation of erosion with varying vegetation covers:

1. *Erosion of Bare, Fine Grained Sandy Soils: Velocity exceeding 2 fps;*
2. *Erosion with Annual Grass Cover: Velocity exceeding 3.5 fps;*
3. *Erosion with Grass-Lined Earth, Kentucky Blue Grass: Velocity exceeding 5 fps; and*
4. *Erosion of Dense Vegetation: Velocity exceeding 5 fps.*

The maximum velocity and shear stress values shown in the HEC-RAS model along the southern bank of Cache Creek in the project vicinity do not exceed those estimated to cause erosion of a well-vegetated stream bank (i.e., 5 fps). In addition, the bank alignment within the reduced setback area closely follows the CFT, indicating that the current bank location is situated at the preferred modeled channel form approved by the Cache Creek TAC. Therefore, measures to modify the bank to match the CFT along the project reach are not necessary but measures to ensure stability are recommended.

Chapter 4.6, Geology and Soils, Mineral Resources, and Paleontological Resources, of this EIR includes an analysis of potential impacts related to damage to Moore Canal and risks related to mining pit capture. As noted in Impact 4.6-3, relocation of the Moore Canal to the north is not anticipated to result in exposure to unacceptable risks related to lateral migration (the process of a water course moving due to stream bank erosion) of the Cache Creek channel, particularly as a result of the mitigation identified

below. The proposed mining slopes and stockpiled soils would not be subject to substantial risk of overflowing floodwaters; thus, the proposed project would not result in significant impacts related to pit capture.

This segment of the creek has been subjected to recent in-channel activity from hydraulic conditions including removal of a large in-stream island in 2017 demonstrating the volatility at the channel bend at this location. The County regulations allow the setback to be reduced; however, the Cache Creek TAC has recommended a reduction to no more than 250 feet in this location to allow a prudent margin of error for future creek volatility (see Appendix R for the Cache Creek TAC review memorandum). The TAC has also recommended SSP improvements to reinforce the area of the creek in the path of a potential migration of a creek meander bend (see Figure 4.8-1) through a combination of backfilled soil and planted rock revetment to reinforce the bank, and habitat enhancement on the identified inset terrace, both of which will protect the CFT which is generally already in place along this stretch of bank, and also provide co-benefits by enhancing habitat values.

As required in the OCSMO, the Cache Creek channel would be annually monitored once the proposed mining activity begins, and if minor lateral migration does begin to occur, additional plantings, armoring, and/or a geotextile fabric may be incorporated along the southern stream bank within the reduced setback, if necessary.

The proposed project has the potential to result in adverse effects related to mining within the 700-foot setback from the top of bank, therefore impacts may be ***significant*** related to alteration of the existing drainage pattern of the site or area, including through alteration of a course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level:

4.8-4(a) *Prior to mining or other activity closer than 700 feet to the top of bank, the applicant shall implement a reinforcement improvement in an approximately 600-foot area of streambank (shown in Figure 4.8-1 of the Draft volume of the EIR) which lies in the path of a potential theoretical migration of the creek meander bend. Along this alignment the improvements will consist of a soil-backfilled and planted rock revetment designed and installed to help prevent future bank erosion in the area closest to the Moore Canal and where there is the highest potential for channel migration. The design and placement of this improvement will be subject to review and approval by the Cache Creek TAC.*

Figure 4.8-1
Cache Creek at Shifler Site with Proposed Streambank Stabilization Plan Components Shown



Source: FlowWest. Technical Memorandum: Cache Creek TAC Review Of Teichert Shifler Mining And Reclamation Project. December 3, 2020.

4.8-4(b) Prior to mining of other activity closer than 700 feet to the top of bank, the applicant shall implement a habitat enhancement improvement in an approximately 6-acre area of inset terrace (shown in Figure 4.8-1 of the Draft volume of the EIR). There exists an area on the inset terrace below the Shifler property that extends from County Road 94B along the right (south) bank to the Teichert Aggregates Woodland Plant. This terrace has some native woody vegetation along the first approximately 1,000 feet east of CR 94B but is otherwise predominantly bare or covered with non-native ruderal species. Within the approximately 6-acre zone shown in the referenced figure, the applicant shall remove non-native species and plant appropriate native woody (tree and shrub) species (with the species selection informed by which trees and shrubs are already present on the terrace). This action shall be undertaken in a manner so as not to disturb existing native species (especially elderberry) that already exist within this 6-acre zone. This action will help stabilize this terrace in addition to enhancing habitat between the creek channel and the project site, further reducing potential for channel migration. The habitat enhancement project shall be implemented, monitored, and maintained to the same revegetation standards as stipulated in the approved reclamation plan.

4.8-4(c) The minimum allowed setback between the top of bank and mining or other activity shall be 250 feet. Mining and reclamation plans shall be modified accordingly.

4.8-5 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation. This impact would be *less than significant*.

As noted previously, the proposed mining and reclamation activities would occur outside of the 100-year floodplain associated with Cache Creek. In addition, as discussed in Chapter 4.6 of this EIR, Impact 4.6-3, the project plans include a 300-foot setback that would separate the creek and the mining pit, and all stockpiled soils would occur within the mining pit. The relocated Moore Canal would be set back a minimum of 200 feet from the creek. Based on historic channel migration and floodwater conditions in Cache Creek, the floodwaters, when present, do not flow over the south bank of the creek adjacent to the site. Historic photographs also show increasing vegetation on the south bank over the course of 54 years. The existing and historic conditions, coupled with the absence of adverse seepage and slope stability conditions, would result in low potential for pit capture (i.e., breach of the mining pit).

Pit capture potential is analyzed in further detail in Chapter 4.6, Geology and Soils, Mineral Resources, and Paleontological Resources, of this EIR. Therefore, neither the mining slopes nor stockpiled soils would be subject to risk of overflowing floodwaters. Furthermore, the project site is not located near the ocean and, thus, would not be subject to tsunami hazards. In addition, the site is not located within the vicinity of a large closed body of water such as a lake or reservoir that could be subject to risks from seiches.

Based on the above, the proposed project would result in a ***less-than-significant*** impact related to the release of pollutants due to inundation.

Mitigation Measure(s)
None required.

4.8-6 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of mitigating impacts to hydrology and water quality. This impact would be *less than significant*.

Table 4.8-2 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to hydrology and water quality. It should be noted that consistency with other standards in SMARA, the County Zoning Ordinance, and the SMRO that are specific to land use and planning issues are discussed in Chapter 4.9, Land Use and Planning, of this EIR. As shown in the table, the proposed project would be generally consistent with applicable standards related to hydrology and water quality. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy CO-2.31 Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.	See Impact 4.8-1. The ground-disturbing activities associated with the proposed project would not result in adverse effects to water quality. Therefore, the proposed project would be consistent with this policy.
Policy CO-5.14 Require that proposals to convert land to uses other than agriculture, open space, or habitat demonstrate that groundwater recharge will not be significantly diminished.	Mining is an allowed use in the A-N zone; therefore, by definition land use conversion would not occur. The proposed project would include reclamation of the project site to agriculture, habitat, and open space in the form of a lake through which groundwater recharge could occur. Also Mitigation Measure 4.2-1 requires mitigation for net loss of agricultural land. Therefore, the proposed project is consistent with this policy.
Action A94 Adopt development design standards that use low-impact development techniques that emulate the natural hydrologic regime and reduce the amount of runoff and associated pollutants. Examples include vegetated swales, landscaped detention basins, permeable paving, and green roofs.	As discussed throughout this chapter, the proposed project would not include any discharge of stormwater runoff to Cache Creek or other downstream waterways. All runoff would be captured and treated on-site. Thus, the proposed project is consistent with this action.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Action A97 Continue to monitor water quality in Lower Cache Creek and annually make the resulting data publicly available.	The County Parks and Resources Department is responsible for implementation of this action. Thus, this action would not apply to the proposed project. However, consistent with Section 10-4.417 of the OCSMO, the project would be required, as a condition of approval, to provide for ongoing monitoring of groundwater quality in the project area over the life of the project.
Policy HS-2.7 Manage the floodplain to improve the reliability and quality of water supplies.	As discussed under Impact 4.8-4, the proposed mining pit would be set back approximately 300 feet from the 100-year floodplain associated with Cache Creek. Per the Channel Stability Analysis prepared by CEC, additional Cache Creek bank stabilization measures are needed to ensure equivalent protection to a 700-foot setback from the channel bank (see Mitigation Measure 4.8-4). As mitigated, the proposed project would be consistent with this policy.
Action HS-A5 Require a minimum of 100-year flood protection for new construction, and strive to achieve 200-year flood protection for unincorporated communities. Where such levels of protection are not provided, require new development to adhere to the requirements of State law and the County Flood Damage Prevention Ordinance. (Policy HS-2.1)	Per the project Hydraulics Study, the modeled 100-year floodplain limits associated with Cache Creek do not extend into the project site boundaries. In addition, recent modeling conducted by the California Department of Water Resources (DWR) indicates that the estimated 200-year and 500-year discharges will also stay within the creek's south bank along the project site reach. Thus, the proposed project is consistent with this policy.
Action HS-A13 Review development proposals to ensure that the need to maintain flood control capacity is balanced with consideration of the environmental health of watercourses that convey floodwaters so as not to cause significant erosion, sedimentation, water quality problems, or loss of habitat. (Policy HS-2.1)	See Policy HS-2.7 above.
Off-Channel Mining Plan	
Action 3.2-5. Require that surface mining operations demonstrate that proposed off-channel excavations extending below the groundwater level will not adversely affect the producing capacity or water quality of local active wells.	See Impact 4.8-2. The proposed project would not result in substantial adverse effects to water quality or groundwater levels at existing wells in the project vicinity or at the Wild Wings subdivision. Therefore, the project would be consistent with this regulation.
Action 3.4-3. Include a groundwater monitoring program as a condition of approval for any surface mining and reclamation operation that proposes off-channel excavations that extend below the groundwater level. The monitoring program shall require regular groundwater level data, as well as a water	The proposed project would include groundwater level and quality monitoring at the project site as a condition of approval, as well as mining pit and reclaimed seasonal lake water quality monitoring, in accordance with Yolo County OCSMO Section 10-4.417 requirements. Therefore, the project would be consistent with this regulation.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
quality monitoring program based on a set of developed standards.	
Action 4.4-4. Manage activities and development within the floodplain to avoid hazards and adverse impacts on surrounding properties. This shall be accomplished through enforcement of the County Flood Damage Ordinance and ensuring that new development complies with the requirements of the State Reclamation Board.	See Impacts 4.8-4 and 4.8-5. The proposed mining and reclamation area is located outside of the 100-year floodplain associated with Cache Creek. The proposed project would not result in flood-related hazards. Therefore, the project would be consistent with this regulation.
Action 4.4-5. Allow for the design of spillways or other engineered features that provide controlled flooding of off-channel mining pits during events which exceed the 100-year flood.	The results of the Hydraulics Study prepared for the proposed project by CEC substantiate that 200-year and 500-year storm discharges within Cache Creek would not overtop the south bank of the waterway in the project vicinity; thus, flooding of the mining pit is unlikely to occur, and the project would be consistent with this regulation.
Off-Channel Surface Mining Ordinance	
Section 10-4.412. "Dewatering" shall mean lowering the water level in a wet pit by pumping water from the pit, regardless of the purpose of the pumping. Water generated from dewatering activities must be beneficially used and discharged on-site. Pumps systems used to dewater the wet pits shall be powered by electricity (i.e., through connection to power lines) or solar power. This ordinance does not permit water generated from dewatering activities to be used or discharged off-site. No off-channel excavation shall use dewatering as a part of surface mining operations, unless site-specific technical analysis performed by a qualified Professional Engineer or Professional Geologist with experience in hydrogeology demonstrates that the proposed dewatering will not adversely affect off-site wells with respect to groundwater level and quality. The Professional Engineer or Professional Geologist shall demonstrate, using appropriate hydrogeologic analysis (i.e., using data-supported empirical, analytical, and/or numerical investigative tools), that the proposed dewatering activity will not adversely impact active off-site wells or other water resources (e.g., creeks and wetlands) within 1,000 feet of the proposed dewatering pit boundary. Average historic low groundwater levels in the subject well, shall be used for the analysis. Site-specific aquifer testing shall be conducted, if needed, to determine aquifer properties for the analysis. Consistent with the OCMP EIR, an effect shall be	Teichert proposes to conduct dewatering in-lieu of pumping groundwater solely from a well as part of the proposed surface mining operations on the project site. Groundwater from the Shifler mining area would be pumped to the adjacent Woodland Plant to supply the aggregate processing operations at the plant. Processing water from the project site and the Woodland Plant would be recycled through the use of settling ponds located at the Woodland Plant site. The discharge of aggregate wash water to the settling ponds at the Woodland Plant site would continue to be regulated through WDRs issued by the CVRWQCB. See Impact 4.8-2. The proposed dewatering activities would not adversely affect any active wells within 1,000 feet of the mining pit boundary. In addition, the project applicant would monitor water levels in the wet pit(s), evaluate nearby monitoring wells on a quarterly basis, and quantify the amount of water pumped from and returned to the wet pit(s). Therefore, the proposed project would be consistent with this regulation.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
considered adverse if the reduction in simulated groundwater levels exceeds two (2) feet at any well located within 1,000 feet of the pit boundary or results in well failure. The hydrogeologic analysis shall be submitted to the County for review and approval prior to implementation of any dewatering activities. If an adverse impact is identified by the analysis (either impacts to existing wells or other water resources, including creeks and wetlands), dewatering activities will be modified to eliminate any adverse impacts, and/or the applicant shall otherwise mitigate adverse impacts to the satisfaction of the County. Approval to dewater requires Planning Commission approval pursuant to 10-4.506 and 10-4.602. Prior to and for the duration of dewatering activities, the applicant shall: 1) monitor water levels in the wet pit(s), and nearby monitoring wells on a quarterly basis; and 2) quantify the amount of water pumped from and returned to the wet pit(s). This monitoring data shall be reviewed by the applicant's Professional Engineer or Professional Geologist to determine whether any adverse impacts are occurring. Documentation of the monitoring and data evaluation shall be submitted the County annually. If adverse impacts are found to be occurring, dewatering activities will be modified to eliminate adverse impacts, or the applicant shall otherwise mitigate impacts to the satisfaction of the County. Any measures designed to mitigate adverse impacts identified after implementation of dewatering activities shall be approved by the Planning Commission at a regularly scheduled meeting, with written notice of the adverse impact and proposed mitigation measures given by mail to all property owners within 1,000 feet of the pit boundary, in addition to any notice otherwise required by law. For purposes of this section, mitigation measures of adverse impacts may include, but are not limited to well modification, well relocation, compensation of well owners for increased pumping cost, or providing an alternative water supply. Such mitigation measures shall be paid for	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
by the mining operator, with sufficient financial security to ensure completion of the measures. Pumping of water from the wet pit in lieu of pumping of groundwater from a well shall not require predictive impact analysis in addition to analysis provided in the approved, site-specific CEQA document, unless the total annual water demand, as set forth in the CEQA document, is exceeded. This does not remove the requirement for monitoring and reporting activities described above.	
Section 10-4.413 Surface water may be allowed to enter mined areas, through either perimeter berms or ditches and grading, when designed and engineered pursuant to an approved reclamation plan and where effective best management practices (BMPs) to trap sediment and prohibit contamination are included. Appropriate erosion control measures shall be incorporated into all surface water drainage systems. Stormwater drainage systems shall be designed to connect with natural drainages so as to prevent flooding on surrounding properties and County rights-of-way. Storm water runoff from mining areas shall be conveyed to lowered areas (detention basins) to provide detention of runoff generated during a 20-year, one-hour storm event. All drainage conveyance channels or pipes (including spillways for detention areas) shall be designed to ensure positive drainage and minimize erosion. The drainage conveyance system and storm water detention areas shall be designed and maintained in accordance with Best Management Practices for the reduction of pollutants associated with runoff from mined areas. The design and maintenance procedures shall be documented in the Storm Water Pollution Prevention Plan required for mining operations. The drainage system shall be inspected annually by a Registered Civil Engineer, Registered Geologist, or Certified Erosion and Sediment Control Specialist to ensure that the drainage system is functioning effectively and that adverse erosion and sedimentation are not occurring. The annual inspection shall be documented in the Annual Mining and Reclamation Report. If the system is found to be functioning ineffectively, the	The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate or evaporate. See Impact 4.8-1. A SWPPP would be prepared for the overall project, which would specify the design and maintenance procedures for all proposed stormwater controls, including BMPs for the reduction of pollutants associated with runoff from mined areas. In addition, a NOI would be filed with the CVRWQCB. Consistent with OCSMO Section 10-4.413, a condition of approval would require the drainage system to be inspected annually by a Registered Civil Engineer, Registered Geologist, or Certified Erosion and Sediment Control Specialist to ensure that the drainage system is functioning effectively and that adverse erosion and sedimentation are not occurring.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
operator shall promptly implement the recommendations of the engineer.	
Section 10-4.416 All off-channel surface mining operations shall be provided with a minimum one-hundred (100) year flood protection. Off-channel excavations shall be designed to minimize the potential for levee breaching and/or pit capture. In addition, excavations shall be designed to prevent overtopping of channel banks or levees along Cache Creek and all tributaries and drainage channels (including, but not limited to, Willow Slough and Lamb Valley Slough). The flood protection upgrades shall be designed and constructed to provide the necessary 100-year protection without creating a net increase of in upstream or downstream flooding elevations. Upstream flooding could be increased if additional levee construction serves to confine flows to a narrow width, thereby increasing the water surface elevation. Downstream flooding could be increased if floodplain storage areas were removed from the drainage system by constructing levees in areas where they did not exist before (or raising levees that are overtopped in floods up to the 100-year event). Where feasible, alternative or non-structural flood management designs (potentially using detention basins, infiltration galleries, and/or floodplain storage in noncritical areas) shall be incorporated. New development (such as buildings, levees, or dikes) located within the floodplain shall conform to all applicable requirements of the Yolo County Flood Protection Ordinance and the Federal Emergency Management Agency (FEMA).	See Impact 4.8-5. The proposed mining and reclamation activities would occur outside of the 100-year floodplain associated with Cache Creek. In addition, as discussed in Chapter 4.6 of this EIR, Impact 4.6-3, the project plans include a 200-foot setback which would separate the creek and relocated Moore Canal, and a 20-foot minimum setback between the canal and the mining operations. A 100-foot buffer would be established between the stockpiled soils and the creek. The existing and historic conditions associated with Cache Creek, coupled with the absence of adverse seepage and slope stability conditions, would result in low potential for pit capture (i.e., beach of the mining pit). The project would not be required to include any flood protection improvements within Cache Creek. Therefore, the proposed project would comply with this regulation.
Section 10-4.417 All surface mining operations that propose off-channel excavations extending below the groundwater level shall develop and maintain a groundwater monitoring program consisting of two components: water level measurements and water quality testing. A groundwater level monitoring program shall be initiated at least six months prior to the removal of overburden. At a minimum, the groundwater level monitoring program shall consist of three monitoring wells, with at least one well upgradient of the wet pit and one well downgradient of the wet pit. Monitoring programs for proposed mining areas exceeding	A condition of approval would be recommended to ensure that the proposed project would comply with all applicable groundwater monitoring and reporting requirements established by OCSMO Section 10-4.417. Therefore, the proposed project would comply with this regulation.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
one-hundred (100) acres (total proposed mining area over the life of the project) shall include one additional well for each one-hundred (100) acres of wet pit mining. Therefore, wet pit mining areas of 1 to 99 acres would require three (3) wells, 100 to 199 acres would require four (4) wells, 200 to 299 acres would require five (5) wells, and so on. These wells shall be distributed through the vicinity of the wet pit mining area and used for groundwater level measurements. Groundwater levels shall be collected from the monitoring wells on a quarterly basis for six (6) months prior to mining and for the duration of the mining period. All wellheads shall be surveyed with horizontal and vertical control to allow calculation of groundwater elevations and development of groundwater contour maps. Groundwater levels shall be measured with an accuracy of plus or minus 0.01 foot, at minimum. Water quality in the vicinity of each active wet pit mining location shall be evaluated by analyzing samples from selected monitoring wells (one upgradient and one downgradient) and wet pit surface water sampling locations. Since mining may be conducted in phases over a relatively long period of time, pit boundaries may change with time. Selection, and installation if necessary, of downgradient monitoring wells, which would be critical to adequately characterize the groundwater quality in the vicinity of the wet pits, shall be submitted by the operator for review and approval by the County. The selected monitoring wells shall be installed and sampled at least six (6) months prior to the removal of overburden. The downgradient wells shall be located as near to the active wet pit mining areas as is practical. The upgradient wells shall be located an adequate distance from the proposed mining area to ensure that the effect of the wet pit on water quality in the well would be negligible. The water samples from the wet pit shall be collected in a manner so as to ensure that they are representative of water quality within the wet pit. The minimum sampling schedule and required analyses are described below. (a) Groundwater level and pit water surface level measurements shall be performed quarterly in all wells for the duration of mining and reclamation.	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(b) For monitoring the groundwater quality of proposed wet pit mining, sample collection and analysis of physical, chemical, and biological constituents shall be conducted according to the following specifications: (1) Prior to the removal of overburden – one upgradient and one downgradient well shall be sampled at least six (6) months prior to the removal of overburden and again at the start of excavation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; total petroleum hydrocarbons (TPH) as diesel and motor oil, benzene, toluene, ethylbenzene, and xylenes (BTEX); pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). (2) During wet pit mining and active reclamation – the wet pit shall be sampled semi-annually for the duration of mining and active reclamation. The samples shall, at minimum, be analyzed for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). One upgradient and one downgradient well shall be analyzed, at minimum, for general minerals; inorganics; nitrates; TPH as diesel and motor oil, BTEX; pesticides (EPA 8140 and 8150); and coliform (with E. coli confirmation). The wells shall be sampled according to the following schedule: semi-annually for the first two years, and annually every year thereafter. (3) After active reclamation – one (1) year after all heavy equipment work has been completed in the	

(Continued on next page)

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
vicinity of the pit, the TPH and BTEX analyses may be discontinued. The wet pit and one upgradient and one downgradient well shall be sampled and analyzed for pH; temperature; nutrients (phosphorous and nitrogen); total dissolved solids; total coliform (with E. coli confirmation); and biological oxygen demand. This monitoring shall be conducted every two (2) years for a ten (10) year period after completion of reclamation. A report to the Agency and Department of Environmental Health shall be submitted within thirty (30) days of the required groundwater testing. Additional tests and analysis shall be required only if a new condition is recognized that may threaten water quality or if the results of previous tests fall outside allowable ranges. If at any time during the monitoring period, testing results indicate that sampling parameters exceed Maximum Contaminant Levels (MCLs), as reported in the California Code of Regulations, or established background levels, a qualified professional shall evaluate potential sources of the contaminants. The evaluation shall determine the source and process of migration (surface or subsurface) of the contaminants. A report shall be submitted to the regulatory agencies (the Agency, Yolo County Department of Environmental Health, the Central Valley Regional Water Quality Control Board, and the U.S. Environmental Protection Agency) which identified the source of the detected contaminants and specifies remedial actions to be implemented by the operator for corrective action. If it is determined that the source of water quality degradation is off-site, and the County and the RWQCB are in agreement with this conclusion, the operator shall not be responsible for corrective action. If corrective action is ineffective or infeasible, the responsible party must provide reparation to affected well owners, either by treatment of water	

(Continued on next page)

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
at the wellhead or by procurement of an alternate water supply. If, at the completion of the mining and reclamation period, water quality has not been impacted, all monitoring wells shall be destroyed in accordance with the California Department of Water Resources Well Standards. If the County, landowner, or other agency wishes to maintain the wells for future water resources evaluation, selected wells may be preserved for this use. Monitoring wells may remain useful for post-mining land uses. The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrologic reports related to monitoring.	
Section 10-4.420.1 Each mining area to be reclaimed to a permanent lake as part of each approved long-range mining plan shall be evaluated annually by the operator for five years after the pit fills with groundwater with an intensive fish mercury monitoring program described in Section 10-5.517 of the Reclamation Ordinance.	See Section 10-5.517 below.
Section 10-4.427 If any off-channel excavation proposes to extend below the level of seasonal high groundwater, then six months prior to the commencement of excavation below the average high groundwater level, the operator shall identify and locate all off-site municipal wells within one-thousand (1,000) feet and all domestic wells within five hundred (500) feet of the proposed wet pit mining boundary. If active wells are identified, well characteristics (pumping rate, depth, and locations of screens) shall be determined. If wells are not located within one-thousand (1,000) feet, the pre-mining impact evaluation shall be considered complete. If wet pit mining is proposed within one-thousand (1,000) feet of a municipal water supply or within five-hundred (500) feet of a domestic water supply well, a capture zone analysis shall be conducted using the U.S. Environmental Protection Agency model WHPA (or a similar model of equal capability and proven reliability, as approved by the Director). The simulation shall assume thirty	See Impact 4.8-2.

(Continued on next page)

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(30) days of continuous pumping of the water supply well (at its maximum probable yield) under analysis. A mining setback shall be established so that the capture zone and the pit do not coincide. Alternatively, the operator shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County). The analysis shall be prepared and signed by a Registered Civil Engineer or Certified Hydrogeologist and submitted to the County for review and approved at least six months prior to the commencement of excavation below the seasonal high groundwater level. Any new drinking water wells proposed for installation within one-thousand (1,000) feet of an approved wet pit mining area shall be subject to review by the Yolo County Environmental Health Department. The County shall determine, based on site-specific hydrogeology and available water quality data, whether to approve the proposed well installation. Analysis of environmental impact for projects in the vicinity of the wet pits shall include consideration of potential water quality impacts on the open water bodies. The County may retain appropriate staff or a contract consultant to provide third party critical review of all hydrogeologic reports related to mining applications.	
Section 10-4.429 All off-channel surface mining operations shall comply with the following setbacks: (a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented; (b) Soil stockpiles shall be located a minimum of five-hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented;	The project plans include a 200-foot setback which would separate the creek and the relocated Moore Canal, and a 20-foot minimum setback between the canal and the mining operations. A 100-foot buffer would be established between the stockpiled soils and the creek. See Impact 4.8-4. Based on the findings of the Channel Stability Analysis prepared for the proposed project, the proposed project would comply with the standards established by OCSMO Section 10-4.429(e). Additional bank stabilization measures are needed to ensure equivalent protection to a 700-foot setback from the channel bank (see Mitigation Measure 4.8-4). Compliance with the other setback standards established by OCSMO Section 10-4.429 is discussed in Chapter 4.9, Land Use and Planning, of this EIR.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place. (d) Off-channel excavations shall provide a minimum 50-foot setback from the neighboring property line to allow for access around the pit during mining and after reclamation for maintenance, safety, and other purposes. (e) Proposed off-channel excavations located within the streamway influence zone shall be set back a minimum of seven-hundred (700) feet from the existing channel bank, unless it is demonstrated that a smaller distance will not adversely affect channel stability. Under no circumstances should off-channel excavations be located within 200 feet of the existing channel bank. Evaluations of proposed off-channel excavations within 700 feet of the channel	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
bank shall demonstrate, at a minimum, the following: (1) The two-hundred (200) foot setback area does not include portions of the historically active channel. (2) The two-hundred (200) foot setback area does not include formerly mined lands separated from the active channel by levees or unmined areas less than two-hundred (200) feet wide (measured perpendicular to the active channel). (3) Acceptable channel hydraulic conditions (based on existing or site-specific hydraulic models) for the Cache Creek channel adjacent to the site and extending not less than one-thousand (1,000) feet upstream and downstream of the site. (4) Acceptable level of erosion potential of the channel bank adjacent to the site based on predicted stream flow velocity and shear stress on bank materials during a 100-year flow and historical patterns of erosion. (5) Acceptable level of stability of the slopes separating the mining area from the creek channel based on an analytical slope stability analysis in conformance with Sections 10-4.426 and 10-5.517 of this title that includes evaluation of stability conditions during 100-year peak flows in the channel. (6) Appropriate bank stabilization designs, if needed, consistent with channel design recommendations of the Cache Creek Resource Management Plan or approved by the Technical Advisory Committee. (7) The condition of flood protection structures and the integrity of the land within the approved setback	

(Continued on next page)

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
zone separating the mining areas and the channel shall be inspected annually by a Registered Civil Engineer and reported to the Director. The annual report shall include recommendations for remedial action for identified erosion problems (see also Reclamation Ordinance Section 10-5.506). Approval of any off-channel mining project located within seven-hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project operator to participate in the completion of identified channel improvement projects along the frontage of their property, consistent with the CCRMP and CCIP, including implementation of the Channel Form Template. The agreement shall require that the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features required of the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner. (f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation; and (g) Recreational facilities shall be located a minimum of one-hundred and fifty (150) feet from private dwellings, with a landscaped buffer provided to reduce noise and maintain privacy, unless the dwelling is proposed to be an integral component of the recreational facility. (h) No mining activities shall occur within two-thousand (2,000) feet of the community boundaries of Capay, Esparto, Madison, Woodland, and/or Yolo. This setback may be reduced by up to five-hundred (500)	

(Continued on next page)

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
feet when existing mature vegetation, proposed landscape buffers of a sufficient height and density to create a visual buffer (consisting of native species and fence-row habitat appropriate to the area), or other site-specific characteristics reduce potential incompatibilities between urban land uses and mining. Commercial mining shall not take place east of County Road 96.	
Section 10-4.437 No wastewater shall be directly discharged to Cache Creek. Sediment fines generated by aggregate processing shall either be used for agricultural soil enhancement, habitat restoration sites, or shall be placed in settling ponds, designed and operated in accordance with all applicable regulations, and used for backfill materials in off-channel excavations. Agricultural tailwater shall be diverted to catchment basins prior to its release to the creek.	Stormwater runoff would not leave the site during, or after completion of, the proposed mining activities. See Impact 4.8-2. Processing water from the project site and the Woodland Plant would be recycled through the use of settling ponds located at the Woodland Plant site. The discharge of aggregate wash water to the settling ponds at the Woodland Plant site would continue to be regulated through WDRs issued by the CVRWQCB. The project would include modifications to the existing WDRs to allow for the use of fine sediment from aggregate processing (i.e., "fines") in the eventual reclamation of the project site. The processing fines would be pumped from the Woodland Plant site as a slurry (mix of water and fines) and discharged into the mining pit in accordance with the requirements of the revised WDRs. Based on the above, the proposed project would comply with this regulation.
Surface Mining Reclamation Ordination	
Section 10-5.503 The area of backfilled off-channel excavations extending below the groundwater table shall be minimized in order to reduce changes to groundwater levels and flow. Backfilled pits shall be oriented with regard to the direction of groundwater flow to prevent localized obstructions. If a backfilled off-channel excavation is proposed to penetrate either fifty (50) feet or one-half (1/2) into the saturated thickness of the shallow aquifer, then at least six months prior to the commencement of excavation below the average high groundwater level, the applicant shall demonstrate in a manner consistent with the Technical Studies that the pit design will not adversely affect active off-site wells within one-thousand (1,000) feet of the proposed pit boundary. If the application includes a series of backfilled pits, then the applicant shall also demonstrate that the cumulative effects of the	See OCSMO Section 10-4.412 above.

(Continued on next page)

Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
multiple backfilled pits will not adversely affect groundwater flow, if there are any active off-site wells within one-thousand (1,000) feet of the pit boundaries. The applicant shall demonstrate, using MODFLOW (or a similar model of equal capability and proven reliability, as approved by the Director), that the proposed pit design would not adversely impact active off-site wells within one-thousand (1,000) feet of the proposed pit boundary or result in well failure. Average, historic low groundwater levels, which represent the condition of maximum threat to water levels in the subject well, shall be used for this simulation. If an adverse impact is identified by the MODFLOW (or other approved model) simulation, the mining and reclamation plan shall be modified, or the applicant shall submit a written agreement that the well owner has agreed to relocate or redesign the well, or accept the potential impact (at no expense to the County). Site-specific aquifer testing shall be conducted, if needed, to determine aquifer properties for the required modeling.	
Section 10-5.507 Upon the completion of operations, grading and revegetation shall minimize erosion and convey storm water runoff from reclaimed mining areas to natural outlets or interior basins. The condition of the land shall allow sufficient drainage to prevent water pockets or undue erosion. Stormwater drainage shall be designed so as to prevent flooding on surrounding properties and County rights-of-way. Drainage and detention facilities within the proposed mining areas and vicinity shall be designed to prevent discharges to the wet pits and surface water conveyances (i.e., creeks and sloughs) from the 20-year/1-hour storm or less. For events greater than the 20-year/1-hour storm, runoff from around the perimeter of the mining areas shall be directed into surface water conveyances. Runoff from within the lowered mining area shall be directed away from wet pits to detention/infiltration areas. Drainage plans shall not rely solely on ditches and berms to direct runoff away from the wet pit. Without proper	See Impact 4.8-3. The project site would be graded to allow stormwater runoff to collect in the proposed mining pit, where the runoff would gradually percolate, contributing to groundwater recharge, or evaporate. At the conclusion of mining, the project site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. New stormwater detention basins would be provided within the western and eastern reclaimed agricultural areas of the site. During mining activities, as well as upon reclamation of the site to agriculture, lake, and habitat uses, the proposed project would not include discharge of stormwater to Cache Creek. In addition, consistent with County requirements, the project site would be subject to ongoing maintenance and monitoring to ensure that the drainage facilities on the reclaimed site continue to function properly. Therefore, the proposed project would comply with this regulation.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
maintenance, berms and ditches may deteriorate with time and become ineffective. Drainage plans shall emphasize grading of disturbed areas that results in broad, gentle slopes that drain away from the pits. Grading plans shall be reviewed by the County to evaluate compliance with drainage plan objectives prior to project approval. In addition, a restriction shall be recorded on the deed that requires berms and ditches to be permanently maintained in a condition consistent with the final approval. The deed restriction shall require an inspection easement which allows County staff or other authorized personnel access for the inspection of berms and ditches. If the County determines that evidence of damage to those facilities exists, the County shall require that the owner have an inspection report for the property prepared by a Registered Geologist or Registered Civil Engineer. The inspection report, including recommendations for corrective action, if needed, shall be submitted to the Director. The property owner shall be required to implement recommended corrective actions, if any.	
Section 10-5.508 The grading of final slopes, the replacement of soil, and associated erosion control measures shall take place prior to November 1 in areas where mining has been completed. To minimize erosion, the finish grading of mining pit slopes above the average seasonal high groundwater level, with the exception of the location of designated haul roads, shall be performed as soon as practical after the mining of overburden and unsaturated aggregate resources has been completed. A drought-tolerant, weed-free mix of native grass species shall be established on slopes prior to November 1 or alternate erosion control (mulch or netting) shall be placed on exposed soil on the slopes prior to this date. Phasing of mining to minimize the length of exposed mining slopes during the rainy season is encouraged.	Conditions of approval will be included for the project to ensure compliance with this requirement. Therefore, the proposed project would comply with this regulation.
Section 10-5.511 Reclaimed agricultural surfaces shall be graded to provide adequate field gradients to allow surface/furrow irrigation of crops and allow for adequate storm water drainage.	Conditions of approval will be included to ensure that at the conclusion of mining, the project site would remain contoured such that stormwater runoff would be directed to the reclaimed mining area. Therefore, the proposed project would be consistent with this regulation.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Section 10-5.516 The final distance between lowered surfaces reclaimed to agriculture and the average high groundwater shall not be less than five (5) feet. The average high groundwater level shall be established for each proposed mining area. The degree of groundwater level fluctuation varies with location throughout the basin and within relatively small areas (proposed mining sites). The determination of the average high groundwater level shall be conducted by a Registered Civil Engineer or Certified Hydrogeologist and shall be based on wet season water level elevation data collected at the proposed site or adjacent areas with similar hydrogeological conditions. Water level records prior to 1977 shall not be used since they would reflect conditions prior to the installation of the Indian Valley Dam. The dam caused a significant change in hydrology of the basin and data collected before its installation shall not be used in estimating current average high groundwater levels. The wells shall be adequately distributed throughout the proposed mining site to reflect spatial variation in groundwater levels and fluctuations.	Agricultural reclamation would require the use of overburden and processing fines to raise the pit floor elevation above the average high groundwater level followed by the placement of a minimum of four feet of salvaged reclamation soils (stockpiled topsoil and upper layers of overburden) on the created land. The Reclamation Plan proposes reclaimed agricultural field elevations of a minimum of five feet above the average high groundwater elevations. Average high groundwater levels would range from 75 feet MSL in the northwestern corner to 57 feet MSL in the southeastern corner of the western agricultural field, and from 57 feet MSL in the northwestern corner to 47 feet MSL in the southeastern corner of the eastern agricultural field. Therefore, the proposed project would comply with this regulation.
Section 10-5.517 As part of each approved long-term mining plan involving wet pit mining to be reclaimed to a permanent pond, lake, or water feature, the operator shall maintain, monitor, and report to the Director according to the standards given in this section. Requirements and restrictions are distinguished by phase of operation as described below. (a) Mercury Protocols. The Director shall issue and update as needed "Lower Cache Creek Off-Channel Pits Mercury Monitoring Protocols" (Protocols), which shall provide detailed requirements for mercury monitoring activities. The Protocols shall include procedures for monitoring conditions in each pit lake, and for monitoring ambient mercury level in the lower Cache Creek channel within the CCAP planning area, as described below. The Protocols shall be developed and implemented by a qualified aquatic scientist or equivalent professional acceptable to the Director. The Protocols shall identify minimum laboratory analytical reporting limits, which	Conditions of approval would be included to require the proposed project to comply with all applicable water quality monitoring and reporting requirements established by SMRO Section 10-5.517. Therefore, the proposed project would be consistent with this regulation.

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
may not exceed the applicable response threshold identified in subsection (e) below. Data produced from implementing the Protocols shall meet or exceed applicable standards in the industry. (b) Ambient Mercury Level. The determination of the ambient or "baseline" fish mercury level shall be undertaken by the County every ten years in years ending in 0. This analysis shall be undertaken by the County for use as a baseline of comparison for fish mercury testing conducted in individual wet mining pits. The work to establish this baseline every ten years shall be conducted by a qualified aquatic systems scientist acceptable to the Director and provided in the form of a report to the Director. It shall be paid for by the mining permit operators on a fair-share basis. The results of monitoring and evaluation of available data shall be provided in the report to substantiate the conclusions regarding ambient concentrations of mercury in fish within the lower Cache Creek channel within the CCAP planning area. (c) Pit Monitoring. (1) Mining Phase (including during idle periods as defined in SMARA). The operator shall monitor fish and water column profiles in each pit lake once every year during the period generally between September and November for the first five years after a pit lake is created. Fish monitoring should include sport fish where possible, together with other representative species that have comparison samples from the creek and/or other monitored ponds. Sport fish are defined as predatory, trophic level four fish such as bass, which are likely to be primary angling targets and have the highest relative mercury levels. The requirements of this subsection apply to any pit lake that is permanently wet and navigable by a monitoring vessel. If, in the initial five years after the pit lake is created, the applicable response threshold identified in subsection (e) is exceeded in any three of five monitoring years, the operator shall, solely at their own expense, undertake expanded	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g). (2) Reclamation Phase. No monitoring is required after mining has concluded, during the period that an approved reclamation plan is being implemented, provided reclamation is completed within the time specified by SMARA or the project approval, whichever is sooner. (3) Post-Reclamation Phase. After reclamation is completed, the operator shall monitor fish and water column profiles in each pit lake at least once every two years during the period of September-November for ten years following reclamation. Monitoring shall commence in the first calendar year following completion of reclamation activities. If fish monitoring results from the post-reclamation period exceed the applicable response threshold described in subsection (e) or, for ponds that have implemented mitigation management, results do not exhibit a general decline in mercury levels, the operator shall, solely at their own expense, undertake expanded analysis pursuant to subsection (f) and preparation of a lake management plan pursuant to subsection (g). (4) Other Monitoring Obligation. If monitoring conducted during both the mining and post-reclamation phase did not identify any exceedances of the ambient mercury level for a particular pit lake, and at the sole discretion of the Director no other relevant factors substantially support that continued monitoring is merited, the operator shall have no further obligations. (d) Reporting. (1) Pit Monitoring Results. Reporting and evaluating of subsection (c) pit monitoring results shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Monitoring activities and results shall be summarized in a single report (addressing all wet pit lakes) and submitted to the Director within six months following each annual monitoring event. The report shall	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
include, at a minimum: (1) results from subsection (b) (pit monitoring), in relation to subsection (a) (ambient mercury levels). (2) Expanded Analysis Results. Reporting and evaluation of subsection (f) expanded analysis shall be conducted by a qualified aquatic scientist or equivalent professional acceptable to the Director. Results shall be summarized in a single report (addressing all affected wet pit lakes) and submitted to the Director within six months following each annual monitoring event. The report shall include, at a minimum, the results of the expanded analysis undertaken pursuant subsection (f). (3) Data Sharing. For pit lakes open to the public, the Director may submit the data on mercury concentrations in pit lake fish to the state Office of Environmental Health Hazard Assessment (or its successor) for developing site-specific fish consumption advisories. (e) Response Thresholds. (1) Fish Consumption Advisory. If at any time during any phase of monitoring the pit lake's average sport fish tissue mercury concentration exceeds the Sport Fish Water Quality Objective, as it may be modified by the state over time (as of 2019, the level was 0.2 mg/kg), the operator shall post fish consumption advisory signs at access points around the lake and around the lake perimeter. Catch-and-release fishing may still be allowed. Unless site-specific guidance has been developed by the state's Office of Health Hazard Assessment or the County, statewide fish consumption guidance shall be provided. (2) Mining Phase Results. If, during the mining phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three of five monitoring years, annual monitoring shall continue for an additional five years, and the operator shall undertake expanded analysis pursuant to subsection (f) and preparation of a lake	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
management plan pursuant to subsection (g). (3) Post-Reclamation Phase Results. If during the first ten years of the post-reclamation phase of monitoring, the pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three of five monitoring years, biennial monitoring shall continue for an additional ten years, and the operator shall undertake expanded analysis pursuant to subsection(f) and preparation of a lake management plan pursuant to subsection(g). (f) Expanded Analysis. (1) General. If during the mining or post-reclamation phase, any pit lake's average fish tissue mercury concentration exceeds the ambient mercury level for any three years, the operator shall undertake expanded analyses. The analysis shall include expanded lake water column profiling (a minimum of five profiles per affected wet pit lake plus one or more nonaffected lakes for control purposes) conducted during the warm season (generally May through October) in an appropriate deep profiling location for each pit lake. The following water quality parameters shall be collected at regular depth intervals, from surface to bottom of each lake, following protocols identified in subsection (a): temperature, dissolved oxygen, conductivity, pH and oxidation-reduction potential (ORP), turbidity or total suspended solids, dissolved organic matter, and algal density by Chlorophyll or Phycocyanin. The initial analysis shall also include one-time collections of fine grained (clay/silt) bottom sediments from a minimum of six well distributed locations for each affected lake, and from one or more non-affected lakes for control purposes, to be analyzed for mercury and organic content. (2) Scope of Analysis. The purpose of the expanded analyses is to identify and assess potential factors linked to elevated methylmercury production and/or	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
bioaccumulation in each pit lake. The scope of the expanded analyses shall include monitoring and analysis appropriate to fulfill this purpose, invoking best practices in the industry. In addition to the analyses described in subsection (f)(1) above, the analysis should also consider such factors as: electrical conductivity, bathymetry (maximum and average depths, depth-to-surface area ratios, etc.), and trophic status indicators (concentrations, Secchi depth, chlorophyll a, fish assemblages, etc.). Additional types of testing may be indicated and appropriate if initial results are inconclusive. (3) Use of Results. The results of the expanded analyses undertaken pursuant to this subsection shall be used to inform the preparation of a lake management plan described below under subsection (g). (g) Lake Management Activities (1) General. If monitoring conducted during the mining or post-reclamation phases triggers the requirement to undertake expanded analysis and prepare and implement a lake management plan, the operator shall implement lake management activities designed by a qualified aquatic scientist or equivalent professional acceptable to the Director, informed by the results of subsection (f). Options for addressing elevated mercury levels may include (A) and/or (B) below at the Director's sole discretion and at the operator's sole expense. (A) Lake Management Plan. Prepare a lake management plan that provides a feasible, adaptive management approach to reducing fish tissue mercury concentrations to at or below the ambient mercury level. Potential mercury control methods could include, for example: addition of oxygen to or physical mixing of anoxic bottom waters; alteration of water chemistry (modify pH or organic carbon concentration); and/or removal or replacement of affected	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
fish populations. The lake management plan may be subject to external peer review at the discretion of the Director. Lake management activities shall be appropriate to the phase of the operation (e.g., during mining or post-reclamation). The Lake Management Plan shall include a recommendation for continued monitoring and reporting. All costs associated with preparation and implementation of the lake management plan shall be solely those of the operator. Upon acceptance by the Director, the operator shall immediately implement the plan. The lake management plan shall generally be implemented within three years of reported results from the expanded analyses resulting from subsection (f). If lake management does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three years of implementation, at the sole discretion of the Director, the operator may prepare an alternate management plan with reasonable likelihood of mitigating the conditions. (B) Revised Reclamation Plan. As an alternative to (A), or if (A) does not achieve acceptable results and/or demonstrate declining mercury levels after a maximum of three years of implementation, at the sole discretion of the Director, the operator shall prepare and submit revisions to the reclamation plan (including appropriate applications and information for permit amendment) to fill the pit lake with suitable fill material to a level no less than five (5) feet above the average seasonal high groundwater level, and modify the end use to agriculture, habitat, or open space at the discretion of the Director, subject to Article 6 of the Mining Ordinance and/or Article 8 of the Reclamation Ordinance as may be applicable.	

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Table 4.8-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(2) Implementation Obligations. (A) If a lake management plan is triggered during the mining or post-reclamation phase and the subsequent lake management activities do not achieve acceptable results and/or demonstrate declining mercury levels, the operator may propose different or additional measures for consideration by the Director and implementation by the operator, or the Director may direct the operator to proceed to modify the reclamation plan as described in subsection (g)(1)(B). (B) Notwithstanding the results of monitoring and/or lake management activities during the mining phase, the operator shall, during the post-reclamation phase, conduct the required ten years of biennial monitoring. (C) If monitoring conducted during the post-reclamation phase identifies three monitoring years of mercury concentrations exceeding the ambient mercury level, the operator shall implement expanded analyses as in subsection (f), to help prepare and implement a lake management plan and associated monitoring. (D) If subsequent monitoring after implementation of lake management activities, during the post-reclamation phase, demonstrates levels of fish tissue mercury at or below the ambient mercury level for any three monitoring years (i.e., the management plan is effective), the operator shall be obligated to continue implementation of the plan and continue monitoring, or provide adequate funding for the County to do both, in perpetuity.	
Section 10-5.524 Monitoring during the mining and reclamation period shall be a condition of the permit. The applicant shall ensure that the groundwater monitoring of wet pit mining continues for (10) years after the completion of reclamation.	A condition of approval will be included to require the project to undertake water quality monitoring consistent with this regulation.

4.9 Land Use and Planning

4.9 LAND USE AND PLANNING

4.9.1 INTRODUCTION

The purpose of the Land Use and Planning section of the EIR is to examine the proposed project's compatibility with existing and planned land uses in the area and assess any inconsistency with applicable planning documents. This chapter includes a description of the existing land use setting of the project site and the adjacent area. The information contained in this analysis is primarily based on the Yolo County General Plan,[1] the Yolo County General Plan EIR,[2] and the Cache Creek Area Plan (CCAP) Update FEIR.[3] In addition, the reader is referred to the various environmental resource evaluations presented in the other technical chapters of this EIR for a discussion of potential physical/environmental effects that may result from land use changes.

In response to the NOP, the County received comments related to Land Use and Planning from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Potential impacts to nearby schools, including the school operated by the West Valley Baptist Church (Resident);
- Impacts to the Yolo Fliers Club, which organizes activities for children (Resident);
- Delay in completion of reclamation as compared to other mining sites (Resident);
- Potential impacts on local schools and outdoor recreation areas (Resident); and
- Potential impacts to the Monument Hill Memorial Park cemetery (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

This chapter does not include concepts or terminology that require definition in this section.

4.9.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to land use and planning.

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1 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
2 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*. April 2009.
3 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and scattered native vegetation.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the Cache Creek Area Plan (CCAP) boundaries.

Description of Local Environment

The following sections describe the existing environment in the surrounding area and on the project site.

Surrounding Area

The project site is bounded by Cache Creek to the north, County Road 94B to the west, County Road 22 to the south, and unpaved dirt access roads to the east. Surrounding land uses include Teichert's Woodland Plant site to the northeast; Teichert's Storz mining site and the Cache Creek Nature Preserve to the northwest; agricultural land and farm dwellings to the west; the Yolo Fliers Club golf course, the Watts-Woodland Airport, and Wild Wings subdivision to the southwest; the Monument Hill Memorial Park cemetery and rural residential to the south; and agricultural lands to the east. The agricultural land to the east of the site includes one farm dwelling located near the eastern project site boundary.

Project Site

The central and southern portions of the project site consist primarily of actively managed agricultural land. The northern portion of the site consists of scattered oak trees and ruderal grassland vegetation, as well as an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant located north of the project site. Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant located north of the project site.

4.9.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of land use and planning under the CEQA process.

Federal Regulations

There are no applicable federal laws or regulations pertaining to land use and planning for the project area.

State Regulations

At the State level, the Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. In addition, SMARA encourages the production, conservation, and protection of the state's mineral resources. SMARA Chapter 9, Division 2 of the Public Resources Code, requires the State Mining and Geology Board to adopt State policy for the reclamation of mined lands and the conservation of mineral resources. The applicable SMARA regulations adopted for the purpose of avoiding or mitigating environmental effects are presented below in Table 4.9-3.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The following goals and policies from the County's General Plan related to Land Use and Planning are applicable to the proposed project:

Policy LU-3.5	Avoid or minimize conflicts and/or incompatibilities between land uses.
Policy LU-3.6	Maintain the compatibility of surrounding land uses and development, so as not to impede the existing and planned operation of public airports, landfills and related facilities and community sewage treatment facilities.

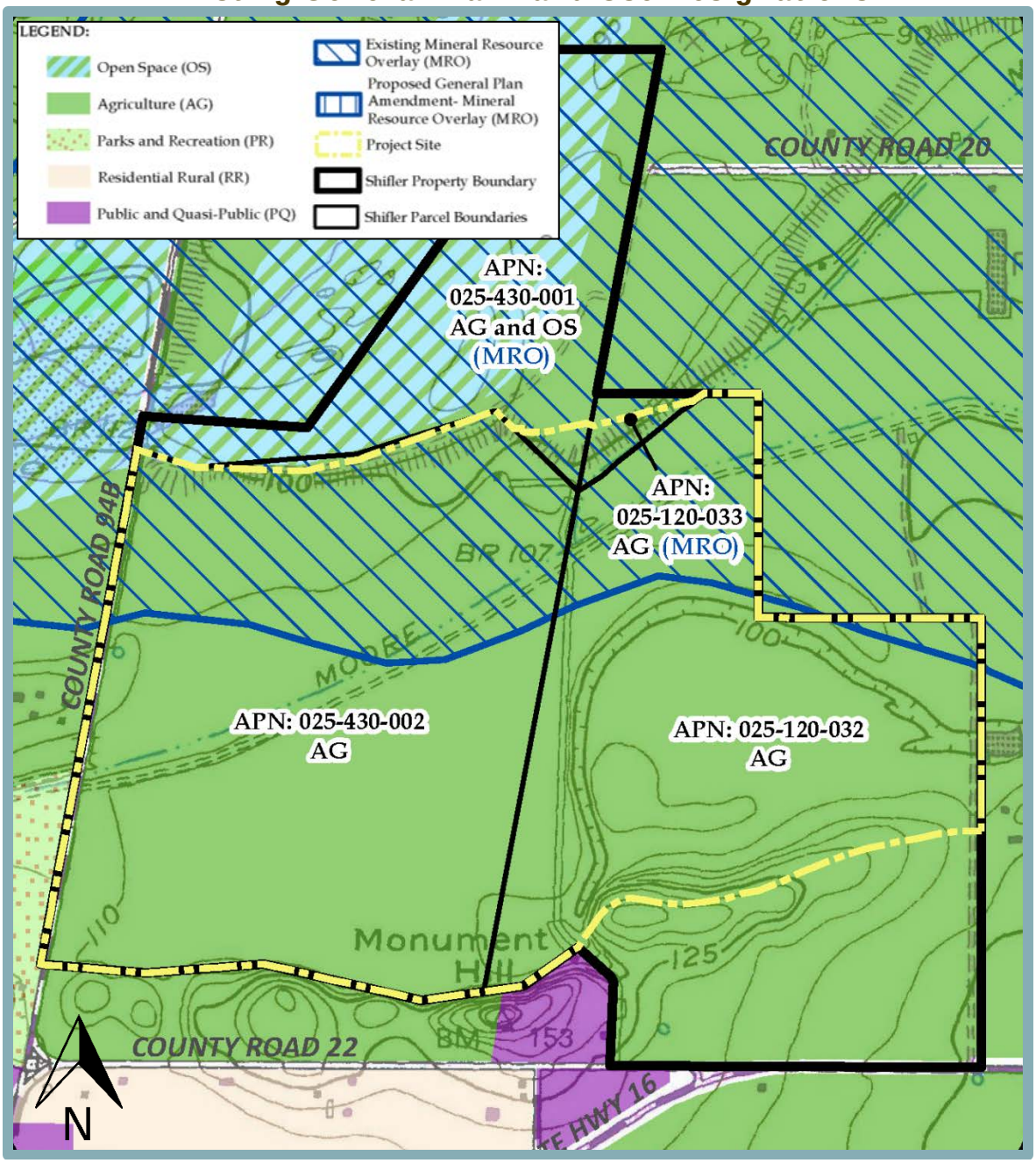
Land Use Designation – Project Site

Per the Yolo County General Plan, the project site is designated as Agriculture (AG), with a portion (107 acres) also designated Mineral Resource Overlay (MRO) (see Figure 4.9-1).

Agricultural

The AG designation is defined to include the full range of cultivated agriculture, such as row crops, orchards, vineyards, dryland farming, livestock grazing, forest products, horticulture, floriculture, apiaries, confined animal facilities, and equestrian facilities. In addition, the designation includes agricultural industrial uses (e.g. agricultural research, processing and storage; supply; service; crop dusting; agricultural chemical and equipment sales; surface mining; etc.) as well as agricultural commercial uses (e.g. roadside stands, "Yolo Stores," wineries, farm-based tourism (e.g. u-pick, dude ranches, lodging), horseshows, rodeos, crop-based seasonal events, ancillary restaurants and/or stores) serving rural areas. Agriculture also includes farmworker housing, surface mining, and incidental habitat.

Figure 4.9-1
Existing General Plan Land Use Designations



Mineral Resource Overlay

The MRO designation applies to State designated mineral resource zones (MRZ-2) containing critical geological deposits needed for economic use, as well as existing mining operations.

Land Use Designations – Surrounding Uses

The existing General Plan land use designations of each of the surrounding areas are summarized in Table 4.9-1 below. Each of the General Plan land use designations is described in the following sections.

Table 4.9-1
Summary of Adjacent Land Use Designations

Relationship to Project Site	Existing Use	General Plan Land Use Designation
North	Undeveloped	AG
		MRO
		Open Space (OS)
South	Agricultural Lands	AG
	Monument Hill Memorial Park Cemetery	Public and Quasi-Public (PQ)
West	Cache Creek Conservancy	OS
	Farm Dwellings	AG
	Yolo Fliers Club Golf Course	Parks and Recreation (P-R)
	Wild Wings Subdivision	Residential Low (RL)
East	Agricultural Lands	AG

Policy LU-1.1 of the Yolo County General Plan defines the OS, PQ, P-R, and RL land use designations as follows:

Open Space

The OS designation includes public open space lands, major natural water bodies, agricultural buffer areas, and habitat. The primary land use is characterized by "passive" and/or very low-intensity management, as distinguished from AG or P-R land use designations, which involve more intense management of the land. Detention basins are allowed as an ancillary use when designed with naturalized features and native landscaping, compatible with the open space primary use.

Public and Quasi-Public

The PQ designation includes public/governmental offices, places of worship, schools, libraries, and other community and/or civic uses. In addition, the designation includes public airports, including related visitor services, and infrastructure including wastewater treatment facilities, municipal wells, landfills, and stormwater detention basins. The PQ designation may include agricultural buffer areas.

Parks and Recreation

The P-R designation includes developed (or "active") park facilities, such as regional, community and neighborhood parks, tot lots, sports fields, and public pools. In addition, the designation may include agricultural buffer areas. Detention basins are allowed as an ancillary use when designed with recreational or sports features.

Residential Low

The RL designation includes traditional neighborhoods with primarily detached single-family units, although attached and/or detached second units or duplexes are allowed. Triplexes and fourplexes are allowed when designed to be compatible with adjoining single-family homes. Small compatible neighborhood-serving retail and office uses are allowed as ancillary uses.

Zoning – Project Site and Surrounding Uses

Zoning Designation – Project Site

The site is zoned Agriculture Intensive (A-N) (see Figure 4.9-2). Per Section 8-2.301 of the City's Zoning Code, the purpose of agricultural zones is to provide for land uses that support and enhance agriculture as the predominant land use in the unincorporated area of the County, including open space, natural resource management, and enjoyment of scenic beauty.

Agriculture Intensive

Per the Yolo County Code of Ordinances, the A-N zoning district is applied to preserve lands best suited for intensive agricultural uses typically dependent on higher quality soils, water availability, and relatively flat topography. The purpose of the zone is to promote those uses, while preventing the encroachment of nonagricultural uses. Uses in the A-N Zone are primarily limited to intensive agricultural production and other activities compatible with agricultural uses. Surface mining is a conditionally allowed use with a mining permit.

Zoning Designations – Surrounding Uses

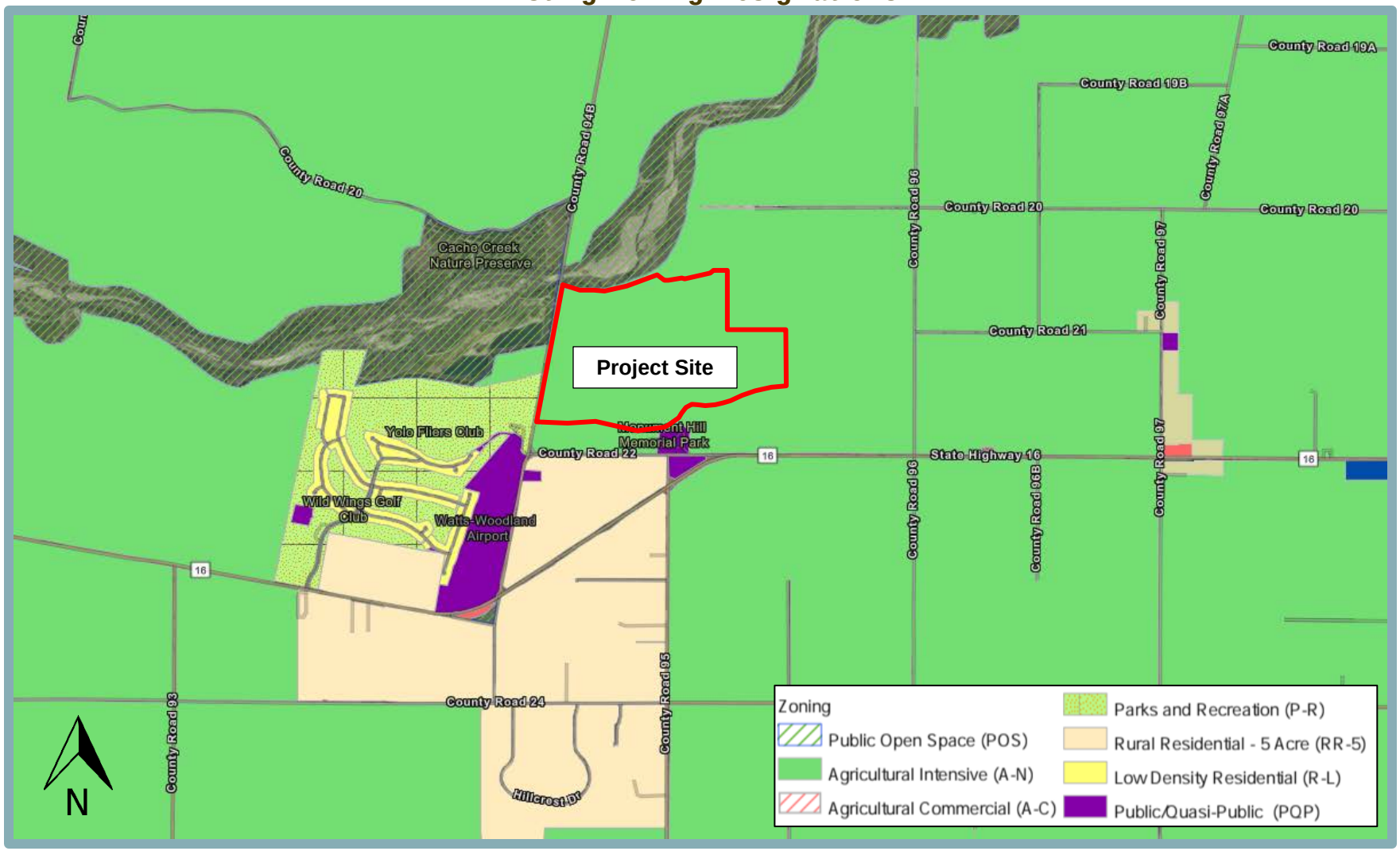
The existing zoning designations of each of the surrounding areas are summarized in Table 4.9-2 below. Each of the zoning designations is described in the following sections.

Table 4.9-2
Summary of Adjacent Zoning Designations

Relationship to Project Site	Existing Use	Zoning Designation
North	Undeveloped	A-N
		Public Open Space (POS)
South	Agricultural Lands	A-N
	Monument Hill Memorial Park Cemetery	Public/Quasi-Public (PQP)
West	Cache Creek Conservancy	POS
	Farm Dwellings	A-N
	Yolo Fliers Club Golf Course	Parks and Recreation (P-R)
	Wild Wings Subdivision	Low Density Residential (R-L)
East	Agricultural Lands	A-N

The Yolo County Code of Ordinances defines the POS, PQP, P-R, and R-L zoning designations as follows:

Figure 4.9-2
Existing Zoning Designations



Public Open Space

Per Section 8-2.802 of the Yolo County Code of Ordinances, the purpose of the POS zone is to recognize major publicly-owned open space lands, major natural water bodies, agricultural buffer areas, and habitat preserves. The POS lands are characterized by passive or low management uses. Detention basins are allowed in the POS zone if they are designed with naturalized features and native landscaping. The POS zone implements the OS land use designation in the Yolo County General Plan.

Public/Quasi-Public

Per Section 8-2.802 of the Yolo County Code of Ordinances, the PQP zone is applied to lands that are occupied or used for public and governmental offices, places of worship, schools, libraries, and civic uses. Other typical uses include airports, water and wastewater treatment plants, drainage basins, and sanitary landfills. As with park facilities, smaller public/quasi-public uses involving less than 5,000 square feet (sf) of building space may be permitted in commercial and some industrial zones. The PQP zone implements the PQ land use designation in the Yolo County General Plan.

Parks and Recreation

Per Section 8-2.802 of the Yolo County Code of Ordinances, the purpose of the P-R zone is to identify lands that are developed as existing County parks and to designate lands for future parks, including privately owned facilities offering recreation to the greater region. Permitted uses in the P-R zone include a wide range of active recreational activities, whether located outdoors or within recreational or community buildings. Typical development in the P-R zone includes sports fields, tot lots, and public pools. Some P-R zones serve as agricultural buffer areas. Detention basins are an allowed ancillary use in the P-R zone when designed with recreation or sports features. The only retail and service activities allowed in the P-R zone are those that are operated by park personnel or under a concession arrangement (gift stores, restaurants, guides, etc.).

Low Density Residential

Per Section 8-2.502 of the Yolo County Code of Ordinances, the purpose of the R-L zone is to identify traditional low-density neighborhoods with primarily detached single family homes located in existing unincorporated towns such as Esparto, Knights Landing, Clarksburg, Madison, Dunnigan, and Yolo. Lot sizes in communities zoned R-L with no or limited public services are restricted in size to no less than about one acre, in order to accommodate on-site wells and leachfields.

Cache Creek Area Plan

The CCAP is a specific plan that consists of two separate plans: the Cache Creek Resources Management Plan (CCRMP) and the Yolo County Off-Channel Mining Plan (OCMP).

The CCRMP is a river management plan that eliminated in-channel commercial mining, established an "improvement program" for implementing on-going projects to improve channel stability, encouraged restoration along the creek banks pursuant to a carefully developed policy and regulatory framework, and established a framework for future recreation along the Creek. The CCRMP was adopted August 20, 1996 (Board Resolution 96-132), underwent a focused update (July 23, 2002 Board Resolution 02-130), and a comprehensive update in 2019. The CCRMP is implemented by the Cache Creek Improvement Program (CCIP) and the In-Channel Ordinance.

The OCMP is an aggregate resource management plan that allows for off-channel mining adjacent to Cache Creek. The OCMP has facilitated the development of a sufficient supply of aggregate to meet current and future market needs, while greatly increasing the level of environmental protection and monitoring. The OCMP provides a planning area boundary, and restricted mining to certain areas within that boundary for a 50-year period. In addition, the OCMP identifies specific goals, objectives, and actions to guide mining activities that go well beyond the State-mandated requirements of SMARA. The OCMP was adopted July 30, 1996 (Board Resolution 96-117), and underwent a comprehensive update in 2019. The OCMP is implemented by the Off-Channel Surface Mining Ordinance (OCSMO) and the Surface Mining Reclamation Ordinance (SMRO).

Off-Channel Surface Mining Ordinance

Section 10-4.405 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding annual production limits:

> Section 10-4.405. Annual Production Limits.
> Each surface mine shall operate within the limits of the annual production level established in the use permit. Annual aggregate production may not exceed the established annual level, except to meet temporary market demand. Individual producers may exceed their maximum annual allocation by up to 20 percent in any one calendar year, so long as their running ten year average does not exceed the maximum level. Aggregate sold in excess of the established annual level shall be subject to a $0.10/ton surcharge. Monies generated by the surcharge shall be divided evenly between the CCIP fund and the Maintenance and Remediation Fund. The maximum cumulative amount of aggregate sold annually shall not exceed 5.97 million tons, plus the 20 percent market demand exception allowed by permits issued under the OCMP. Waste concrete and asphalt that is processed as recycled materials for use in construction shall not be counted as part of an operation's maximum annual production.

Section 10-4.411 of the OCSMO states the following regarding efficient resource extraction:

> Section 10-4.411.1. Depth of Mining
> This ordinance regulates the size of the footprint of the mining operation, and establishes no regulatory depth limit for off-channel mining. Unless an environmental analysis concludes that unacceptable environmental impacts will result, mining operations shall be encouraged to excavate the full depth of available resources at any particular mining site. In conjunction with a minimize mining footprint, this will ensure efficiency in resource extraction, help minimize impacts to agriculture by containing the area of surface disturbance of any individual mining operation, and minimize impacts of water loss associated with evaporation from reclaimed lakes.

Section 10-4.411 of the OCSMO states the following regarding efficient resource extraction:

> Section 10-4.424 Other Agency Approvals
> Operators shall obtain any and all permits and approvals required by other agencies having jurisdiction over the proposed mining operations and shall provide copies to the County.

Section 10-4.426 of the OCSMO states the following regarding permit life:

> Section 10-4.426. Permit Life
> Surface mining permits and permits for aggregate processing facilities shall be approved for a maximum of thirty (30) years. Extensions of the permits, for up to twenty years, may be granted, subject to further environmental review and discretionary approval by the County. All surface mining

permits shall be subject to annual reporting requirements, as well as review by the County every ten (10) years, to account for changing regulatory requirements.

Section 10-4.429 of the OCSMO states the following regarding minimum setback standards:

Sec. 10-4.429. Setbacks

All off-channel surface mining operations shall comply with the following setbacks:

(a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented;

(b) Soil stockpiles shall be located a minimum of five-hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented;

(c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place.

(d) Off-channel excavations shall provide a minimum 50-foot setback from the neighboring property line to allow for access around the pit during mining and after reclamation for maintenance, safety, and other purposes.

(e) Proposed off-channel excavations located within the streamway influence zone shall be set back a minimum of seven-hundred (700) feet from the existing channel bank, unless it is demonstrated that a smaller distance will not adversely affect channel stability. Under no circumstances should off-channel excavations be located within 200 feet of the existing channel bank. Evaluations of proposed off-channel excavations within 700 feet of the channel bank shall demonstrate, at a minimum, the following:

    (1) The two-hundred (200) foot setback area does not include portions of the historically active channel.
    (2) The two-hundred (200) foot setback area does not include formerly mined lands separated from the active channel by levees or unmined areas less than two-hundred (200) feet wide (measured perpendicular to the active channel).
    (3) Acceptable channel hydraulic conditions (based on existing or site-specific hydraulic models) for the Cache Creek channel adjacent to the site and

extending not less than one-thousand (1,000) feet upstream and downstream of the site.

(4) Acceptable level of erosion potential of the channel bank adjacent to the site based on predicted stream flow velocity and shear stress on bank materials during a 100-year flow and historical patterns of erosion.

(5) Acceptable level of stability of the slopes separating the mining area from the creek channel based on an analytical slope stability analysis in conformance with Sections 10-4.426 and 10-5.517 of this title that includes evaluation of stability conditions during 100-year peak flows in the channel.

(6) Appropriate bank stabilization designs, if needed, consistent with channel design recommendations of the Cache Creek Resource Management Plan or approved by the Technical Advisory Committee.

(7) The condition of flood protection structures and the integrity of the land within the approved setback zone separating the mining areas and the channel shall be inspected annually by a Registered Civil Engineer and reported to the Director. The annual report shall include recommendations for remedial action for identified erosion problems (see also Reclamation Ordinance Section 10-5.506).

Approval of any off-channel mining project located within seven-hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project operator to participate in the completion of identified channel improvement projects along the frontage of their property, consistent with the CCRMP and CCIP, including implementation of the Channel Form Template. The agreement shall require that the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features required of the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner.

(f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation; and

(g) Recreational facilities shall be located a minimum of one-hundred and fifty (150) feet from private dwellings, with a landscaped buffer provided to reduce noise and maintain privacy, unless the dwelling is proposed to be an integral component of the recreational facility.

(h) No mining activities shall occur within two-thousand (2,000) feet of the community boundaries of Capay, Esparto, Madison, Woodland, and/or Yolo. This setback may be reduced by up to five-hundred (500) feet when existing mature vegetation, proposed landscape buffers of a sufficient height and density to create a visual buffer (consisting of native species and fence-row habitat appropriate to the area), or other site-specific characteristics reduce potential incompatibilities between urban land uses and mining. Commercial mining shall not take place east of County Road 96.

Section 10-4.434 of the OCSMO states the following regarding technical report recommendations:

Section 10-4.434. Technical Report Recommendations

The recommendations contained within each technical report submitted with a surface mining permit application shall be consistent with the OCMP and with all other technical reports submitted. The recommendations of all technical reports shall be implemented.

Section 10-4.501 of the OCSMO states the following regarding zoning requirements for off-channel surface mining operations:

> Section 10-4.501. Zoning Requirements
> Off-channel surface mining operations shall only be permitted within the Sand and Gravel Overlay (SG-O) Zone defined in Article 9 of Chapter 2 of Title 8 of the Yolo County Code.

Surface Mining Reclamation Ordinance

Section 10-5.501 of the Surface Mining Reclamation Ordinance (SMRO) states the following regarding reclamation standards:

> Section 10-5.501. Reclamation Standards: Scope
> The general standard for the reclamation of mined lands is to restore the site to a usable condition which is readily adaptable for alternate land uses consistent with the policies of the County expressed in Article 1 of this chapter and in the General Plan, specific plans, and zoning laws.
>
> This article sets forth minimum acceptable practices to be followed in reclamation operations to implement this general standard. These minimum acceptable standards shall be considered and discussed in every reclamation plan approved pursuant to this chapter. In addition, the minimum statewide reclamation practices and standards set forth in the Regulations shall also be considered and discussed in every reclamation plan approved pursuant to this chapter. These standards shall be followed in addition to any other conditions of approval or regulations imposed on the surface mining permit.

Section 10-5.510 of the SMRO states the following regarding fencing requirements:

> Section 10-5.510. Fencing
> Open wet pits shall be fenced with a forty-two (42) inch minimum, four (4) strand barbed wire fence or the equivalent (e.g., welded square "hog" fencing), prior to the commencement of excavation, during excavation, and during reclamation. Fencing may enclose the property of which mining is a part, the mining site, or both. In addition, signs shall be installed at the project site boundaries and access road, indicating that the excavation area is restricted. Additional security (e.g., gates with protected locks and wing fences to prevent drive-arounds) shall be provided at all vehicular routes. The fencing and gates shall be maintained throughout the mining and reclamation period after completion of reclamation. A requirement shall be recorded on the deed of the property which requires the landowner to maintain fences.

Section 10-5.518 of the SMRO states the following regarding prohibition of mining on reclaimed lands:

> Section 10-5.518. Mining in Reclaimed Lands
> Once the reclamation plan or any portion thereof has been completed, no further surface mining operations shall be allowed within reclaimed lands, without approval of an amendment to the surface mining permit and reclamation plan.

Section 10-5.518 of the SMRO states the following regarding prohibition of motorized watercraft on reclaimed bodies of water:

> Section 10-5.519. Motorized Watercraft Prohibition
> The use of motorized watercraft on any pond, lake or other body of water created as a part of the approved reclamation plan is prohibited.

Section 10-5.518 of the SMRO states the following regarding reclamation of operational areas and haul roads:

> Section 10-5.520. Operational Areas
> Operational areas and haul roads that are not required for future use of the site shall be ripped, resoiled, and prepared accordingly, to allow for replanting.

> Section 10-5.521. Permanent Stockpiles
> There shall be no permanent piles of mine waste and/or overburden. Berms established for visual screening and noise abatement shall be contoured to conform visually with the surrounding topography.

Section 10-5.522 of the SMRO states the following regarding phasing plan requirements:

> Section 10-5.522. Phasing Plans
> All proposed mining and reclamation plans shall present a phasing plan for mining and reclamation activities. The phasing plan shall be structured to minimize the area of disturbed agricultural lands during each mining phase, and encourage the early completion of the reclamation of agricultural land.

4.9.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to land use and planning. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A Land Use and Planning impact is considered significant if the proposed project would:

- Physically divide an established community; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to land use and planning.

Impacts Found Less-than-Significant in Initial Study

Issues related to population and housing were dismissed as less than significant in the Initial Study prepared for the proposed project.

Method of Analysis

The section below evaluates the proposed project for compatibility with existing and planned adjacent land uses and for consistency with the County's adopted plans, policies, and zoning regulations. Physical environmental impacts resulting from implementation of the proposed project are discussed in the environmental resource sections of the various technical chapters

within this EIR. The following discussion complies with section 15125(d) of the CEQA Guidelines, which requires EIRs to discuss inconsistencies with general plans and regional plans as part of the environmental setting. The ultimate determination of consistency rests with the County Board of Supervisors. Consistency with policies and regulations specific to environmental issue areas is also evaluated through each of the other technical chapters of this EIR.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to land use and planning is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.9-1 Physically divide an established community. The impact would be *less than significant*.

A project risks dividing an established community if the project would introduce infrastructure or alter land use in a way that isolates one portion of a community from another. Currently, the project site is used for agricultural production. Two existing farm dwellings are located to the west of the site, and rural residential development (zoned Rural Residential – 5 Acre [RR-5] and R-L) is located to the south and southwest of the site. One farm dwelling is located on the agricultural land to the east of the site, near the southeastern site boundary.

The proposed project includes the following key elements: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project. The Magnolia Canal modification would include removal of a 1,200-foot-long segment of the canal. The proposed expansion of equipment at the Woodland Plant would accommodate processing of aggregate from the proposed mining operation. In addition, the project would include installation of a new water pipe along the existing conveyor belt alignment.

Given that the project site is currently used for agricultural purposes and does not contain existing housing, the site itself does not constitute an established community. While existing residences are located within the surrounding area, the project would not limit connectivity between such uses relative to existing conditions. Furthermore, while the project would temporarily alter the land uses on the project site, the site would ultimately be reclaimed to agricultural and open space uses. Therefore, the proposed project would not physically divide an established community, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.9-2 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to land use and planning. The impact would be *less than significant*.

Table 4.9-3 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects, including standards in the SMARA, the Yolo County General Plan, the County Zoning Ordinance, the CCAP, and the SMRO. Consistency with Yolo County General Plan and CCAP regulations that are specific to issue areas other than land use and planning is evaluated within each of the technical chapters of this EIR.

As shown in the table, the proposed project would be generally consistent with applicable standards related to land use and planning. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
State Mining and Reclamation Act	
Section 2770 (a) Except as provided in this section, no person shall conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by, the lead agency for the operation pursuant to this article.	The applicant has submitted an application for required approvals, which are the subject of the EIR. Thus, the project would be consistent with this regulation.
Section 3503 The following are minimum acceptable practices to be followed in surface mining operations: (a) Soil Erosion Control. (1) The removal of vegetation and overburden, if any, in advance of surface mining shall be kept to the minimum. (2) Stockpiles of overburden and minerals shall be managed to minimize water and wind erosion. (3) Erosion control facilities such as retarding basins, ditches, streambank stabilization, and diking shall be constructed and maintained where necessary to control erosion. (b) Water Quality and Watershed Control.	See Chapter 4.6, Geology and Soils, Mineral Resources, and Paleontological Resources, of this EIR. The proposed project would comply with applicable regulations from the OCSMO and SMRO related to stability of the proposed mining and reclamation slopes. Specifically, in accordance with Sections 10-4.413 and 10-4.433 of the OCSMO, the stockpiles would be seeded with a vegetative cover and would not exceed 40 feet in height, with slopes not steeper than 2:1 for long-term storage to prevent erosion. The stockpiles would also remain a minimum distance of 100 feet from the top of the bank of Cache Creek, which would ensure that the creek quality would not be deteriorated by potential erosion. Thus, the project would be consistent with Section 3503(a).

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(1) Settling ponds or basins shall be constructed to prevent potential sedimentation of streams at operations where they will provide a significant benefit to water quality. (2) Operations shall be conducted to substantially prevent siltation of ground-water recharge areas. (c) Protection of Fish and Wildlife Habitat. All reasonable measures shall be taken to protect the habitat of fish and wildlife. (d) Disposal of Mine Waste Rock and Overburden. Permanent piles or dumps of mine waste rock and overburden shall be stable and shall not restrict the natural drainage without suitable provisions for diversion. (e) Erosion and Drainage. Grading and revegetation shall be designed to minimize erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage. Basins that will store water during periods of surface runoff shall be designed to prevent erosion of spillways when these basins have outlet to lower ground. (f) Resoiling. When the reclamation plan calls for resoiling, coarse hard mine waste shall be leveled and covered with a layer of finer material or weathered waste. A soil layer shall then be placed on this prepared surface. Surface mines that did not salvage soil during their initial operations shall attempt, where feasible, to upgrade remaining materials. The use of soil conditioners, mulches, or imported topsoil shall be considered where revegetation is part of the reclamation plan and where such measures appear necessary. It is not justified, however, to denude adjacent areas of their soil, for any such denuded areas must in turn be reclaimed. (g) Revegetation. When the reclamation plan calls for revegetation the available research addressing revegetation methods and the selection of species having good survival characteristics, for the topography, resoiling characteristics, and climate of the mined areas shall be used.	As discussed in Chapter 4.8, Hydrology and Water Quality, of this EIR, the proposed project would not result in significant impacts related to water quality or groundwater recharge. See Chapter 4.4, Biological Resources. With implementation of mitigation, the proposed project would not result in significant impacts related to fish and wildlife habitat. Overburden from the project site would be progressively removed ahead of mining and stockpiled in setback areas and internal storage locations until retrieved for reclamation. Overburden stockpiles would not be located within the Cache Creek 100-year floodplain and, thus, would not restrict the natural drainage of the channel. All proposed overburden stockpiles would be located within the boundaries of the mining area. These stockpiles would be planted with an annual grassland seed mix to minimize soil erosion. Material stockpiles would be primarily located at the Woodland Plant site, with smaller material stockpiles at the conveyor loading locations. Therefore, the project would be consistent with Section 3503(d). As discussed in Chapter 4.8, Hydrology and Water Quality, of this EIR, the proposed project would not result in significant impacts related to drainage or erosion. Stormwater runoff from the project site would drain to the proposed mining pit, and would not enter Cache Creek. Reclamation to habitat uses (pond, riparian wetland, riparian oak woodland, and grassland/slopes) would include a minimum of 12 inches of soil (topsoil/overburden/silt) to be placed on all surfaces. Therefore, the project would be consistent with Section 3503(f). The proposed Reclamation Plan would include reclamation of portions of the site to grassland slopes and riparian woodland. Proposed vegetation communities and associated reclaimed microhabitats would be typical of naturally-occurring habitat in the area. Therefore, the project would be consistent with Section 3503(g).
Section 3706	As discussed in Chapter 4.8, Hydrology and Water Quality, of this EIR, the proposed project would not

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(a) Surface mining and reclamation activities shall be conducted to protect on-site and downstream beneficial uses of water in accordance with the Porter-Cologne Water Quality Control Act, Water Code section 13000, et seq., and the Federal Clean Water Act, 33 U.S.C. section 1251, et seq. (b) The quality of water, recharge potential, and storage capacity of ground water aquifers which are the source of water for domestic, agricultural, or other uses dependent on the water, shall not be diminished, except as allowed in the approved reclamation plan. (c) Erosion and sedimentation shall be controlled during all phases of construction, operation, reclamation, and closure of a surface mining operation to minimize siltation of lakes and watercourses, as required by the Regional Water Quality Control Board or the State Water Resources Control Board. (d) Surface runoff and drainage from surface mining activities shall be controlled by berms, silt fences, sediment ponds, revegetation, hay bales, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation and contamination. Erosion control methods shall be designed to handle runoff from not less than the 20 year/1 hour intensity storm event. (e) Where natural drainages are covered, restricted, rerouted, or otherwise impacted by surface mining activities, mitigating alternatives shall be proposed and specifically approved in the reclamation plan to assure that runoff shall not cause increased erosion or sedimentation.	result in any significant impacts related to water quality, groundwater recharge, or discharge of sediment to downstream waterways. In addition, as discussed in Chapter 4.6, Geology and Soils, Mineral Resources, and Paleontological Resources, of this EIR, the proposed project would not result in substantial erosion. Thus, the project would be consistent with this regulation.
Section 3709 (a) All equipment, supplies and other materials shall be stored in designated areas (as shown in the approved reclamation plan). All waste shall be disposed of in accordance with state and local health and safety ordinances. (b) All buildings, structures, and equipment shall be dismantled and removed prior to final mine closure except those buildings, structures, and equipment approved in the reclamation plan as necessary for the end use.	All equipment and materials would be stored within the site interior during mining activities. The project applicant would comply with all applicable regulations related to waste disposal. After mining has ceased on the project site, all mining equipment would be removed from the site. Thus, the project would be consistent with this regulation.
Section 3710 (a) Surface and groundwater shall be protected from siltation and pollutants which may diminish water quality as required by the Federal Clean Water Act, sections 301 et seq. (33 U.S.C. section	The proposed project would not include in-stream mining operations. See Chapter 4.8, Hydrology and Water Quality. The proposed project would not result in significant impacts related to surface water or groundwater quality. No in-channel activities are

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
1311), 404 et seq. (33 U.S.C. section 1344), the Porter-Cologne Act, section 13000 et seq., County anti-siltation ordinances, the Regional Water Quality Control Board or the State Water Resources Control Board. (b) In-stream surface mining operations shall be conducted in compliance with Section 16000 et seq. of the California Fish and Game Code, section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). (c) Extraction of sand and gravel from river channels shall be regulated to control channel degradation in order to prevent undermining of bridge supports, exposure of pipelines or other structures buried within the channel, loss of spawning habitat, lowering of ground water levels, destruction of riparian vegetation, and increased stream bank erosion (exceptions may be specified in the approved reclamation plan). Changes in channel elevations and bank erosion shall be evaluated annually using records of annual extraction quantities and benchmarked annual cross sections and/or sequential aerial photographs to determine appropriate extraction locations and rates. (d) In accordance with requirements of the California Fish and Game Code section 1600 et seq., in-stream mining activities shall not cause fish to become entrapped in pools or in off-channel pits, nor shall they restrict spawning or migratory activities.	proposed. Thus, the project would be consistent with this regulation.
Section 3711 When the approved reclamation plan calls for revegetation or cultivation of disturbed lands, the following performance standards shall apply to topsoil salvage, maintenance, and redistribution activities: (a) All salvageable topsoil suitable for revegetation shall be removed as a separate layer from areas to be disturbed by mining operations. Topsoil and vegetation removal shall not precede surface mining activities by more than one year, unless a longer time period is approved by the lead agency. (b) Topsoil resources shall be mapped prior to stripping and the location of topsoil stockpiles shall be shown on a map in the reclamation plan. If the amount of topsoil needed to cover all surfaces to be revegetated is not available on	The proposed mining would generally be conducted with the same equipment, technology, and design consideration as approved at the Teichert Esparto and Teichert Schwarzgruber operations. Topsoil or "overburden" would be removed and stockpiled. The marketable sand and gravel deposits below would be continuously loaded and hauled to the plant by conveyor. Removal of overburden on the project site would be accomplished using scrapers, motor graders and bull dozers. Overburden would be progressively removed ahead of mining and stockpiled in setback areas and internal storage locations until retrieved for reclamation. The top layers of topsoil would be placed in temporary berms and/or stockpiles and seeded with naturalized annual grasses and forbs.

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
site, other suitable material capable of sustaining vegetation (such as subsoil) shall be removed as a separate layer for use as a suitable growth media. Topsoil and suitable growth media shall be maintained in separate stockpiles. Test plots may be required to determine the suitability of growth media for revegetation purposes. (c) Soil salvage operations and phases of reclamation shall be carried out in accordance with a schedule that: (1) is set forth in the approved reclamation plan; (2) minimizes the area disturbed; and (3) is designed to achieve maximum revegetation success allowable under the mining plan. (d) Topsoil and suitable growth media shall be used to phase reclamation as soon as can be accommodated by the mining schedule presented in the approved reclamation plan following the mining of an area. Topsoil and suitable growth media that cannot be utilized immediately for reclamation shall be stockpiled in an area where it will not be disturbed until needed for reclamation. Topsoil and suitable growth media stockpiles shall be clearly identified to distinguish them from mine waste dumps. Topsoil and suitable growth media stockpiles shall be planted with a vegetative cover or shall be protected by other equally effective measures to prevent water and wind erosion and to discourage weeds. Relocation of topsoil or suitable growth media stockpiles for purposes other than reclamation shall require prior written approval from the lead agency.	Reclamation of the project site would occur in phases as mining is completed in phases. Once groundwater elevations have reached equilibrium, reclamation of the pit floor would occur. Overburden and processing fines generated from the Woodland Plant would be used to create any remaining slopes and benches within the mining area. Reclamation to habitat uses (lake, riparian wetland, riparian oak woodland, and grassland/slopes) would include a minimum of 12 inches of soil (topsoil/overburden/silt) to be placed on all surfaces. Based on the above, the proposed project would be consistent with this regulation.
Section 3712 State Water Resources Control Board mine waste disposal regulations in Article 1, Subchapter 1, Chapter 7 of Title 27, California Code of Regulations, shall govern mine waste and tailings, and mine waste disposal units shall be reclaimed in conformance with this article.	Mine waste disposal operations and reclamation would be in conformance with State Water Resources Control Board regulations and Regional Water Quality Control Board permit requirements. Thus, the proposed project would be consistent with this regulation.
Yolo County General Plan	
Policy LU-3.5 Avoid or minimize conflicts and/or incompatibilities between land uses.	See discussion of compliance with OCSMO Section 10-4.429 below. The project would comply with required setback standards. Given that the proposed project is consistent with the CCAP, potential land use conflicts related to use of the project site for off-channel mining activities, and subsequent reclamation of the site to agricultural and open space uses, have been anticipated by the

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	County and evaluated at a program level in the CCAP Update FEIR. Thus, the proposed project would not result in new significant impacts or more severe impacts related to conflicts with existing land uses in the project area, including the West Valley Baptist Church (which operates a school) and Monument Hill Memorial Park cemetery to the south of the site, Yolo Fliers Club golf course to the west of the site, local schools, or outdoor recreation areas such as the Cache Creek Nature Preserve. Per Chapter 4.1, Aesthetics, of this EIR, the proposed project would include berms, vegetative screens, and other measures to minimize the visibility of the proposed mining operations. In addition, all noise impacts would be reduced to less-than-significant levels with implementation of mitigation measures and compliance with conditions of approval required by the County. See Chapter 4.2, Air Quality, Greenhouse Gas Emissions, and Energy, of this EIR regarding analysis of pollutant exposure at sensitive receptors, including the West Valley Baptist church. Based on the above, the proposed project would be consistent with this policy.
Policy LU-3.6 Maintain the compatibility of surrounding land uses and development, so as not to impede the existing and planned operation of public airports, landfills and related facilities and community sewage treatment facilities.	See Chapter 4.7, Hazards and Hazardous Materials. The proposed project would be compatible with the airport safety zones identified in the Watts-Woodland Airport Comprehensive Land Use Plan (CLUP). Thus, the project would not impede the existing and planned operations at the airport. The project site is not located within the vicinity of a landfill or sewage treatment facility. Thus, the proposed project would be consistent with this policy.
Land Development and Zoning (Yolo County Code of Ordinances, Title 8)	
Section 8-2.905 The following Tables 8-2.905-1 and 8-2.905-2 lists the permit requirements for examples of each Use Type in each zoning district. Examples of Use Types are defined as "principal," "ancillary," or "accessory" uses which are allowed "by right" (with issuance of only a building permit after zoning clearance), or are allowed through issuance of a non-discretionary (no public hearing) Site Plan Review. Additional examples of Use Types are defined as "conditional uses" that are permitted through the issuance of a discretionary Minor or Major Use Permit, after a public hearing.	Among other requested permit approvals, the applicant is requesting rezoning of the project site to add an SG-O overlay to the site, resulting in a zoning designation of A-N/SG-O. In addition, the proposed project would require approval of a Surface Mining Permit (Mining Permit) as described in the OCSMO. A mining permit is a type of conditional use permit. The Board of Supervisors has the authority to grant a conditional use permit following review of the application and environmental document. With approval of the requested rezone and Mining

(Continued on next page)

Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Per Table 8-2.905-2, surface mining uses are allowable within the SG-O zoning district, subject to approval of a Major Use Permit, and provided that all uses are consistent with the CCAP and associated policies and regulations.	Permit, should such approvals be granted, the project would be consistent with this regulation.
Off-Channel Mining Plan	
None applicable.	
Off-Channel Surface Mining Ordinance	
Section 10-4.405 Each surface mine shall operate within the limits of the annual production level established in the use permit. Annual aggregate production may not exceed the established annual level, except to meet temporary market demand. Individual producers may exceed their maximum annual allocation by up to 20 percent in any one calendar year, so long as their running ten year average does not exceed the maximum level. Aggregate sold in excess of the established annual level shall be subject to a $0.10/ton surcharge. Monies generated by the surcharge shall be divided evenly between the CCIP fund and the Maintenance and Remediation Fund. The maximum cumulative amount of aggregate sold annually shall not exceed 5.97 million tons, plus the 20 percent market demand exception allowed by permits issued under the OCMP. Waste concrete and asphalt that is processed as recycled materials for use in construction shall not be counted as part of an operation's maximum annual production.	Currently, the Teichert Schwarzgruber operation has approval for "20 percent exceedance" under this section of the OCSMO. The Teichert Esparto operation does not. The applicant is requesting to transfer the annual permitted tonnage allocation associated with the Teichert Schwarzgruber operation and the Teichert Esparto operation upon completion of mining or permit expiration at both sites. Together, the proposed transfers would allow the proposed Teichert Shifler operation to mine a maximum of 2,588,237 tons (2.2 million tons sold) in any given year, provided that production over a consecutive 10-year period does not exceed 23,529,430 tons mined (20 million tons sold) (see Table 3-2 of this EIR). Thus, the project would be consistent with this regulation.
Section 10-4.411.1 This ordinance regulates the size of the footprint of the mining operation, and establishes no regulatory depth limit for off-channel mining. Unless an environmental analysis concludes that unacceptable environmental impacts will result, mining operations shall be encouraged to excavate the full depth of available resources at any particular mining site. In conjunction with a minimize mining footprint, this will ensure efficiency in resource extraction, help minimize impacts to agriculture by containing the area of surface disturbance of any individual mining operation, and minimize impacts of water loss associated with evaporation from reclaimed lakes.	It is anticipated that the proposed mining would reach a maximum depth of 5 feet below mean sea level (MSL), or approximately 110 feet below existing ground surface, near the northeastern corner of the mining area. The proposed depths of mining for the remainder of the site would be approximately 40 feet below existing ground surface in the southeastern portion of the mining area, approximately 65 feet below existing ground surface in the northwestern corner of the mining area, and approximately 70 feet below existing ground surface in the southwestern corner of the mining area. The proposed mining depths would ensure efficient extraction of on-stie resources, consistent with this regulation.

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Section 10-4.424 Operators shall obtain any and all permits and approvals required by other agencies having jurisdiction over the proposed mining operations and shall provide copies to the County.	If approved, the project would be conditioned to require/ensure compliance with this requirement. Thus, the project would be consistent with this regulation.
Section 10-4.426 Surface mining permits and permits for aggregate processing facilities shall be approved for a maximum of thirty (30) years. Extensions of the permits, for up to twenty years, may be granted, subject to further environmental review and discretionary approval by the County. All surface mining permits shall be subject to annual reporting requirements, as well as review by the County every ten (10) years, to account for changing regulatory requirements.	The proposed project requests mining of 41.6 million tons (35.25 million tons sold) of aggregate resources (sand and gravel) over a requested 30-year period, subject to County review every ten years. Thus, the project would be consistent with this regulation.
Section 10-4.429 All off-channel surface mining operations shall comply with the following setbacks: (a) New processing plants and material stockpiles shall be located a minimum of one-thousand (1,000) feet from public rights-of-way, public recreation areas, and/or off-site residences, unless alternate measures to reduce potential noise, dust, and aesthetic impacts are developed and implemented; (b) Soil stockpiles shall be located a minimum of five-hundred (500) feet from public rights-of-way, public recreation areas, and off-site residences, unless alternate measures to reduce potential dust and aesthetic impacts are developed and implemented; (c) Off-channel excavations shall maintain a minimum one-thousand (1,000) foot setback from public rights-of-way and adjacent property lines of off-site residences, unless a landscaped buffer is provided or site-specific characteristics reduce potential aesthetic impacts. Where landscaped buffers are proposed, the setback for off-channel excavations may be reduced to a minimum of fifty (50) feet from either the property line or the adjoining right-of-way, whichever is greater. Where mining occurs within one-thousand (1,000) feet of a public right-of-way, operators shall phase mining such that no more than fifty (50) acres of the area that lies within one-thousand (1,000) feet of the right-of-way would be actively disturbed at any time, except where operations are adequately screened from public view. Where adequate screening exists in	Table 4.9-4 provides an overview of the proposed project's consistency with each setback standard established by this regulation. As shown in the table, the proposed project would be consistent with all applicable setback requirements. The project plans include a 200-foot setback which would separate the creek and the relocated Moore Canal, and a 20-foot minimum setback between the canal and the mining operations. A minimum 100-foot buffer would be established between the stockpiled soils and the creek (they all would occur within the mining pit, which is 300 feet from the creek). See Impact 4.8-4. Based on the findings of the Channel Stability Analysis prepared for the proposed project, the proposed project would comply with the standards established by OCSMO Section 10-4.429(e). Additional bank stabilization measures are not needed to ensure equivalent protection to a 700-foot setback from the channel bank.

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
the form of mature vegetation and/or constructed berms that effectively block public views, the area of active disturbance within one-thousand (1,000) feet of the right-of-way shall not exceed the area that is screened by more than fifty (50) acres at any one time. Actively disturbed areas are defined as those on which mining operations of any kind, or the implementation of reclamation such as grading, seeding, or installation of plant material are taking place. (d) Off-channel excavations shall provide a minimum 50-foot setback from the neighboring property line to allow for access around the pit during mining and after reclamation for maintenance, safety, and other purposes. (e) Proposed off-channel excavations located within the streamway influence zone shall be set back a minimum of seven-hundred (700) feet from the existing channel bank, unless it is demonstrated that a smaller distance will not adversely affect channel stability. Under no circumstances should off-channel excavations be located within 200 feet of the existing channel bank. Evaluations of proposed off-channel excavations within 700 feet of the channel bank shall demonstrate, at a minimum, the following: (1) The two-hundred (200) foot setback area does not include portions of the historically active channel. (2) The two-hundred (200) foot setback area does not include formerly mined lands separated from the active channel by levees or unmined areas less than two-hundred (200) feet wide (measured perpendicular to the active channel). (3) Acceptable channel hydraulic conditions (based on existing or site-specific hydraulic models) for the Cache Creek channel adjacent to the site and extending not less than one-thousand (1,000) feet upstream and downstream of the site. (4) Acceptable level of erosion potential of the channel bank adjacent to the site based on predicted stream flow velocity and shear stress on bank materials during a 100-year flow and historical patterns of erosion. (5) Acceptable level of stability of the slopes separating the mining area from the creek channel based on an analytical slope stability analysis in conformance with	

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Sections 10-4.426 and 10-5.517 of this title that includes evaluation of stability conditions during 100-year peak flows in the channel. (6) Appropriate bank stabilization designs, if needed, consistent with channel design recommendations of the Cache Creek Resource Management Plan or approved by the Technical Advisory Committee. (7) The condition of flood protection structures and the integrity of the land within the approved setback zone separating the mining areas and the channel shall be inspected annually by a Registered Civil Engineer and reported to the Director. The annual report shall include recommendations for remedial action for identified erosion problems (see also Reclamation Ordinance Section 10-5.506) Approval of any off-channel mining project located within seven-hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project operator to participate in the completion of identified channel improvement projects along the frontage of their property, consistent with the CCRMP and CCIP, including implementation of the Channel Form Template. The agreement shall require that the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features required of the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner. (f) Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation; and (g) Recreational facilities shall be located a minimum of one-hundred and fifty (150) feet from private dwellings, with a landscaped buffer provided to reduce noise and maintain privacy, unless the dwelling is proposed to be an integral component of the recreational facility. (h) No mining activities shall occur within two-thousand (2,000) feet of the community	

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
boundaries of Capay, Esparto, Madison, Woodland, and/or Yolo. This setback may be reduced by up to five-hundred (500) feet when existing mature vegetation, proposed landscape buffers of a sufficient height and density to create a visual buffer (consisting of native species and fence-row habitat appropriate to the area), or other site-specific characteristics reduce potential incompatibilities between urban land uses and mining. Commercial mining shall not take place east of County Road 96.	
Section 10-4.434 The recommendations contained within each technical report submitted with a surface mining permit application shall be consistent with the OCMP and with all other technical reports submitted. The recommendations of all technical reports shall be implemented.	The technical reports submitted with the Teichert Shifler application are identified in Section 4.0.3 of this Draft EIR and discussed as relevant in each impact analysis section. See Chapters 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, and 4.12. In submitting these reports to the County the applicant and the consulting experts are attesting to the compliance of these reports with the state and local requirements, and with best practices in the applicable industry. The technical reports have been peer reviewed for completeness by outside experts and/or the EIR consulting team. The recommendations contained within each technical report are would be implemented through the final conditions of approval for the project, if approved. Therefore, the project would be consistent with this regulation.
Section 10-4.501 Off-channel surface mining operations shall only be permitted within the Sand and Gravel Overlay (SG-O) Zone defined in Article 9 of Chapter 2 of Title 8 of the Yolo County Code.	See discussion of compliance with Section 8-2.905 above.
Surface Mining Reclamation Ordinance	
Section 10-5.501 The general standard for the reclamation of mined lands is to restore the site to a usable condition which is readily adaptable for alternate land uses consistent with the policies of the County expressed in Article 1 of this chapter and in the General Plan, specific plans, and zoning laws. This article sets forth minimum acceptable practices to be followed in reclamation operations to implement this general standard. These minimum acceptable standards shall be considered and discussed in every reclamation plan approved pursuant to this chapter. In addition, the minimum statewide reclamation practices and standards set forth in the	The project proposes a phased Reclamation Plan to reclaim approximately 117 acres of the mining area to agricultural use. The remainder of the mining area would be reclaimed to a lake with riparian woodland along the fringes/shoreline. The proposed Reclamation Plan would comply with applicable standards included in the County's SMRO, as demonstrated in this EIR.

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Regulations shall also be considered and discussed in every reclamation plan approved pursuant to this chapter. These standards shall be followed in addition to any other conditions of approval or regulations imposed on the surface mining permit.	
Section 10-5.510 Open wet pits shall be fenced with a forty-two (42) inch minimum, four (4) strand barbed wire fence or the equivalent (e.g., welded square "hog" fencing), prior to the commencement of excavation, during excavation, and during reclamation. Fencing may enclose the property of which mining is a part, the mining site, or both. In addition, signs shall be installed at the project site boundaries and access road, indicating that the excavation area is restricted. Additional security (e.g., gates with protected locks and wing fences to prevent drive-arounds) shall be provided at all vehicular routes. The fencing and gates shall be maintained throughout the mining and reclamation period after completion of reclamation. A requirement shall be recorded on the deed of the property which requires the landowner to maintain fences.	The proposed project would provide for fencing around the proposed wet pit consistent with the requirements of Section 10-5.510 throughout mining and reclamation activities. A condition of approval will be recommended requiring recordation of the fencing requirement on the deed of the relevant parcels. Thus, the project would be consistent with this regulation.
Section 10-5.518 Once the reclamation plan or any portion thereof has been completed, no further surface mining operations shall be allowed within reclaimed lands, without approval of an amendment to the surface mining permit and reclamation plan.	A condition of approval will be included requiring compliance with this code section. Thus, the project would be consistent with this regulation.
Section 10-5.519 The use of motorized watercraft on any pond, lake or other body of water created as a part of the approved reclamation plan is prohibited.	A condition of approval will be included requiring the applicant to install permanent signage as a part of final reclamation, prohibiting motorized watercraft. Thus, the project would be consistent with this regulation.
Section 10-5.520 Operational areas and haul roads that are not required for future use of the site shall be ripped, resoiled, and prepared accordingly, to allow for replanting.	A condition of approval will be recommended requiring amendment of the project reclamation sheets and Reclamation Plan narrative to reflect this requirement. Reclamation to habitat uses (lake, riparian wetland, riparian oak woodland, and grassland/slopes) would include a minimum of 12 inches of soil (topsoil/overburden/silt) to be placed on all surfaces (see Section 6.1 of Appendix C). Thus, the project would be consistent with this regulation.
Section 10-5.521 There shall be no permanent piles of mine waste and/or overburden. Berms established for visual screening and noise abatement shall be contoured to conform visually with the surrounding topography.	A condition of approval will be included prohibiting permanent piles of mine waste or overburden. All mine waste and overburden is proposed for use in final reclamation.

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Table 4.9-3
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	New visual and noise berms would be located along the perimeter of mining areas, including within mining setbacks. The visual and noise berms would be 300 feet long (minimum), eight feet tall (minimum), and would be triangular or trapezoidal in shape. The berms would be seeded with seed mix; the seed mix would be similar to the mix type identified in the Reclamation Plan. In addition, the northern section of the western perimeter would be planted with native tree and shrub species prior to commencement of mining activities. The proposed landscape buffers would extend along the north side of the relocated Moore Canal, eventually connecting with the existing Cache Creek riparian corridor. As shown in Figures 3-27 and 3-28 of this EIR, the proposed landscape buffer areas would conform with the surrounding topography of the reclaimed site. The existing and proposed landscape buffer areas would help to screen views of the proposed noise berms. Thus, the project would be consistent with this regulation.
Section 10-5.522 All proposed mining and reclamation plans shall present a phasing plan for mining and reclamation activities. The phasing plan shall be structured to minimize the area of disturbed agricultural lands during each mining phase, and encourage the early completion of the reclamation of agricultural land.	The project includes a phasing plan to minimize the area of disturbed agricultural lands during each mining phase and to encourage the early completion of agricultural reclamation. Thus, the project would be consistent with this regulation.

Table 4.9-4
Setback Consistency

County Code Section	Item	Required Setback	Proposed Setbacks	Allowed Alternative	Proposed Alternative	Consistency (Yes or No)
10-4.429(a)	New Processing Plant	1000 ft from public ROW	N/A	Yes – code allows for alt measures to reduce noise, dust, and aesthetics	N/A	N/A – processing is proposed at existing plant
		1000 ft from public rec area	N/A			
		1000 ft from off-site residences	N/A			
	Material Stockpiles	1000 ft from public ROW	N/A	Yes – code allows for alt measures to reduce noise, dust, and aesthetics	N/A	N/A -- No new stockpile locations are proposed
		1000 ft from public rec area	N/A		N/A	N/A -- No new stockpile locations are proposed
		1000 ft from off-site residences	N/A		N/A	N/A -- No new stockpile locations are proposed
10-4.429(b)	Soil Stockpiles	500 ft from public ROW	100 ft from CR 94B 650 ft from CR 22 2,750 ft from CR 96 2,750 ft from CR 20	Yes – code allows for alt measures to reduce dust and aesthetics	The applicant proposes expanded landscape buffer along CR 94B[2]	Yes
		500 ft from public rec area	1,100 ft from CCNP		N/A	Yes
		500 ft from off-site residences	350 ft from Res #1[1] 450 ft from Res #2[1]		The applicant proposes landscaping and berms to block the line of site and noise	Yes

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Table 4.9-4
Setback Consistency

County Code Section	Item	Required Setback	Proposed Setbacks	Allowed Alternative	Proposed Alternative	Consistency (Yes or No)
					emissions to both residences.	
10-4.429(c)	Off-channel excavations	1000 ft from public ROW	50 ft from CR 94B 420 ft from CR 22 2,745 ft from CR 96 1,535 ft from CR 20	Yes – code allows 50 ft min with landscaped buffer. Code allows consideration of site-specific characteristics to reduce potential aesthetic impacts. See other specifics in code related to proximity to ROW	The applicant proposes expanded landscape buffer along CR 94B[2] CR 22 is buffered by existing landscaping and rolling terrain, and proposed berm at site boundary	Yes
		1000 ft from property lines of off-site residences	1,140 ft from property line of nearest residential parcel within Wild Wings subdivision 430 ft from property line of nearest residences south of County Road 22		N/A	Yes
10-4.429(d)		50 ft from all property lines to allow access around the pit	50 ft from property lines	No	N/A	Yes
10-4.429(e)	Off-channel excavations	700 ft from existing channel bank	200 ft from existing channel bank	Yes – code allows 200 ft min if no effect on channel stability. See	Mitigation Measure 4.8-4 requires a	Yes

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Table 4.9-4
Setback Consistency

County Code Section	Item	Required Setback	Proposed Setbacks	Allowed Alternative	Proposed Alternative	Consistency (Yes or No)
				details in code and see County staff memo on this issue	minimum of 250 feet	
10-4.429(f)	Off-channel excavations	25 ft from riparian vegetation	200 ft from riparian vegetation	No	N/A	Yes
10-4.429(g)	Recreational facilities	150 ft from private dwellings w/landscaped buffer to reduce noise and ensure privacy	The Schwarzgruber land dedication is within 150 feet of one residence	Yes	Required buffers from proximate homes would be maintained for future recreation facilities	Yes
10-4.429(h)	Mining activities	2000 ft of community boundaries of Capay, Esparto, Madison, Woodland, or Yolo	The project is not with 2,000 of any of these communities	N/A	N/A	Yes

Notes:
1/ As shown on Figure 3-10 on page 3-18.
2/ As shown on Figure 4.1-6 on page 4.1-19.

- Alt = Alternative
- CR = County Road
- N/A = Not Applicable
- Rec = Recreation
- ROW = Right-of-Way

4.10 Noise

4.10 NOISE

4.10.1 INTRODUCTION

The Noise chapter of the EIR describes the existing noise environment in the project vicinity, and identifies potential impacts and mitigation measures related to the noise associated with the proposed project. The method by which the potential impacts are analyzed is discussed, followed by the identification of potential impacts and the recommended mitigation measures designed to reduce significant noise impacts to less-than-significant levels, if required. The Noise chapter is primarily based on the Environmental Noise Assessment prepared for the proposed project by Bollard Acoustical Consultants, Inc. (see Appendix L),[1] the Cache Creek Area Plan Update EIR,[2] the Yolo County General Plan,[3] and the Yolo County General Plan EIR.[4]

In response to the NOP, the County received comments related to Noise from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Potential noise impacts to neighboring residences from mining operations and increased traffic (Resident);
- Noise impacts on the Monument Hill Memorial Park cemetery (Resident);
- Mining and processing noise impacts during hours outside of the regular hours of operation (Resident);
- Increased vibrations from on-site mining equipment and gravel trucks traveling on the roadways (Resident);
- Impacts on farm animals and handlers from increased noise (Resident);
- Outdoor events that could be impacted by noise pollution (Resident);
- Noise generation from truck back-up beepers, conveyor belts, and security alarms (Resident); and
- Compliance with hours of operation (Resident).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require the comments be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

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1 Bollard Acoustical Consultants, Inc. *Environmental Noise Assessment. Shifler Mining & Reclamation Project (BAC Job # 2018-202).* January 29, 2020.

2 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069*. December 2019.

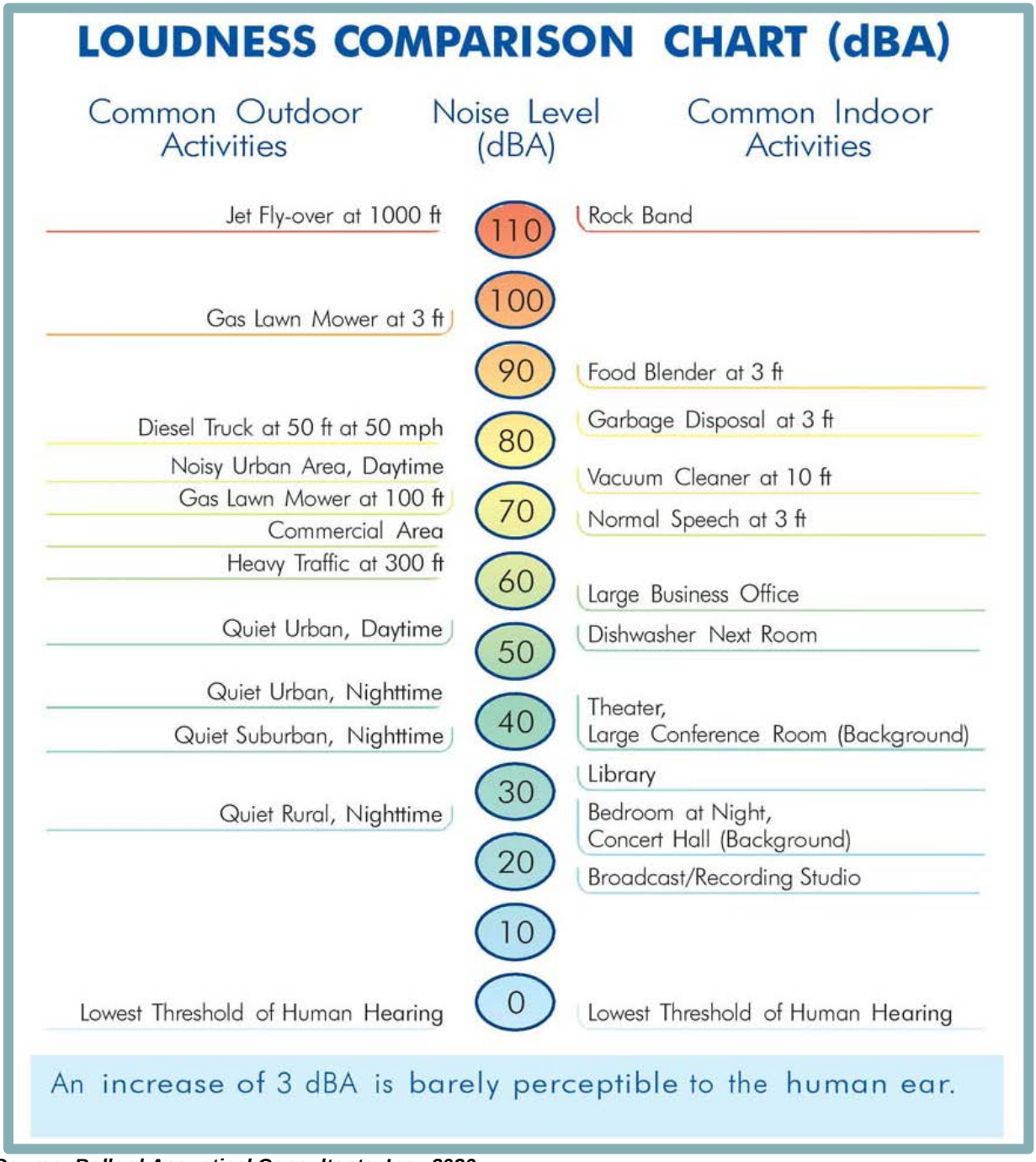
3 Yolo County. *2030 Countywide General Plan*. November 10, 2009.

4 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*. April 2009.

Concepts and Terminology

Sound is measured by the decibel scale which uses the hearing threshold (20 micropascals) as a point of reference, defined as 0 decibels (dB). Changes in dB levels corresponds closely to human perception of relative loudness. Figure 4.10-1 below shows common noise sources associated with a range of decibel levels.

Figure 4.10-1
Noise Levels Associated with Common Noise Sources



Source: Bollard Acoustical Consultants, Inc., 2020.

The perceived loudness of sounds is dependent on numerous factors, including sound pressure level and frequency content. Within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighted network. A strong correlation exists between A-weighted sound levels (expressed as dBA) and community response to noise. Thus, the A-weighted sound level has become the standard tool for environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound. In addition, because of the logarithmic nature of the decibel scale, provided two sources of noise differ in intensity by at least 10 dB, their noise would not be additive. Two noise levels differing by 10 dB, which are added together, essentially equal the higher of the two noise levels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average noise level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 dBl weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, L_{dn} tends to disguise short-term variations in the noise environment. With regard to increases in A-weighted noise levels, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1.0 dB cannot be perceived;
- Outside of the laboratory, a 3.0 dB change is considered a barely perceivable difference;
- A change in level of at least 5.0 dB is required before any noticeable change in human response would be expected; and
- A 10 dB change is subjectively heard as approximately a doubling in loudness, and would typically cause an adverse response.

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of approximately six dB per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

A street or roadway with moving vehicles (known as a “line” source), would typically attenuate at a lower rate, approximately 3.0 to 4.5 dB each time the distance doubles from the source, which

also depends on ground absorption. Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, will increase the attenuation that would otherwise be attainable solely through increased distance.

4.10.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of noise and vibration, a discussion of effects of noise on people, existing receptors in the project vicinity, existing sources and noise levels in the project vicinity, and groundborne vibration.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and ornamental landscaping.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP. boundaries. The major noise sources in the region are associated with transportation (i.e., vehicles traveling on the local and regional roadway network), and agricultural, mining, processing, and aircraft operations.

The majority of the land in the CCAP area, including the project site, is used for agriculture. Noise sources associated with agricultural activities include field and crop maintenance, hauling, and crop dusting from small aircraft. The noise from these sources mostly occurs within the confines of the agricultural fields, and is seasonal. A characteristic of agricultural noise is short periods of noisy activities separated by long periods of little or no noise-producing activities.

Mining operations and hauling consists of extracting sand and gravel aggregate material and transporting it to approved processing plants located along lower Cache Creek. Noise-generating equipment used in mining include bulldozers, loaders, scrapers, drag lines, and dredges. Aggregate material is generally transported to a processing plant by conveyors, but on-site haul trucks or scrapers are also used. The processing of aggregate material is typically done at a stationary processing plant within the boundaries of the mining site. Noise-producing activities include crushing, sorting and loading of aggregate materials. Noise generated during processing is considered fixed-source noise. Aggregate materials, once processed, are hauled from the processing plant to construction sites within and outside of Yolo County. Noise is generated on access roads, designated haul routes (County roads) and on SR 16 and I-505, as haul trucks travel to and from the plant sites. The noise from these linear sources includes noise emanating from all other vehicles using the roadways.

Description of Local Environment

Similar to the regional description, noise in the local vicinity is primarily characterized by vehicles, agricultural operations, mining operations, and small aircraft. These sources and associated noise levels are discussed below.

Existing Noise Sources and Ambient Noise Levels

The existing ambient noise environment in the immediate vicinity of the project site is defined primarily by vehicles traveling on local roads, as well as distant traffic noise, local agricultural operations, small aircraft operations associated with the Watts-Woodland Airport, and ongoing aggregate processing activity at the Teichert Woodland Plant located northeast of the site. To quantify the existing ambient noise environment at the nearest existing receptors, continuous noise level measurements at the locations designated in Figure 4.10-2 from May 29 to 30 of 2014 as part of the Environmental Noise Assessment. The monitoring survey represents 72 consecutive hours of ambient noise level data collected from five sites. Table 4.10-1 below presents a summary of the ambient noise level measurement results.

Table 4.10-1
Ambient Noise Measurement Results: Project Site

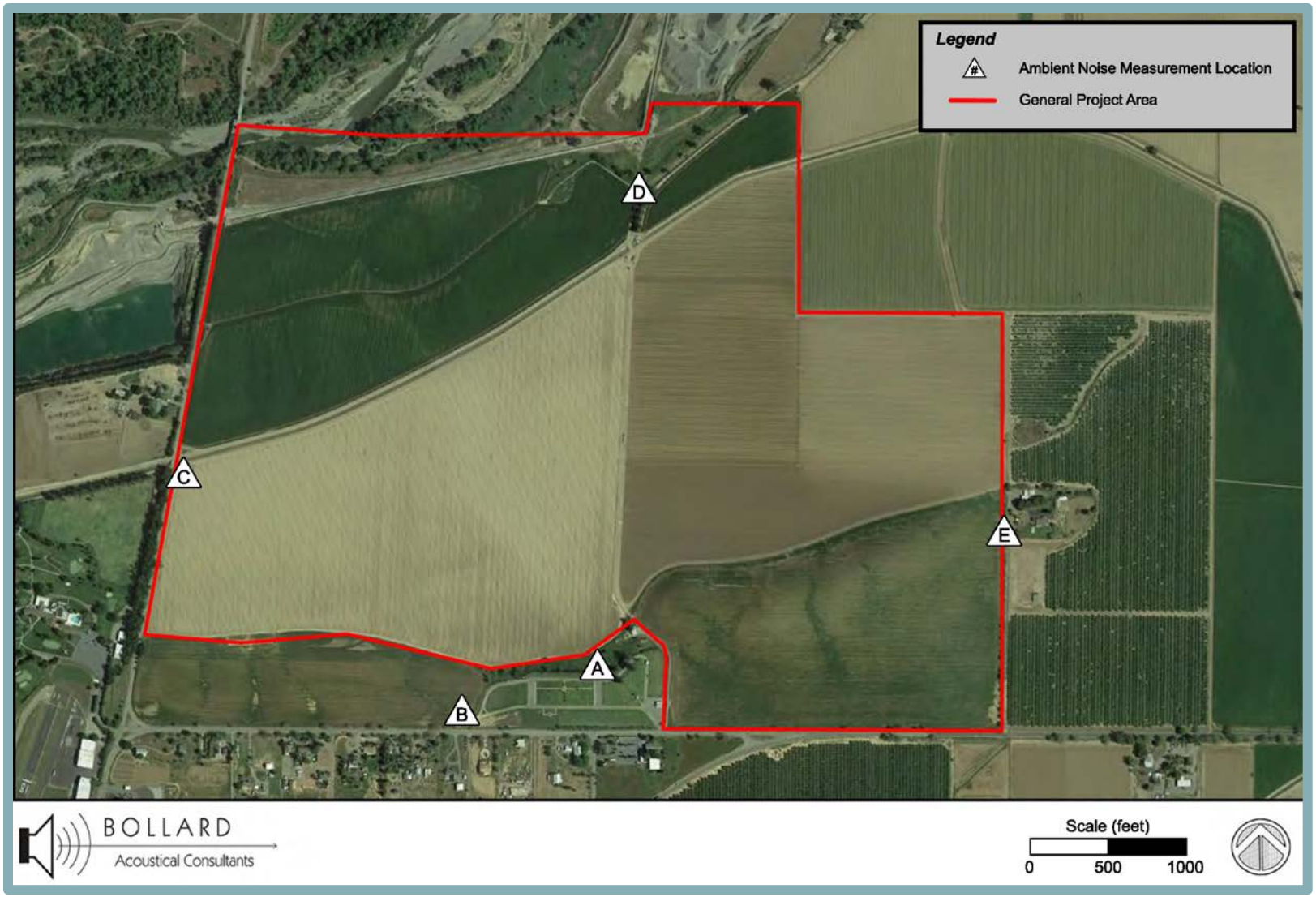
Site	Date	Daytime (7 AM to 10 PM) Noise Level (dB)		Nighttime (10 PM to 7 AM) Noise Level (dB)		
		L_{eq}	L_{max}	L_{eq}	L_{max}	L_{dn}
A	May 29	54	84	58	79	69
	May 30	56	90	49	88	61
	May 31	50	79	45	66	55
B	May 29	65	87	59	86	70
	May 30	66	89	57	86	59
	May 31	65	87	57	86	59
C	May 29	59	87	53	79	63
	May 30	61	93	51	81	65
	May 31	57	90	52	80	62
D	May 29	55	102	55	75	67
	May 30	47	76	42	71	51
	May 31	44	76	43	69	51
E	May 29	50	82	59	78	68
	May 30	50	80	47	79	55
	May 31	46	79	46	77	54

Source: Bollard Acoustical Consultants, Inc., 2020.

As shown in the table, noise levels at sites A, D, and E were considerably higher on May 29 than measurement results for May 30 or 31. BAC determined that the increase in ambient noise levels on May 29 was due to agricultural harvesting operations occurring on the project site during the morning of May 29. As indicated in the table, the lowest measured ambient noise conditions occurred at Sites D and E, which are close to the northern and eastern site boundaries, respectively, and set back a considerable distance from the nearest roadways.

To supplement the 2014 ambient noise survey, additional ambient noise level measurements were conducted on December 11, 2018.

Figure 4.10-2
Noise Measurement Locations: On-Site



Source: Bollard Acoustical Consultants, Inc., 2020.

The short-term ambient noise level measurements were conducted at 18 locations, including eight locations on the Teichert Woodland Plant site and 10 representing the nearest existing receptors to both the Woodland Plant site and the project site. The 2018 ambient noise measurement sites are shown on Figure 4.10-3. The results of the additional ambient noise surveys are provided in Table 4.10-2.

Table 4.10-2
Ambient Noise Measurement Results: Woodland Plant Area

Site	Description	Noise Level		Noise Source / Notes
		L_{eq}	L_{max}	
1	300 feet south of recycle plant	70	72	Dozers, excavator, breaker, recycle plant.
2	250 feet west of recycle plant	70	71	Dozers, excavator, breaker, recycle plant.
3	300 feet east of rock plant	69	70	Main rock plant dominant – crushers/screens.
4	400 feet southwest of rock plant	68	74	Main rock plant dominant – crushers/screens.
5	600 feet northwest of rock plant	60	62	Rock plant dominant.
6	90 feet from asphalt plant – without burner	72	72	Asphalt plant bag house – burner not operating.
6	90 feet from asphalt plant – with burner	81	83	Entire asphalt plant.
7	150 feet from asphalt plant – partial shielding	73	75	Asphalt plant dominant but partially shielded.
8	Nearest residence to Woodland Plant site on County Road 20	52	56	Recycle conveyors dominant – main rock plant barely audible.
9	Next nearest residence to Woodland Plant site on Co. County Road	45	55	Distant background traffic – Teichert Woodland operations barely audible.
10	Corner of County Road 20 and County Road 96	67	83	Local traffic only – Teichert Woodland operations inaudible.
11	Residence 1,300 feet north of County Road 20 and County Road 96	41	50	Local traffic only – Teichert Woodland operations inaudible.
12	1,400 feet south of County Road 20 and County Road 96	41	50	Local traffic only – Teichert Woodland operations inaudible.
13	Residence adjacent to southeast corner of project site	44	49	Teichert Woodland plant audible in distance.
14	Monument Hill Memorial Park	42	44	Local traffic – Teichert Woodland plant barely audible.
15	Residence on west side of County Road 94 B adjacent to project site	39	43	Background traffic – Teichert Woodland plant inaudible.
16	Residence on County Road 94B, 3,300 feet west of rock plant	69	83	Background traffic – Teichert Woodland plant inaudible.
17	Residence on County Road 95, 5,000 feet north of rock plant	62	71	Background traffic – Teichert Woodland plant inaudible.

Source: Bollard Acoustical Consultants, Inc., 2020.

Figure 4.10-3
Noise Measurement Locations: Woodland Plant Area



Source: Bollard Acoustical Consultants, Inc., 2020.

Existing Traffic Noise Levels

The baseline traffic condition was developed using the average annual production over the ten-year period between 2004 and 2014. Such baseline traffic volumes are referred to hereafter as the "existing" condition.

Traffic volumes for existing conditions were obtained from the project traffic consultant. Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are generally predicted at 50 feet from the centerline along each project-area roadway segment. The 50-foot distance was selected for analysis as this distance generally represents the closest residences to the centerlines of the roadways which will primarily be used by Teichert truck traffic. Sensitive receptors and other sensitive land uses may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers or sound walls. However, the traffic noise analysis is believed to be representative of the experience of a majority of receptors located closest to the project-area roadway segments analyzed in the Environmental Noise Assessment.

Table 4.10-3 presents the existing traffic noise levels in terms of L_{dn} along each roadway segment, as well as the distances to existing traffic noise contours.

Table 4.10-3
Existing Traffic Noise Levels and Distances to Contours

Roadway	Segment	L_{dn} at 100 feet from Centerline	Distance to Contours (feet)		
			70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
CR 20	Woodland Entrance – CR 96	63	23	40	71
CR 20	CR 96 – CR 98	66	32	57	101
CR 98	I-5 – CR 20	68	40	72	128
CR 96	CR 20 – SR 16	63	23	41	73
SR 16	West of I-505	71	57	101	179
SR 16	I-505 – CR 94B	72	61	109	193
SR 16	CR 94B – CR 96	72	65	116	206

Source: Bollard Acoustical Consultants, Inc., 2020.

The Environmental Noise Assessment, included as Appendix L to this EIR, provides details regarding the Federal Highway Administration (FHWA) modeling, including the complete inputs and results. The actual distances to noise level contours may vary from the distances predicted by the FHWA model due to roadway curvature, grade, shielding from local topography or structures, elevated roadways, or elevated receivers. The distances reported are generally considered to be conservative estimates of noise exposure along the project-area roadways.

Existing Sensitive Receptors and Other Sensitive Land Uses

Certain land uses are more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure time and shielding from noise sources) and the type of activities typically involved. The Yolo County General Plan Action HS-A62 defines noise sensitive receptors as residentially designated land uses, hospitals, nursing/convalescent homes, and similar board and care facilities, hotels and lodging, schools and daycare centers, and neighborhood parks. As shown in Figure 3-5 of the Project Description chapter, the nearest

existing sensitive receptors to the project site are the residentially-zoned areas located south and southwest of the project site, as described below. Additional land uses in the area that may be sensitive to noise exposure are shown in Figure 4.10-4. The seven land uses identified on this figure and analyzed in the Noise Report are as follows, with a brief corresponding description:

- R1 – Farm dwelling east of the project site
- R2 – Monument Hill Memorial Park cemetery
- R3 – Residentially-zoned area to the south (zoned Rural Residential)
- R4 – Wild Wings Subdivision (zoned Low Density Residential)
- R5 – Yolo Fliers Golf Course
- R6 – Farm dwelling west of the project site
- R7 – Farm dwelling north of the project site

Receptor locations R1, R2, and R5 through R7, do not meet the General Plan definition of "sensitive receptor" but do fall within the requirements of Section 10-4.421 of the Off-Channel Surface Mining Ordinance (emphasis added):

> From 6:00 a.m. to 6:00 p.m., noise levels shall not exceed an average noise level equivalent (Leq) of eighty (80) decibels (dBA) measured at the property boundaries of the site. However, noise levels shall not exceed an average noise level equivalent (Leq) of sixty (60) decibels (dBA) for any nearby off-site residences or other noise-sensitive land uses. From 6:00 p.m. to 6:00 a.m., noise levels shall not exceed an average noise level equivalent (Leq) of sixty-five (65) decibels (dBA) measured at the property boundaries of the site. At no time shall noise levels exceed a community noise equivalent (CNEL) of sixty (60) decibels (dBA) for any existing residence or other noise-sensitive land use. **An existing residence shall be considered the property line of any residentially zoned area or, in the case of agricultural land, any occupied offsite residential structures.** Achieving the noise standards may involve setbacks, the use of quieter equipment adjacent to residences, the construction of landscaped berms between mining activities and residences, or other appropriate measures. (§ 1, Ord. 1190, eff. September 5, 1996)

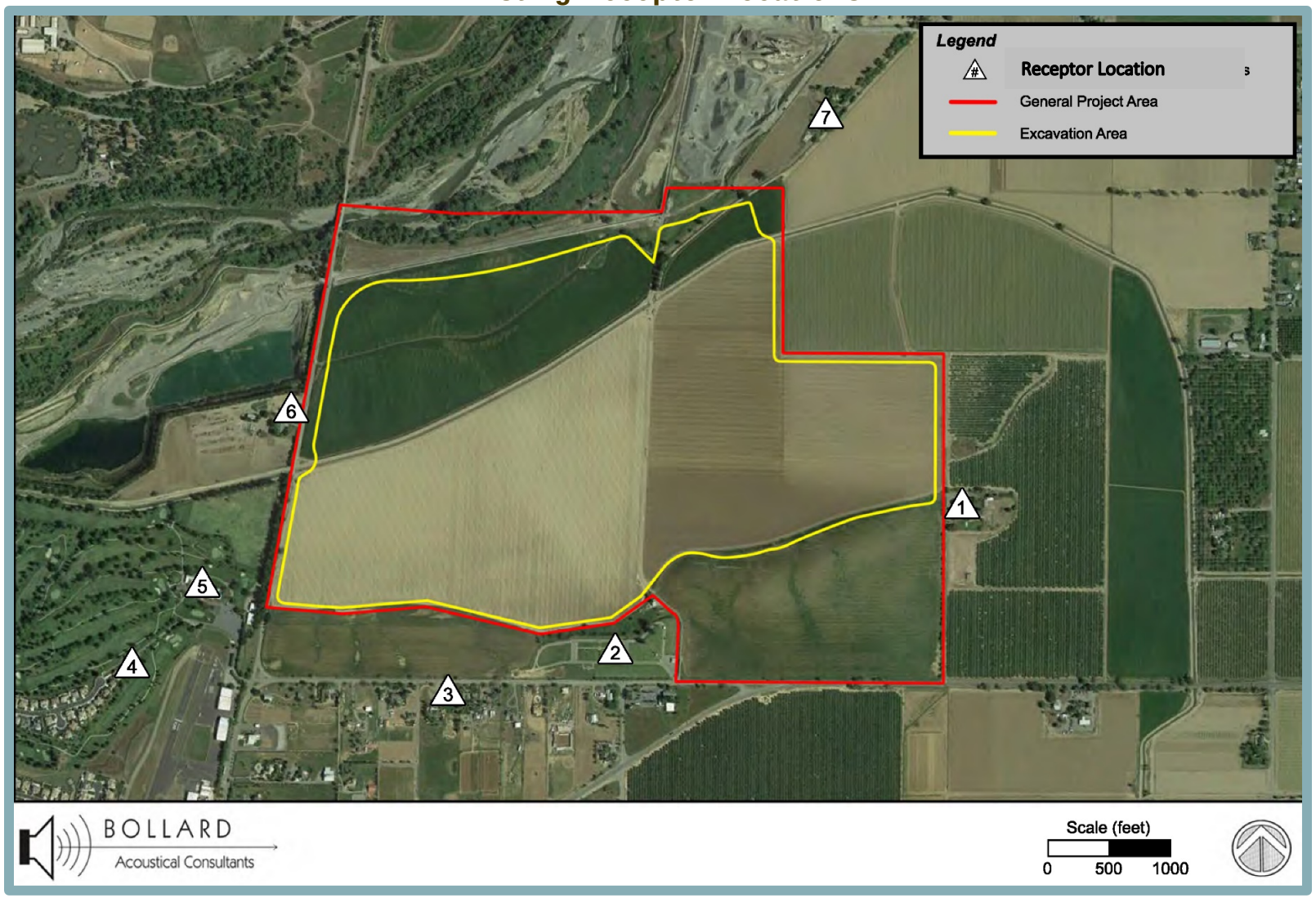
Vibration

While vibration is similar to noise, both involving a source, a transmission path, and a receiver, vibration differs from noise because noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration levels in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events.

Figure 4.10-4
Existing Receptor Locations



Source: Bollard Acoustical Consultants, Inc., 2020.

Table 4.10-4 indicates that the threshold for architectural damage to structures is 0.2 peak particle velocity in inches per second (in/sec PPV) and continuous vibrations of 0.1 in/sec PPV, or greater, would likely cause annoyance to some receptors.

Table 4.10-4
Effects of Vibration on People and Buildings

PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 - 0.30	0.006 - 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10 - 15	0.4 - 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

***Source:** Caltrans. Transportation Related Earthborne Vibrations (Caltrans Experiences) Technical Advisory, Vibration, TAV-04-01-R0201.* **January 23, 2004.**

Currently, the primary source of vibration in the project vicinity is haul truck traffic associated with existing operations at the Woodland Plant.

4.10.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of noise under the CEQA process.

Federal Regulations

The following are the federal regulations relevant to noise.

OSHA Regulations

The federal Occupational Safety and Health Administration (OSHA) addresses back-up alarms in the following regulations:

- 29 CFR 1926.601(b)(4) – motor vehicles operating on an off-highway jobsite
- 29 CFR 1926.602(a)(9) – earthmoving equipment

Off-highway vehicles must have backup alarms that are "audible above the surrounding noise level." (29 CFR 1926.601(b)(4).) Earthmoving equipment must have backup alarms that are "distinguishable from the surrounding noise level" (29 CFR 1926.602(a)(9).)

Mine Safety and Health Administration Regulations

The federal Mine Safety and Health Administration (MSHA) addresses back-up alarms in 30 CFR 56.14132(b), which requires that self-propelled mobile equipment with an obstructed rear view have a back-up alarm that is "audible above the surrounding noise level." (30 CFR 56.14132(b).) This provision allows for nighttime only use of an automatic reverse-activated strobe light in-lieu of an audible reverse alarm.

Conveyor alarms are addressed in 30 CFR 57.14201, which provides:

a. When the entire length of the conveyor is visible from the starting switch, the conveyor operator shall visually check to make certain that all persons are in the clear before starting the conveyor.

b. When the entire length of the conveyor is not visible from the starting switch, a system which provides visible or audible warning shall be installed and operated to warn persons that the conveyor will be started. Within 30 seconds after the warning is given, the conveyor shall be started or a second warning shall be given.

State Regulations

The following are the State environmental laws and policies relevant to noise.

California Vehicle Code

The California Vehicle Code § 27000(d)(1) provides:

> A construction vehicle with a gross vehicle weight rating (GVWR) in excess of 14,000 pounds that operates at, or transports construction or industrial materials to and from, a mine or construction site, or both, shall be equipped with an automatic backup audible alarm that sounds on backing and is capable of emitting a sound audible under normal conditions from a distance of not less than 200 feet.

Cal/OSHA Regulations

The California Division of Occupational Safety and Health, known as "Cal/OSHA," is a division of the CDIR. The CDIR regulations (Cal. Code Regs., tit. 8, § 1592.) provide the following requirements for backup warning devices:

a. Every vehicle with a haulage capacity 2 ½ cubic yards or more used to haul dirt, rock, concrete, or other construction material shall be equipped with a warning device that operates automatically while the vehicle is backing. The warning sound shall be of such magnitude that it will normally be audible from a distance of 200 feet and will sound immediately on backing. In congested areas or areas with high ambient noise which obscures the audible alarm, a signaler, in clear view of the operator, shall direct the backing operation.

b. Those vehicles not subject to 1592(a) and operating in areas where their backward movement would constitute a hazard to employees working in the area on foot, and where the operator's vision is obstructed to the rear of the vehicle shall be equipped with an effective device or method to safeguard employees such as:

1) An automatic back-up audible alarm which would sound immediately on backing, or

2) An automatic braking device at the rear of the vehicle that will apply the safety brake immediately on contact with any obstruction to the rear, or

3) In lieu of 1 or 2 above, administrative controls shall be established such as:

   A) A spotter or flagger in clear view of the operator who shall direct the backing operation, or

   B) Other procedures which will require the operator to dismount and circle the vehicle immediately prior to starting a back-up operation, or

   C) Prohibiting all foot traffic in the work area.

4) Other means shall be provided that will furnish safety equivalent to the foregoing for personnel working in the area.

c. All vehicles shall be equipped with a manually operated warning device which can be clearly heard from a distance of 200 feet.

d. The operator of all vehicles shall not leave the controls of the vehicle while it is moving under its own engine power.

e. Hauling or earth moving operations shall be controlled in such a manner that equipment or vehicle operators know of the presence of rootpickers, spotters, lab technicians, surveyors, or other workers on foot in the areas of their operations.

Thus, vehicles with a hauling capacity of 2 ½ cubic yards or more are required to have a backup warning system that is capable of being heard at least 200 feet away. Vehicles not falling into that category have other options for backup warnings, including the use of a spotter.

Department of Industrial Relations Variance Procedures

An employer may apply to the California Department of Industrial Relations (CDIR)'s Occupational Safety and Health Standards Board for a permanent variance from a Cal/OSHA regulation by demonstrating by a preponderance of the evidence that an alternative program, method, practice, means, device, or process will provide equal or superior safety. (Cal. Labor Code § 143.)

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The relevant goals and policies from the Yolo County General Plan related to noise are presented below.

Goal HS-7 Noise Compatibility. Protect people from the harmful effects of excessive noise.

Policy HS-7.1	Ensure that existing and planned land uses are compatible with the current and projected noise environment. However, urban development generally experiences greater ambient (background) noise than rural areas. Increased density, as supported by the County in this General Plan, generally results in even greater ambient noise levels. It is the County's intent to meet specified indoor noise thresholds, and to create peaceful backyard living spaces where possible, but particular ambient outdoor thresholds may not always be achievable. Where residential growth is allowed pursuant to this general plan, these greater noise levels are acknowledged and accepted, notwithstanding the guidelines in Figure HS-7 [of the General Plan].
Policy HS-7.3	Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.
Policy HS-7.5	Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.
Policy HS-7.8	Encourage local businesses to reduce vehicle and equipment noise through fleet and equipment modernization and retrofits, use of alternative fuel vehicles, and installation of mufflers or other noise reducing equipment.
Action HS-A62	Regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of noise to the following sensitive receptors: residentially designated land uses; hospitals, nursing/convalescent homes, and similar board and care facilities; hotels and lodging; schools and day care centers; and neighborhood parks. Home occupation uses are excluded.

Yolo County Off-Channel Surface Mining Ordinance

With respect to the noise compatibility of surface mining projects, the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) provides specific standards, reproduced below as follows:

> Section 10-4.421. Noise: General standard
>
> From 6:00 a.m. to 6:00 p.m., noise levels shall not exceed an average noise level equivalent (Leq) of eighty (80) decibels (dBA) measured at the property boundaries of the site. However, noise levels shall not exceed an average noise level equivalent (Leq) of sixty (60) decibels (dBA) for any nearby off-site residences or other noise-sensitive land uses. From 6:00 p.m. to 6:00 a.m., noise levels shall not exceed an average noise level equivalent (Leq) of sixty-five (65) decibels (dBA) measured at the property boundaries of the site. At no time shall noise levels exceed a community noise equivalent (CNEL) of sixty (60) decibels (dBA) for any existing residence or other noise-sensitive land use. An existing residence shall be considered the property line of any residentially zoned area or, in the case of agricultural land, any occupied offsite residential structures. Achieving the noise

standards may involve setbacks, the use of quieter equipment adjacent to residences, the construction of landscaped berms between mining activities and residences, or other appropriate measures. (§ 1, Ord. 1190, eff. September 5, 1996)

Section 10-4.422. Noise: Sonic safety devices

If mining occurs within fifteen-hundred (1500) feet of residences, equipment used during nighttime activities shall be equipped with non-sonic warning devices (e.g. infrared) consistent with the California Office of Safety Hazard Administration (Cal OSHA) regulations. This may include fencing of the area to avoid pedestrian traffic, adequate lighting of the area, and placing an observer in clear view of the equipment operator to direct backing operations. If appropriate, prior to commencement of operations without sonic warning devices, operators shall file a variance request with the California OSHA Standards Board showing that the proposed operation would provide equivalent safety to adopted safety procedures, including sonic devices. This regulation applies to all sonic safety devices in use at the mining site, including sonic warnings on conveyors.

Section 10-4.423. Noise: Traffic

Operators shall provide acoustical analysis for future truck and traffic noise associated with the individual operations along County roadways identified as experiencing significant impacts due to increased traffic noise. The study shall identify noise levels at adjacent noise-sensitive receptors and ways to control the noise to the "normally acceptable" goal of a CNEL of sixty (60) dB and reduce the increase over existing conditions to five (5) dBA or less. Typical measures that can be employed include the construction of noise barriers (wood or masonry), earthen berms, or re-routing of truck traffic.

4.10.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to noise and vibration. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A noise impact is considered significant if the proposed project would:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels;
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating noise impacts.

Consistent with the CCAP Update FEIR (pg. 4.10-8), for the purpose of this analysis, a substantial temporary or permanent increase would occur if the activities resulting from implementation of the

proposed project would generate noise in excess of the standards in the Off-Channel Surface Mining Ordinance, described in Section 10-4.421 of the Ordinance.

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) determined that implementation of the proposed project would result in a less-than-significant impact related to aircraft noise. Therefore, the following impact is not discussed further in this EIR:

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or

Noise Effects on Domestic Livestock

Current research indicates that there are no government policies or widely accepted guidelines with regard to noise criteria for animals. However, information is provided in technical literature and has been reviewed for the proposed project.

The noise goals provided in this chapter are based on human response and annoyance factors and, as such, are not necessarily applicable to livestock. However, it is recognized that sudden noise has the potential to startle or upset domestic livestock and pets.

Based on a comment received during the public review period for the Notice of Preparation for the project, the project's predicted operational noise levels upon the livestock is discussed below.

Research into the effects of noise on livestock, poultry and domestic animals has been primarily limited to noise from military aircraft overflights and sonic booms. Literature on the effects of aircraft noise and sonic booms on animals indicates that effects vary from species to species. Adverse effects have been found in a few studies but have not been reproduced in other similar studies. Some studies report that the effects of aircraft noise on animals is uncertain, though behavioral responses to military overflights have been noted. However, many studies suggest that some species appear to adjust to some forms of sound disturbance. Given that mining has been ongoing within the project region for over 100 years, mining-related noise is a component of existing conditions. As such, wildlife within the project vicinity is likely acclimated to noise associated with mining operations. According to a study prepared by the U.S. Department of the Interior, the effects of noise and sonic booms on various species of domestic livestock appear to become negative effects at sound pressure levels above 90 decibels.[5] Levels above 90 dB would be substantially greater than the sound pressure levels that would be experienced from the Teichert Shifler operation. The proposed mining activity would involve primarily involve use construction-type machinery and is not anticipated to include blasting or other high-intensity noise sources. Therefore, adverse noise-related impacts to domestic livestock are not expected.

[5] U.S. Department of the Interior. *Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: A Literature Synthesis*. June 1988. Available at: https://www.nonoise.org/library/animals/litsyn.htm#3.1.1%20Domestic%20Livestock. Accessed June 23, 2020.

Method of Analysis

Below are descriptions of the methodologies utilized to measure background and ambient noise and estimate future traffic noise, construction noise, and vibration associated with the project. Further modeling details and calculations are provided in Appendix L to this EIR. The results of the noise and vibration impact analyses were compared to the standards of significance discussed above in order to determine the associated level of impact.

All noise measurements were conducted using Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4)

Baseline (i.e., existing) traffic conditions for the existing Woodland and Esparto Plants were developed using the average annual production over the previous ten-year period. Calculating the baseline traffic conditions based on the average annual production of the previous ten-year period accounts for the typical variation in demand for aggregate materials, including periods of high and low production and, thus, provides a realistic representation of existing conditions. In the subject analysis the use of this average is conservative as it covers a period of depressed economic activity associated with emergence from the Great Recession of the late 2000's.

BAC evaluated traffic noise levels for existing traffic conditions using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108), which is based on the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks and takes into consideration metrics such as vehicle speed, volume, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. The existing traffic on roadways within the vicinity of the project site was categorized for noise purposes into automobiles, medium duty trucks (two axles), and heavy-duty trucks (three or more axles). Heavy truck volumes in the immediate project vicinity primarily consist of agricultural, commercial, and aggregate industry trucks. Truck traffic associated with ongoing operations at the Teichert Woodland Plant and other associated operations was estimated based on past trip generation data from the facility.

In addition to the traffic volumes obtained for existing conditions, traffic volumes were also provided by the traffic consultant for the Existing Plus Project (existing traffic volumes plus volumes from the proposed project) and Cumulative Plus Project (traffic from reasonably foreseeable development plus traffic from the proposed project) scenarios. The scenarios are discussed in further detail in Section 4.12, Transportation and Circulation, of this EIR.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to noise and vibration is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.10-1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The impact would be *significant.*

The primary sources of noise associated with proposed project would be heavy-duty equipment operation associated with excavation of overburden material, as well as traffic noise associated with haul truck traffic on local roadways. In addition, the project could indirectly result in increased noise generation at the existing Teichert Woodland Plant.

Excavation Noise

As part of the proposed project, removal of the overburden on the site would be accomplished using scrapers, motor graders and bulldozers. Following removal of overburden, aggregate materials would primarily be mined using scrapers until the water table is reached. The scrapers would dump directly over a grate which feeds the conveyor system used to transport material to the Teichert Woodland Plant. At the depths at which groundwater is reached, an excavator or dragline would be used to extract the aggregate resource. The excavator would fill haul trucks, which would dump directly over the grate feeding the conveyor system. Water trucks would be used to control dust generated by the proposed mining operations. The proposed mining process would be similar to methods currently employed by Teichert at other sites supplying the Woodland Plant, as well as Teichert's Esparto operations. The hours of operation at the proposed mining site would be limited to 6:00 AM to 6:00 PM, Monday through Saturday. Occasional 24-hour operations to fulfill contract requirements would be allowed within the regulations established in OCSMO Section 10-4.421. Woodland Plant hours of operation are permitted from 6:00 AM to 6:00 PM, Monday through Friday. For the months of August, September, and October, Plant hours may be extended to 10:00 PM (Monday through Friday) and 6:00 AM to 6:00 PM Saturday and/or Sunday subject to compliance with Section 10-4.421 of the Mining Ordinance.

It should be noted that, in addition to excavation noise associated with the proposed mining activities, excavation would occur prior to mining for Moore Canal relocation purposes, and post mining, for future reclamation activities at the project site. However, excavation noise associated with pre- and post-mining activities would be less intensive compared to during mining activities.

To quantify the noise generation associated with the proposed excavation activities, BAC relied on reference noise level data collected at various Teichert excavation areas in recent years, including the Teichert Esparto Plant; such data is summarized in Table 4.10-5 below. The reference noise level measurements utilized to establish the levels presented in 4.10-6 included all aspects of the equipment operations. Specifically, the measurements included scrapers loading and unloading material, loaded and empty scraper passbys, excavators loading trucks and conveyors, movement of excavators (including backward movement with warning beepers), and haul truck passbys (loaded and unloaded), truck load dumps, and trucks moving in reverse (with backup warning beepers). As a result, the 4.10-6 data is considered to be representative of all noise-

generating aspects of the mobile heavy earthmoving equipment which will be utilized at the Shifler excavation areas, including the use of backup warning devices.

The hourly average noise emissions of the excavation activities are dependent on the amount of time within the hour that the particular noise sources are present. For example, scrapers and haul trucks transferring aggregates between the excavation area and conveyors would only be in the immediate vicinity of a property line near an existing noise-sensitive receptor or other sensitive land use for a relatively small percentage of the hour.

Aerial imagery was used to scale the distances from the nearest proposed excavation activities at the project site to the seven above-described noise receptor locations closest to the project site. A sound level decay rate of 6 dB per doubling of distance was used to project noise from the project site to the nearest receptors. An additional offset of -1.5 dB per doubling of distance between the noise source and receptor was applied to account for atmospheric absorption and excess ground attenuation. Furthermore, a -5 dB offset was applied to noise generated by excavator/haul truck operations as that equipment would not be utilized until the dry-pit mining with scrapers was completed and the excavation operations recessed into the pit area.

Table 4.10-5
Reference Noise Levels for Excavation Equipment and Operations

Equipment/Operation	L_{max} at 100 feet	L_{eq} at 100 feet	Distance to 60 dB L_{eq} Contour (feet)
Conveyors	60/70[1]	57	71
Self-Elevating Scrapers	90	75	560
Excavator	80	70	320
Haul Trucks	80	70	350

[1] Following conveyor startup, noise generated by conveyor belts is fairly steady-state (not time varying). As a result, the maximum and average noise levels generated by conveyors while in operation are relatively similar (60 dBA vs 57 dBA). Maximum noise levels generated by conveyor startup alarms are typically 10 dB higher, so as to be audible over background noise. However, the duration of the conveyor alarms is limited, and does not affect the average noise generation of the conveyor system. The 70 dBA maximum shown above is due to the conveyor start-up alarms.

Source: Bollard Acoustical Consultants, Inc., 2020, based on reference noise level data collected at various Teichert operations.

Table 4.10-6 shows the distances between the nearest excavation locations on the project site and project-area receptors, along with the predicted noise levels associated with proposed excavation activities at such receptors.

Table 4.10-6
Projected Noise Levels at Nearest Receptors – On-Site Mining Operations

Receptor	Distance (feet)	Noise Level (L_{eq}, dB)		
		Scraper	Excavator / Haul Truck	Conveyor
1	300	65	53	42
2	300	60	48	37
3	600	59	47	36
4	1,500	49	37	26
5	500	60	48	37
6	300	65	53	42
7	1,000	54	42	31

Source: Bollard Acoustical Consultants, Inc., 2015.

The noise levels predicted for scraper operations assume worst-case operations at existing ground elevation. As the depth of excavation increases, shielding of scraper operations by the intervening pit walls would result in considerably lower noise levels at the nearest receptors than indicated in Table 4.10-6.

The conveyor start-up alarms would generate brief periods of elevated maximum noise levels, estimated to be approximately 10 dB higher than the average noise levels shown in Table 4.10-6. The range of maximum noise levels associated with conveyor startup alarms would range from approximately 36 to 52 dB L_{max} at the nearest sensitive receptors and other sensitive land uses, which is both well below applicable noise standards and the existing maximum noise level exposure at such receptors/land uses.

The Table 4.10-6 data indicate that, at the project site boundaries, noise levels would comply with the 80 dB L_{eq} standard established by Section 10-4.421 of the OCSMO. With the exception of the existing farm dwellings located to the west and east of the site (Receptors 1 and 6), noise generation associated with on-site mining activities would comply with the OCSMO 60 dB L_{eq} standard for residences. However, initial overburden removal operations using self-elevating scrapers could result in average noise levels of up to 65 dB L_{eq} at the farm dwellings represented by Receptors 1 and 6. Therefore, the project could result in new exceedances of the County's applicable 60 dB L_{eq} noise standard at such receptors. In addition, during early phases of excavation, when operations are occurring above-grade, the proposed project could conflict with the 65 dB L_{eq} standard from 6:00 PM to 6:00 AM, as measured from the project boundaries (established by OCSMO Section 10-4.421), if operations were to occur during these nighttime hours. Therefore, the proposed project could result in a significant impact related to excavation at the mining pit.

While the proposed excavation would not exceed the noise standards used in this analysis at the Monument Hill Memorial Park cemetery (see 'R2' in Table 4.10-6 above), the Noise Study recommends ongoing communication between Teichert and Monument Hill representatives to identify feasible methods for minimizing potential noise intrusion during services.

The following discussion is provided with respect to the recommended reverse-activated strobe lights identified in Mitigation Measure 4.10-1(b) below.

Federal Preemption

A recent California Supreme Court case, *Solus Industrial Innovations, LLC v. Superior Court*, 4 Cal.5th 316 (2018), addressed the issue of whether Cal/OSHA regulations were preempted by federal OSHA regulations. The court held that federal OSHA does not preempt unfair competition and consumer protection claims based on worker safety and health violations of Cal/OSHA regulations. The court reasoned that OSHA was not intended to preempt state regulation of worker health and safety. Rather, OSHA was intended to serve as the "floor" for those states that do not have such regulations. Under OSHA, federal law does not preempt state authority when: 1) there is no federal standard or 2) there is a state plan for occupational safety and health that has been approved at the federal level. California, through Cal/OSHA, has a state plan for occupational safety and health that has been approved by the federal Secretary of Labor. For this reason, the court concluded that Cal/OSHA regulations were not preempted by OSHA.

Applicable Regulations

Given the fact that Cal/OSHA regulations are not preempted by OSHA, the applicable regulations with respect to back-up warning alarms would appear to be the Cal/OSHA regulations, MSHA regulations, and the California Vehicle Code provision discussed above. All of these statutes and/or regulations require the use of an audible alarm with one exception. The use of a non-audible strobe light during nighttime hours is allowed under MSHA regulations, but not under Cal/OSHA regulations or the California Vehicle Code.

It is unknown whether the Occupational Safety and Health Standards Board would grant a variance from the requirement of an audible alarm for a non-audible warning device. The applicant for the variance would be required to demonstrate that the alternative warning device will provide equal or superior safety to an audible backup alarm. Moreover, such a variance would not exempt an operator from the California Vehicle Code provision that requires an audible alarm on all construction vehicles with a GVWR of over 14,000 pounds.

Traffic Noise

As part of the proposed project, Teichert is proposing to transfer the annual production allotment from the Teichert Esparto operation to the Shifler site. The Teichert Esparto operation was approved in December 1996 for a total of 25.88 million tons (22.0 million tons sold) over a maximum 30-year period at an annual rate not to exceed 1,176,471 tons mined (1.0 million tons sold) per year. Teichert is requesting that it be allowed to transfer its annual production allotment from the Teichert Esparto operation to the Shifler site once mining at the Teichert Esparto site has been completed or the Teichert Esparto mining permit expires (January 1, 2028), whichever occurs first.

Table 4.10-7 shows the comparison between the existing and projected traffic noise levels with implementation of the proposed project. As shown in the table, the noise level increases projected to occur under Existing Plus Project conditions would be



below the 5.0 dB threshold established by the County's OCSMO. Therefore, a less-than-significant impact would occur related to traffic noise.

Table 4.10-7
Existing Plus Project Traffic Noise Levels

Roadway	Segment	Noise Level (L_{dn}, dB) at 50 Feet from Roadway Centerline			
		Existing	Existing Plus Project	Change	Substantial Increase?
CR 20	Woodland Entrance – CR 96	63.1	67.7	4.6	No
CR 20	CR 96 – CR 98	66.1	68.7	2.6	No
CR 98	I-5 – CR 20	68.2	70.1	1.9	No
CR 96	CR 20 – SR 16	63.3	65.3	2.0	No
SR 16	West of I-505	71.1	71.1	0.1	No
SR 16	I-505 – CR 94B	71.7	72.1	0.4	No
SR 16	CR 94B – CR 96	72.3	72.7	0.4	No

Source: Bollard Acoustical Consultants, Inc., 2020.

Teichert Woodland Plant Processing Noise

The proposed project does not include any changes to the existing Woodland Plant. However, once excavation and processing operations have ceased at the Teichert Esparto site, the Esparto Plant equipment would be relocated to the Woodland Plant to replace the older Woodland Plant equipment. In addition, one additional crusher and two additional screens would likely be required to accommodate the increase in plant capacity from 1.2 million tons per year to 2.2 million tons per year occurring as a result of the proposed project.

Noise level measurements conducted at the Woodland Plant site in December 2018 and at the Esparto Plant site in August of 2019 indicate that the aggregate processing plant noise generation is very similar at the two sites.

With the additional crusher and two additional screens, the noise generation of the processing plant equipment is predicted to be approximately one to two dB higher than the existing noise generation of the Esparto Plant aggregate processing equipment. However, the area preliminarily identified for the location of the Esparto processing plant equipment, once relocated to the Woodland Plant site, is generally farther away from the nearest residences than the existing Woodland Plant equipment (see Figure 3-7). According to the Noise Study prepared for the proposed project, the net effect of the slight increase in plant noise generation resulting from the additional crusher and screen and the increased distance to the nearest residences would likely be negligible. In addition, the project would not increase asphalt production levels at the Woodland Plant; asphalt production was assumed to remain at existing levels.

The exact location and type of equipment to be relocated to the Woodland Plant has not yet been finalized by the applicant. Therefore, the potential exists for the relocated equipment to increase noise levels in excess of the estimates presented above. While unlikely, in the event the increased Woodland Plant output results in increased noise

levels in the immediate vicinity of the Woodland Plant, or extended hours of operation, a significant impact could occur.

Reclamation and Post-Reclamation Noise

Noise associated with reclamation of the mining site is addressed in the analysis of Excavation Noise above. Noise associated with use of the project site and other dedicated properties post-reclamation would be similar to existing conditions. Reclamation of portions of the site to a total of 117 acres of agricultural land will result in noise generation similar to existing conditions on the site and in the agricultural surroundings. Reclamation of portions of the site to open water lake and habitat will also be similar to existing conditions in that in-channel areas of Cache Creek have been and continue to be used for recreational purposes. Following proposed future dedication of the Shifler In-Channel, Shifler Lake, Schwarzgruber, and Woodland Plant properties, future uses would include public recreation, trails, open water, and protected habitat. Noise generated by users of these future facilities would be similar to existing uses and compatible with surrounding uses.

Conclusion

Based on the above, traffic noise associated with the proposed project would not conflict with any of the applicable noise standards established by the County's OCSMO. However, initial overburden removal operations using self-elevating scrapers could result in new exceedances of the County's applicable 60 dB L_{eq} noise standard at Receptors 1 and 6. In addition the relocation of processing equipment to the Woodland Plant could result in increased noise levels associated with plant operations. Thus, a ***significant*** impact could occur related to the generation of a substantial increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Mitigation Measure(s)

Implementation of Mitigation Measure 4.10-1(a) would reduce hourly noise exposure to 60 dB L_{eq} or less at the Receptors 1 and 6, located east and west of the project site, respectively. In addition, Mitigation Measure 4.10-1(b) would ensure that noise levels associated with processing activities at the Woodland Plant would be reduced to at or below the existing ambient noise levels shown in Table 4.10-2 above. Thus, the above impact would be reduced to a *less-than-significant* level.

4.10-1(a) *The following language shall be included as a condition of approval on the Mining Permit for the proposed project, to the satisfaction of the Yolo County Department of Community Services:*

- *Initial scraper operations occurring within 300 feet of the project site boundary near Receptors 1 or 6 (as identified in Figure 4.10-4 of this EIR) shall be limited to 15 minutes per hour;*

  OR

- *An earth berm or other form of noise barrier shall be constructed along 300 feet of the eastern and western site boundaries nearest to Receptors 1 and 6. The barrier shall be a minimum of eight feet in height relative to the existing ground elevation.*

In addition, the Mining Permit shall be conditioned with the following language, to the satisfaction of the Yolo County Department of Community Services, to further reduce the potential for annoyance associated with proposed excavation activities:

- *Excavation activities occurring within 560 feet of an existing residence shall be limited to the hours of 6:00 AM to 6:00 PM until such time as the excavation equipment has recessed in the pit a sufficient depth to no longer be visible from the nearest residences.*
- *Teichert shall coordinate with Monument Hill Memorial Park cemetery representatives on an ongoing basis to determine when funeral services are scheduled to occur at the cemetery, and shall limit on-site operations during such services. Alternatively, Teichert may initiate communication with Monument Hill Memorial Park representatives to identify other feasible methods for minimizing potential noise intrusion during services.*

4.10-1(b) *A noise survey shall be conducted following the installation and operation of any new equipment which will be required to increase processing capacity of the Woodland Plant. The results of the noise survey shall be submitted to the Yolo County Department of Community Services within two months of the new equipment being brought online. In the event that the survey results indicate the additional equipment has resulted in a substantial increase in processing plant noise emissions (in excess of 5 dB), the equipment causing the substantial increase shall cease operation until the following noise mitigation options shall be implemented, as appropriate, to reduce the overall increase in plant noise levels to less than 5 dB at the nearest residences:*

- *Construct localized noise barriers adjacent to ground level equipment determined to be responsible for substantial increases in ambient noise levels.*
- *Suspend acoustic curtains adjacent to elevated equipment determined to be responsible for substantial increases in ambient noise levels.*
- *Line new conveyor transfer points and hoppers with heavy urethane linings.*
- *Utilize urethane screens in new screen decks.*
- *Utilize automatic reverse-activated strobe lights in lieu of audible backup beeper devices for any new mobile equipment,*

if the applicant can obtain a variance from Cal/OSHA. If a variance cannot be obtained, then utilize MHSA-approved broad-band backup warning devices for any new mobile equipment rather than the traditional tonal back-up beeper devices.

- *Ensure that all internal combustion engines which may be required to drive new equipment is equipped with appropriate mufflers.*

4.10-2 Generation of excessive groundborne vibration or groundborne noise levels. Based on the analysis below, the impact is *less than significant*.

Yolo County does not have specific policies or standards pertaining to vibration levels. However, vibration levels associated with construction activities and project operations are addressed as potential vibration impacts associated with project implementation. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events.

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 4.10-8 shows the typical vibration levels produced by common construction equipment.

Table 4.10-8
Vibration Levels for Various Construction Equipment

Type of Equipment	Peak Particle Velocity @ 25 feet (in/sec)	Peak Particle Velocity @ 50 feet (in/sec)
Large Bulldozer	0.089	0.029
Loaded Trucks	0.076	0.025
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.029
Jackhammer	0.035	0.011

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.

Mining and reclamation activities associated with the proposed project would include operation of heavy-duty off-road equipment within the project site, as well as haul truck traffic on local roadways. While the equipment shown in the table above does not include all equipment that could be used as part of the proposed project, the associated vibration levels are representative of the vibration intensities anticipated for the project.

As shown in the table, all the equipment types listed, including loaded haul trucks, would produce vibration levels well below the Caltrans standard of 0.20 in/sec at which vibrations cause damage to buildings, as well as the 0.10 in/sec threshold at which

vibrations may cause annoyance to some receptors. Furthermore, the haul trucks associated with the proposed project would be routed through designated haul truck routes that already experience haul truck traffic associated with the Esparto Plant and the Woodland Plant. As a result, the project would not substantially increase haul truck vibrations relative to existing conditions.

At the eastern project site boundary, the proposed mining activities would be located 70 feet or more from the property line of the nearest existing residence. At the western boundary, the mining activities would be located approximately 115 feet or more from the nearest residential property lines. At these distances, vibration levels associated with the project would be further reduced relative to the values shown in Table 4.10-8. Therefore, vibrations associated with the proposed mining and reclamation activities are not predicted to cause damage to existing buildings or cause adverse impacts to residential receptors.

Based on the above, the proposed project would not generate excessive groundborne vibration or groundborne noise levels, and impacts would be considered ***less than significant***.

Mitigation Measure(s)
None required.

4.10-3 Cause a significant environmental impact due to a conflict with applicable plans, policies, and regulations adopted for the purpose of mitigating noise impacts. Based on the analysis below, the impact is *less than significant*.

Table 4.10-9 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to noise and vibration. It should be noted that consistency with other standards in the SMARA, the County Zoning Ordinance, and the SMRO that are specific to land use and planning issues are discussed in Chapter 4.9, Land Use and Planning, of this EIR. As shown in Table 4.10-9, the proposed project would be generally consistent with applicable standards related to noise and vibration. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Table 4.10-9
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy HS-7.1 Ensure that existing and planned land uses are compatible with the current and projected noise environment. However, urban development generally experiences greater ambient (background) noise than rural areas. Increased density, as supported by the County in this General Plan, generally results in even greater ambient noise levels. It is the County's intent to meet specified indoor noise thresholds, and to create peaceful backyard living spaces where possible, but particular ambient outdoor thresholds may not always be achievable. Where residential growth is allowed pursuant to this general plan, these greater noise levels are acknowledged and accepted, notwithstanding the guidelines in Figure HS-7 [of the General Plan].	See Impact 4.10-1. With implementation of mitigation, the noise level increases occurring as a result of the proposed project would not conflict with applicable General Plan standards. Therefore, the project would be consistent with this policy.
Policy HS-7.3 Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.	Per the CCAP, the project site has been anticipated for off-channel mining uses. Given that the proposed project is consistent with the CCAP, and would not introduce new sensitive receptors to the project area, the project would be consistent with this policy.
Policy HS-7.5 Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.	See discussion of compatibility with OCSMO Section 10-4.421 below.
Policy HS-7.8 Encourage local businesses to reduce vehicle and equipment noise through fleet and equipment modernization and retrofits, use of alternative fuel vehicles, and installation of mufflers or other noise reducing equipment.	See Impact 4.10-1. With implementation of mitigation, the noise level increases occurring as a result of the proposed project would not conflict with applicable General Plan standards. Therefore, the project would be consistent with this policy.
Action HS-A62 Regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of noise to the following sensitive receptors: residentially designated land uses; hospitals, nursing/convalescent homes, and similar board and care facilities; hotels and lodging; schools and day care centers; and neighborhood parks. Home occupation uses are excluded.	See Impact 4.10-1. With implementation of mitigation, the noise level increases occurring as a result of the proposed project would not result in significant noise level increases at the nearest receptors. Therefore, the project would be consistent with this policy.
Off-Channel Mining Plan	
None applicable.	
Off-Channel Surface Mining Ordinance	
Section 10-4.421 From 6:00 a.m. to 6:00 p.m., noise levels shall not exceed an average noise level equivalent (L_{eq}) of	See Impact 4.10-1. At the project site boundaries, the proposed project would not conflict with the 80 dB L_{eq} standard established by the OCSMO.

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Table 4.10-9
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
eighty (80) decibels (dBA) measured at the property boundaries of the site. However, noise levels shall not exceed an average noise level equivalent (L_{eq}) of sixty (60) decibels (dBA) for any nearby off-site residences or other noise-sensitive land uses. From 6:00 p.m. to 6:00 a.m., noise levels shall not exceed an average noise level equivalent (L_{eq}) of sixty-five (65) decibels (dBA) measured at the property boundaries of the site. At no time shall noise levels exceed a community noise equivalent (CNEL) of sixty (60) decibels (dBA) for any existing residence or other noise-sensitive land use. An existing residence shall be considered the property line of any residentially zoned area or, in the case of agricultural land, any occupied offsite residential structures. Achieving the noise standards may involve setbacks, the use of quieter equipment adjacent to residences, the construction of landscaped berms between mining activities and residences, or other appropriate measures. (§ 1, Ord. 1190, eff. September 5, 1996)	Mitigation Measures 4.10-1(a) and 4.10-1(b) would ensure that project noise levels at the existing residential receptors in the project vicinity would comply with the 60 dB L_{eq} noise threshold established by OCSMO Section 10-4.421. Therefore, the project would be consistent with this policy.
Section 10-4.422 If mining occurs within fifteen-hundred (1500) feet of residences, equipment used during nighttime activities shall be equipped with non-sonic warning devices (eg. infrared) consistent with the California Office of Safety Hazard Administration (Cal OSHA) regulations. This may include fencing of the area to avoid pedestrian traffic, adequate lighting of the area, and placing an observer in clear view of the equipment operator to direct backing operations. If appropriate, prior to commencement of operations without sonic warning devices, operators shall file a variance request with the California OSHA Standards Board showing that the proposed operation would provide equivalent safety to adopted safety procedures, including sonic devices. This regulation applies to all sonic safety devices in use at the mining site, including sonic warnings on conveyors.	Mitigation Measure 4.10-1(b) requires the use of reverse-activated strobe lights (i.e., non-sonic warning devices), if the project applicant can obtain a variance from the California Division of Occupational Safety and Health (CAL/OSHA), consistent with Section 143 of the California Labor Code. Per Section 143(a), "Any employer may apply to the board for a permanent variance from an occupational safety and health standard, order, special order, or portion thereof, upon a showing of an alternate program, method, practice, means, device, or process which will provide equal or superior safety for employees." Thus, the project is consistent with this regulation.
Section 10-4.423 Operators shall provide acoustical analysis for future truck and traffic noise associated with the individual operations along County roadways identified as experiencing significant impacts due to increased traffic noise. The study shall identify noise levels at adjacent noise sensitive receptors and ways to control the noise to the "normally acceptable" goal of a L_{dn} of sixty (60) dB and reduce the increase over existing conditions to five	See Table 4.10-7. Noise level increases projected to occur under Existing Plus Project conditions would be below the 5.0 dB threshold established by the OCSMO.

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Table 4.10-9
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
(5) dBA or less. Typical measures that can be employed include the construction of noise barriers (wood or masonry), earthen berms, or re-routing of truck traffic.	

4.11 Public Services, Utilities, and Service Systems

4.11 PUBLIC SERVICES, UTILITIES, AND SERVICE SYSTEMS

4.11.1 INTRODUCTION

The Public Services, Utilities, and Service Systems chapter summarizes the existing setting related to public services and utilities and identifies potential new demands resulting from the proposed project on fire and police protection services, parks, water supply, and gas and electric infrastructure. Information for this section was drawn primarily from the Yolo County General Plan,[1] the associated EIR,[2] the Cache Creek Area Plan (CCAP) Update FEIR,[3] and the County's Integrated Regional Water Management Plan (IRWMP).[4]

In response to the NOP, the County received comments related to Public Services, Utilities, and Service Systems from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Cumulative impacts related to wastewater, groundwater, and other utility services (Resident);
- Violence and crime that could increase, particularly by people trespassing and breaking into private property (Resident);
- The purchase of supplemental electricity from the grid which could be generated from solar, wind, geothermal, or small-scale hydroelectric generation sources (Resident); and
- Potential impacts to existing gas and electric facilities (Pacific Gas and Electric Company).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

This chapter does not include concepts or terminology that require definition in this section.

4.11.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to public services.

1 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
2 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034.* April 2009.
3 Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.
4 Water Resources Association of Yolo County. *Integrated Regional Water Management Plan*. April 2007.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands, ornamental landscaping, and scattered native vegetation.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the CCAP boundaries.

The following sections provide an overview of the local public services, utilities, and services systems, including fire and police protection, parks, water supply, and electricity and natural gas.

Fire Protection

The project site is currently located within the jurisdiction of the Willow Oak Fire Protection District (FPD). The Willow Oak FPD serves 33 square miles of rural Woodland and Yolo County. The FPD responds to incidents including medical emergencies, fires, hazardous materials and conditions, rescues, and public assistance. The Willow Oak FPD is located in the central section of Yolo County, adjacent to the City of Woodland. The FPD does not protect any incorporated cities or towns within the County. The FPD has a “second alarm” agreement with Madison FPD and a Mutual Aid agreement with Woodland, Springlake, and West Plainfield FPDs. Currently, the Willow Oak FPD has two stations: Station 6, located at 17535 County Road 97 and Station 7, located at 18111 County Road 94B. Station 7 is located directly south of the project site.

Each FPD in Yolo County is assigned an Insurance Service Organization (ISO) rating in order to determine insurance costs. The rating reflects fire suppression response times based on 10 public protection classifications. Classifications range from Class 1, which indicates the highest level of protection to Class 10, which indicates the lowest level of protection. The Willow Oak FPD has an ISO rating of 8 in developed areas and 9 in rural areas. The average response time for the FPD is three to four minutes to the community and five minutes to the rural areas. The staff consists of two paid firefighters, 25 volunteer firefighters, one paid chief, and one paid office manager. In addition, the FPD has three fire engines, two water tenders, two grass trucks, and one rescue truck. From 2001 to 2003, emergency call volume remained fairly constant, with the majority of calls concerning request for medical aid.

The Sierra-Sacramento Valley Emergency Medical Services Agency (S-SV EMS) is designated as the local emergency medical service agency for Yolo County. The S-SV EMS has partnered with American Medical Response (AMR) to provide emergency services throughout Yolo County. In accordance with federal and State regulations and guidelines, including ones administered by the California Emergency Medical Services Authority, the S-SV EMS has established response time goals across various locations throughout Yolo County. The AMR response time standard for the Willow Oak FPD is within 25 minutes, 90 percent of the time.

Police Protection

The Yolo County Sheriff-Coroner Department (Sheriff's Department) is located at 140 Tony Diaz Drive, Woodland, California, approximately 8.5 miles east of the project site. The Sheriff's Department is responsible for patrolling the County, administering the County jail and work program, providing security to the Yolo County Court System, providing animal services, and serving as the County coroner. The Sheriff's Department has 276 full time employees, 96 of which are sworn officers, including one sheriff, one undersheriff, two captains, four lieutenants, 10 sergeants, 72 deputies, one chief deputy coroner, and four deputy coroners. The 181 full-time non-sworn employees include correctional officers, management and administrative professionals, and animal care workers. The Sheriff's Department has 22 patrol vehicles and 19 unmarked vehicles.

The total unincorporated population of Yolo County in 2018 was 28,500. In 2006, Yolo County had 91 sworn officers for a ratio of 4.0 officers per 1,000 people. The patrol unit of the Sheriff's Department receives approximately 38,000 calls annually, which includes requests for assistance by other agencies and jurisdictions.

Sworn officers perform law enforcement tasks, as well as administration and supervision, and civilian personnel are involved in administration, support services, supervision, dispatch, parking enforcement, and community service duties.

Parks

Parks within Yolo County are managed by several entities. The Yolo County Parks and Natural Resources Department is the responsible managing agency for County resource parks, campgrounds, and several boat launches and fishing access. The resource parks in Yolo County are planned and maintained through several federal, State, and County agencies. A total of 17 parks are present throughout Yolo County, totaling 1,976.5 acres. Community parks are small in area, usually located in or near small population centers. The two existing community parks in Yolo County are the Esparto Community Park and the Dunnigan Community Park.

In contrast to community parks, resource parks include regional parks and open spaces, and are managed for multiple objectives. Yolo County owns and manages a number of resource parks; however, the vast majority of open space in the County remains in private ownership.

The closest public resource park to the project site is the 123-acre Cache Creek Nature Preserve (CCNP), which is operated and managed by the non-profit Cache Creek Conservancy under an agreement with the County Administrative Office Natural Resources Division. The CCNP and other existing and planned future open space and recreational facilities along lower Cache Creek are (or will be) a part of the County park system in that they are owned by the County, but they are similarly operated and maintained through the Natural Resources Division as a part of the Cache Creek Parkway. The Cache Creek Parkway (currently totaling 1,889 acres) is a planned component of the CCAP, comprised primarily of reclaimed lands dedicated to the County following mining and reclamation, in fulfillment of the public benefit requirements of the CCAP. As described in the Project Description of this EIR, the proposed project would include similar public benefit negotiations (sometimes referred to as "net gains") documented through a Development Agreement with the applicant.

Water Supply

Yolo County relies on many different water supply sources, such as the Sacramento River, Cache Creek, and groundwater. Many water-related administrative bodies within the County also distribute water. In 2007 an IRWMP was completed for Yolo County in order to assess water supply conditions and necessary actions within the County, including incorporated cities. The IRWMP projected that during average-year water conditions, demand in the County would increase from 915,000 acre-feet per year in 1995 to approximately 927,000 acre-feet per year in 2020. During the 25-year period, water use by agriculture is expected to increase from five to eight percent. During the same time period, the total water supply available for Yolo County is projected to increase from 924,000 acre-feet per year to approximately 938,000 acre-feet per year, yielding a 9,000-acre-foot annual surplus of supply over demand for both the 1995 and 2020 conditions.

In 2010-2011, the Water Resources Association of Yolo County Technical Committee reviewed the projects listed in the adopted 2007 IRWMP and compiled an updated project status from the lead agencies responsible for coordinating each Integrated Action. Two lists were distilled from the review process: a list of projects completed as of June 2011 and a list of priority projects expected to be completed by 2020. The projects that are still in a conceptual phase remain on the master IRWMP list of actions.

Groundwater Supplies

Yolo County overlies the Sacramento Valley groundwater basin, which provides most of the domestic water supply for the County. Individual users and private and public systems draw domestic water supplies from the basin, which supplies approximately 34 percent of total water supply in the County in non-drought years. Oversight of the groundwater source is coordinated through the Yolo County Water Resources Association. For management purposes, the Water Resources Association divides the basin into six subbasins that coincide with political boundaries. Aquifers beneath Yolo County are contained within either the older thick alluvial and river sediments of the Tehama formation, or the younger sediments of the Red Bluff formation, floodplain deposits, and stream channel deposits that overlie the Tehama formation.

The natural hydraulic gradient of groundwater is toward the east and south, roughly following the topographic incline. Groundwater pumping has had an impact on the gradient by creating localized depressions in the water table and land subsidence beneath areas of more intensive groundwater pumping. Developing surface water has relieved much of the stress on aquifers beneath Yolo County. The aquifers are recharged by runoff and groundwater from the east-facing foothills, by percolation of precipitation, and by infiltration of surface water. Surface water infiltration is provided by the creeks and streams that flow from the Coast Ranges into the County from delivered and applied irrigation water, from Sacramento and Feather River flood waters diverted to the Yolo Bypass, from the Sacramento River, and from the Sacramento River Deep Water Ship Channel that extends south from West Sacramento.

Surface Water Resources

Aside from groundwater supplies, Yolo County also depends on many different surface water supply sources. Surface water is typically used for agricultural irrigation. A number of natural and man-made bodies of water throughout the County are used for water supply, storage, and distribution. Surface water resources in the County originate mostly from the Cache Creek and Putah Creek watersheds and from the Sacramento River. The Cache Creek watershed originates in Lake County to the northwest of Yolo County; the Putah Creek watershed originates in Napa

County. Most remaining surface water supply comes directly from the Sacramento River and associated waterways. As defined by the Department of Water Resources (DWR), Yolo County is a small portion, 3.8 percent (1,034 square miles) of the large Sacramento Hydrologic Region or watershed, which covers 26,960 square miles of land.

Agricultural Water Supply

Rainfall in Yolo County is not adequate to sustain most crops, and thus, agriculture depends on a reliable irrigation water supply from a combination of both groundwater and surface water. In normal years, surface water is the primary source of irrigation water in Yolo County. The main sources of surface water supply for agriculture in Yolo County are the Sacramento River, Colusa Basin Drain, Putah Creek, Cache Creek, Yolo Bypass, Tule Canal, Willow Slough, and the Tehama-Colusa Canal. Farmers rely on groundwater for approximately 40 percent of their supply in a normal year and rely more heavily on groundwater during drought years. The General Plan indicates that agricultural water demand is expected to remain fairly stable or to decline slightly due to the increasing use of higher value, permanent crops and associated efficient irrigation systems.

Projected Water Demand

The projected water demands through 2030 include approximately 14,798 additional dwelling units allowed under the General Plan, as well as 3,372 acres of development that includes approximately 2,516 acres of commercial and industrial development and 854 acres of agricultural commercial/industrial uses to be added in the unincorporated County. Given that the County relies on groundwater for approximately 40 percent of supply, groundwater requirements could increase. At buildout, the General Plan EIR assumed conversion of approximately 9,072 acres of agricultural land within the unincorporated County to other uses. The projected water demand in 2030 within unincorporated areas of the County is listed in Table 4.11-1 below.

Table 4.11-1
Projected 2030 Water Demand

Town	Projected Water Demand by Use (gpd)	
	Total Residential Demand	Commercial / Industrial
Capay	38,584	331,505
Clarksburg	16,016	267,594
Dunnigan	5,826,743	2,053,719
Esparto	1,083,120	138,473
Knights Landing	978,984	132,758
Madison	1,037,338	474,395
Monument Hills	18,200	48,583
Yolo	40,768	51,700
Zamora	10,192	77,410
Remaining Unincorporated	1,408,428	5,185,088
Total	**10,456,411**	**8,761,235**

Source: Yolo County 2030 Countywide General Plan EIR, 2009.

As noted in the CCAP Update FEIR, a number of General Plan amendments have occurred, including removal of the Dunnigan, Elkhorn, Knights Landing, and Madison Specific Plans, which result in a significant reduction in the projected amount of future growth in the County. The urban growth associated with the various specific plans, including related impacts in the category of public services and utilities, among others, would not occur. The CCAP Update FEIR does not

include specifics or a recalculated projected demand in water use. Accordingly, although highly conservative, the numbers presented above from the General Plan are used for analysis purposes, as necessary.

Electricity and Natural Gas

Power is generated in the County from a variety of sources including fossil fuels, natural gas fields, hydroelectric facilities, solar energy, hydrogen fuel and biofuels. Three power plants are located within Yolo County in order to generate energy which is used in the County and sold to the Sacramento Municipal Utility District. Additionally, approximately 25 natural gas fields are located within the County and provided to residential and commercial uses. Natural gas accounted for 39 percent of the energy source distributed to residents and businesses in Yolo County in 2011 and totaled 3.3 million cubic feet of production in 2017.

Launched in June 2018, Valley Clean Energy (VCE) purchases energy with a higher renewable energy content, and lower GHG content, as compared to equivalent grid electricity provided by Pacific Gas and Electric (PG&E), which previously provided electricity services to Yolo County. Although VCE purchases the electricity, electricity within the County continues to be transported through PG&E owned equipment.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. An additional domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site. The natural environment of the immediate vicinity is similarly characterized by agricultural lands, but also includes Cache Creek, immediately north of the project site. Riparian woodland vegetation is located along portions of the banks of Cache Creek.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), the Wild Wings subdivision, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The existing aggregate mining operations in the vicinity consist of Teichert's Storz mining site to the west and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

Both the project site and the Woodland Plant are located within the FPD and Sheriff's Department service areas. Water for ongoing agricultural uses at the project site are provided by an existing on-site water well located along the western site boundary. The adjacent Woodland Plant also relies on a water well for all existing water demands. Neither the project site nor the Woodland Plant site are connected to public stormwater or wastewater infrastructure.

Electricity at the Woodland Plant is directly purchased by Teichert through Direct Access (i.e., purchased directly from a third-party provider) and distributed through existing PG&E infrastructure. In addition, in order to meet a portion of the existing demand for electricity at the Woodland Plant, Teichert has voluntarily installed a photovoltaic energy system at the Woodland Plant. The electricity generated by the photovoltaic energy system is fed into the grid, and offsets a portion of the electricity demanded by existing operations.

4.11.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of public services, utilities, and service systems under the CEQA process.

Federal Regulations

The following are the federal environmental laws and policies relevant to public services and utilities.

Safe Drinking Water Act (SDWA)

The federal SDWA, which was enacted in 1974, gives the United States Environmental Protection Agency (EPA) the authority to set standards for contaminants in drinking water supplies. The EPA was required to establish primary regulations for the control of contaminants that affected public health and secondary regulations for compounds that affect the taste, odor, and aesthetics of drinking water. Accordingly, the EPA set a maximum contaminant level or treatment technique for each of the 83 contaminants in drinking water listed in the SDWA. Under the provisions of SDWA, the California Department of Health Services (DHS) has the primary enforcement responsibility. Title 22 of the California Administrative Code establishes DHS authority, and stipulates State drinking water quality and monitoring standards.

State Regulations

The following are the State environmental laws and policies relevant to public services and utilities.

Uniform Fire Code

The Uniform Fire Code (California Code of Regulations, Title 24, Part 9) with the State of California Amendments contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The Fire Code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, and include regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

Sustainable Groundwater Management Act

The DWR has developed a Strategic Plan for its Sustainable Groundwater Management (SGM) Program. DWR's SGM Program will implement the new and expanded responsibilities identified in the 2014 Sustainable Groundwater Management Act (SGMA) (Division 6, Part 2.74, Sections 10720 – 10727.8, of the California Water Code). The expanded responsibilities include the following:

1) Developing regulations to revise groundwater basin boundaries;
2) Adopting regulations for evaluating and implementing Groundwater Sustainability Plans (GSPs) and coordination agreements;
3) Identifying basins subject to critical conditions of overdraft;
4) Identifying water available for groundwater replenishment; and
5) Publishing best management practices for the sustainable management of groundwater.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The applicable Yolo County General Plan policies and standards related to public services, utilities, and service systems are presented below.

Goal LU-5 Equitable Land Use Decisions. Ensure inclusion, fair treatment and equitable outcomes in local land use decisions and regulations.

Policy LU-5.5 Ensure that public facilities, services and amenities are distributed equitably and in locations that enhance the quality of life for the broadest number of County residents.

Goal CC-1 Preservation of Rural Character. Ensure that the rural character of the County is protected and enhanced, including the unique and distinct character of the unincorporated communities.

Policy CC-1.11 Require the development of open space corridors, bicycle paths and trails integrating waterways, scenic areas and County parks where appropriate, in collaboration with affected land owners as a part of project approval. The intent is to connect each community and city and other special places and corridors, throughout the County.

Goal PF-2 Stormwater Management. Provide efficient and sustainable stormwater management to reduce local flooding in existing and planned land uses.

Policy PF-4.3 Maintain a minimum ratio of 3.9 sworn officers per 1,000 people, including the necessary facilities, equipment and non-uniformed personnel to support that ratio.

Policy PF-5.3 Require assertive fire protection measures in all development to supplement limited rural fire district resources.

Goal CO-5 Water Resources. Ensure an abundant, safe, and sustainable water supply to support the needs of existing and future generations.

Policy CO-5.1 Coordinate with water purveyors and water users to manage supplies to avoid long-term overdraft, water quality degradation, land subsidence and other potential problems.

Policy CO-5.3 Strive to manage the County's groundwater resources on a sustainable yield basis that can provide water purveyors and individual users with reliable, high quality groundwater to serve existing and planned land uses during prolonged drought periods.

Off-Channel Mining Plan

The applicable Off-Channel Mining Plan (OCMP) standards related to public services and utilities are presented below.

Goal 3.2-1 Promote the conjunctive use of surface and groundwater to maximize the availability of water for a range of uses, including habitat, recreation, agriculture, water storage, flood control, and urban development.

4.11.4 IMPACTS AND MITIGATION MEASURES

The section below describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential project-specific impacts related to public services and utilities. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.

Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A public services, utilities, and service systems impact is considered significant if the proposed project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
  - Fire protection;
  - Police protection;
  - Schools;
  - Parks; or
  - Other public facilities;

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment;
- Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals;
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to public services, utilities, and service systems.

Impacts Found to be Less Than Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) determined that implementation of the proposed project would result in no impact or a less-than-significant impact related to the following public services, utilities, and service systems impacts:

- Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools;
- Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Method of Analysis

The potential for increased demand for public services and utilities was evaluated for the proposed mining and reclamation activities at the project site, as well as associated processing activities at the adjacent Woodland Plant. Potential increases in demand for public services occurring as a result of the proposed project was based on demands of other existing mining projects within the CCAP area. Demands were evaluated for the proposed mining phase, as well as the proposed reclamation activities. With regard to utilities, water demands were estimated based on Chapter 4.8, Hydrology and Water Quality, of this EIR, which provides a detailed analysis of existing and projected groundwater conditions in the project vicinity. The proposed project would rely solely on groundwater supplies; connection to public water infrastructure would not be required.

Evaluation of the proposed project's potential impacts related to public services, utilities, and service systems was based on the proposed project's potential increase in demand for and/or use of services and infrastructure in comparison to existing conditions, consistent with the standards of significance listed above.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to public services, utilities, and service systems is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.11-1 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services. The impact would be *less than significant*.

The key proposed elements of this project are as follows: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project.

The relevant CEQA threshold is pertains to whether new or physically altered stations are needed to meet response times or other performance objectives, the construction of which could cause environmental impacts. The project site is already currently served by the Willow Oak FPD. The nearest station is Station 7, located directly south of the project site. Per the County's General Plan Policy PF-5.5, the County encourages fire districts to maintain an overall ISO rating of Rural 7 or better for fire protection service within the unincorporated communities.

However, as discussed in further detail in Chapter 4.7 of this EIR, the likelihood for fire at the project site is low due to adjacent land uses and roadways providing a fire break, as well as the lack of housing or habitable structures within the project site. In addition, the proposed mining activities would reduce the total amount of on-site combustible vegetation from existing conditions, thereby minimizing fire risk at the site during mining. In accordance with Section 4291 of the Public Resources Code, maintenance of defensible space would continue to be required for the buildings and structures within the Woodland Plant site. Plant equipment associated with the proposed operations would primarily be made of non-flammable materials such as iron or steel. The project operator would be required to submit a Hazardous Materials Business Plan to the Yolo County Environmental Health Department, which would include a list of all hazardous materials stored at the site, including any flammable materials or supplies, identification of emergency response procedures, evacuation plans and procedures, and training records for personnel. The operator would be in charge of ensuring proper use, handling, and storage of hazardous materials during daily operations. Employees would be present on-site daily, and occasionally on a 24-hour basis, to maximize oversight of operations.

Upon completion of mining operations, approximately 117 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake, with riparian woodland along the fringes/shoreline. The reclaimed uses would result in a similar, if not lesser, potential for fire at the project site as compared to existing conditions. Thus, the demand for fire protection services post-reclamation would be similar to existing conditions. The reclaimed lake could potentially provide a new emergency water supply for fighting a fire in the region should one occur.

Due to the type of activities anticipated on-site, some occupational accidents and medical emergencies may occasionally occur. However, the potential increase in demand for emergency response would not be substantial such that additional staffing or equipment would be necessary. Accordingly, the S-SV EMS, as well as any other emergency medical service agency that would provide mutual aid, would be expected to be capable of adequately serving the project site.

Overall, the fire protection service demand of the proposed project would not differ materially from the existing demand associated with the site or from the levels anticipated for the site for the reasons provided above. Accordingly, the Willow Oak FPD would be capable of providing adequate service to the project site, and the proposed project would not result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.11-2 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection services. The impact would be *less than significant*.

Police protection for the project site is currently provided by the Yolo County Sheriff's Department, which is headquartered approximately 8.5 miles east of the project site. Currently the Sheriff's Department has a ratio of 4 sworn officers per 1,000 people in unincorporated Yolo County, which is consistent with the standard of Policy PF-4.3 of a ratio of 3.9 officers per 1,000 residents.

The proposed project would not result in new population growth in the area. Emergency calls made to local law enforcement agencies typically associated with mining projects include vandalism and theft, which would not require immediate response. In addition, the project site would be a restricted, highly controlled facility in an area of very low population. Thus, the risk of trespass and vandalism would be lower than in a more urban populated area. Employees would be present on-site daily, and occasionally on a 24-hour basis, to maximize oversight of operations. Accordingly, the proposed project is not expected to create a significant increase in crime in the area or in the number of emergency calls made to local police protection agencies.

Upon completion of mining operations, approximately 117 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake, with riparian woodland along the fringes/shoreline. The reclaimed uses would result in a similar demand for police protection services to existing conditions.

Based on the above, the demand for police protection services associated with the proposed project would not differ materially from the existing demand associated with the site or from the levels anticipated for the site. Accordingly, the Sheriff's Department would be capable of providing adequate service to the project site, and the proposed project would not result in the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.11-3 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks. The impact would be *less than significant*.

Given that the proposed project would not result in new population growth within the project area, the project would not result in increased demand for park facilities. Further, as noted in the Project Description of this EIR, the proposed project includes the execution of a new development agreement (DA) between the applicant and the County. Among other things, the DA commits the applicant to participation in the CCAP, including payment of per-ton mining fees and the provision of other specified public benefits known also as "net gains". As mining is completed, reclamation will occur in compliance with proposed reclamation plans resulting in approximately 86 acres of agricultural land on the west, approximately 31 acres of agricultural land on the east, a 113-acre open water lake in the central portion of the proposed mining area, 24 acres of riparian habitat along the lake frontage, and 24 acres in grassy slopes and access roads. The lake and surrounding habitat will be dedicated to the County for future public recreation, public trails, open space, and protected habitat. The applicant has also agreed to dedicate the Shifler In-Channel property, reclaimed Schwarzgruber property, and potentially the reclaimed Woodland Plant site, for similar future uses. The aforementioned net gains would be beneficial to the overall parks and recreation system within the County. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.11-4 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities. The impact would be *less than significant*.

Yolo County maintains public facilities such as public libraries and community buildings used by residents of the community. Because the proposed project would not result in an increase in population in the area, the project would not result in the need for new or expanded libraries, community buildings, or other similar government facilities. In addition, because the proposed project is consistent with the CCAP, potential government facility expansion associated with mining activities within the OCMP area have been accounted for the by the County and evaluated in the CCAP

Update FEIR. Accordingly, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.11-5 Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. The impact would be *less than significant*.

As noted in the Project Description of this EIR, the proposed project includes the execution of a new DA between the applicant and the County. Among other things, the DA commits the applicant to participation in the CCAP, including payment of per-ton mining fees and the provision of other specified public benefits known also as "net gains". As mining is completed, reclamation will occur in compliance with proposed reclamation plans resulting in approximately 86 acres of agricultural land on the west, approximately 31 acres of agricultural land on the east, a 113-acre open water lake in the central portion of the proposed mining area, 24 acres of riparian habitat along the lake frontage, and 24 acres in grassy slopes and access roads. The lake and surrounding habitat will be dedicated to the County for future public recreation, public trails, open space, and protected habitat. The applicant has also agreed to dedicate the Shifler In-Channel property, reclaimed Schwarzgruber property, and potentially the reclaimed Woodland Plant site, for similar future uses. The aforementioned net gains would be beneficial to the overall parks and recreation system within the County. The physical environmental impacts associated with reclamation of the site to agricultural use and a lake, with riparian woodland along the fringes/shoreline, are discussed in the environmental resource sections of Chapters 4.1 through 4.12 of this EIR.

Given that the proposed project would not induce population growth within the project area, the project would not result in increased demand for recreational facilities such that construction of new or expansion of existing facilities would be required.

Based on the above, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.11-6 Require or result in the relocation or construction of new or expanded water, electric power, or natural gas facilities, the construction or relocation of which could cause significant environmental effects. The impact would be *less than significant*.

The following sections describe the water, electric power, and natural gas facilities improvements that would be necessary to serve the proposed project.

Water Conveyance Infrastructure

Currently, Moore Canal bisects the project site from west to east along the northern border of the site and conveys water to adjacent agricultural parcels. The proposed project would include relocation of the canal along the western and northern boundary. Relocation is not triggered by water capacity or water service needs, but, rather, as a component of the project in order to facilitate mining on the property. The relocated Moore Canal would be concrete-lined and have an access road on each side for periodic maintenance by the Yolo County Flood Control and Water Conservation District (YCFCWCD). Cross-sections of the proposed canal alignment in relation to the proposed mining pit are shown in Figure 4.11-1 and Figure 4.11-2 below. Relocation of the canal would occur prior to mining operations within 50 feet of the canal. As proposed, the relocated canal would be located 200 feet from the existing top of bank of Cache Creek. Relocation of Moore Canal would ensure the continued availability of water supplies for the agricultural parcels that receive water supplies from the current alignment of the canal.

The new canal would be constructed to the north of the project and would be operational prior to the start of mining activities within 50 feet of the canal. The relocation of Moore Canal would require approval from the Board of Directors of the YCFCWCD. Because the relocation of the canal would occur within the project site, the impacts associated with relocation have been discussed throughout this EIR.

The proposed project would also include installation of a new water pipe, to be located alongside the existing conveyor belt alignment, to transfer groundwater from the Shifler mining area to the adjacent Woodland Plant. Installation of the pipe would not require trenching in areas that have not already been subject to substantial prior disturbance associated with the conveyor belt. Physical environmental impacts associated with installation of the water pipe have been addressed throughout this EIR.

Electricity and Natural Gas

The proposed mining and processing activities would require the consumption of energy in the forms of fossil fuels and electricity. Natural gas would not be required for the proposed operations. Electricity would continue to be provided through direct purchase from electricity producers via PG&E owned equipment. The project would include connection to the PG&E distribution network in order to deliver electricity and would be subject to payment to PG&E for the use of their transmission network. Although the proposed project would result in an increase in electricity demand from existing conditions, adequate electric power supplies exist to serve the project and the increase would not require new or expanded electric power facilities. In addition, the photovoltaic energy system installed at the Woodland Plant, would continue to be used, which off-sets some of the demand of Teichert's existing operations at the Woodland Plant. Further discussion regarding energy associated with the proposed project is provided in Chapter 4.3 of this EIR.

Figure 4.11-1
Proposed Mining Cross-Section – Moore Canal North of Mining Pit

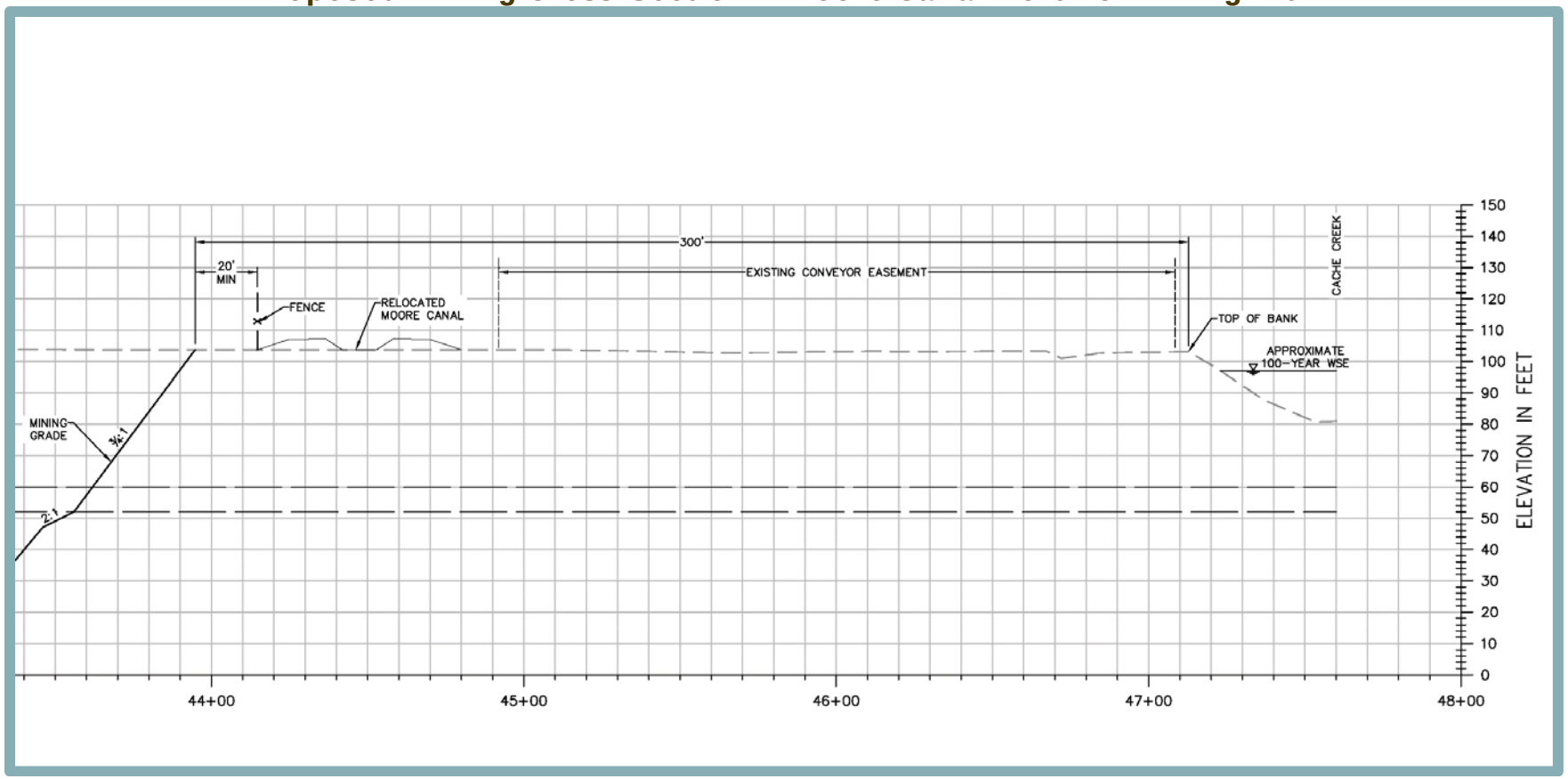
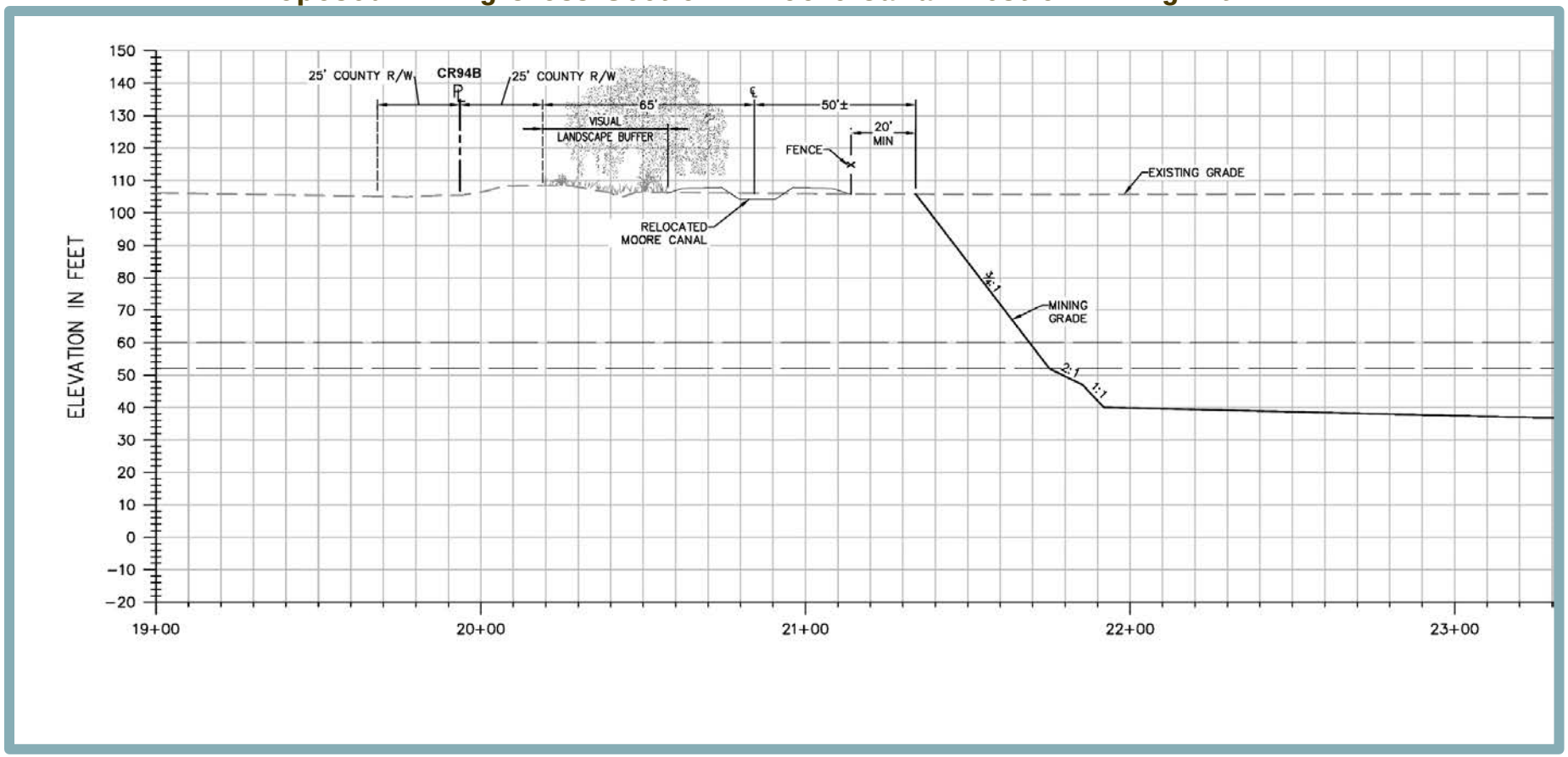


Figure 4.11-2
Proposed Mining Cross-Section – Moore Canal West of Mining Pit



Upon completion of mining operations, approximately 116 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake, with riparian woodland along the fringes/shoreline. The reclaimed uses would not require electricity or natural gas service.

Conclusion

Based on the above, the proposed project would have a ***less-than-significant*** impact related to the relocation or construction of new or expanded water, electric power, or natural gas facilities, the construction or relocation of which could cause significant environmental effects.

Mitigation Measure(s)

None required.

4.11-7 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. The impact would be *less than significant*.

A full discussion of groundwater levels can be found in Chapter 4.8, Hydrology and Water Quality, of this EIR. As discussed in Chapter 4.8, a study was performed to analyze the groundwater conditions and water quality on the project site. Seasonal and long-term fluctuations in shallow groundwater levels have been observed across the area of investigation, likely in response to variations in climatic conditions, which in turn affect streamflow conditions, including recharge in the aquifer system and groundwater pumping for irrigation supply.

Based on the study, during stable hydrologic periods, when annual precipitation varies only moderately from the long-term average, groundwater levels will likely fluctuate seasonally. The variation in long-term and seasonal shallow groundwater level fluctuations across the site and in the vicinity are similar to what has been monitored since the 1950s. Groundwater levels in the deep-water supply wells exhibit similar fluctuation; however, the shallow groundwater conditions are not indicative of deep groundwater conditions.

Water for aggregate processing and dust suppression at the project site would be supplied by two wells at the Woodland Plant site and groundwater from the proposed mining pit. During mining operations, the fluctuation in groundwater levels would result in varying conditions, but during both stable and drier periods, the existing wells would supply enough water for operations. To supplement the supply from the wells, groundwater from the mining pit would be pumped to the Woodland Plant to supply aggregate processing operations at the plant. Processing water (also called aggregate wash water) from the project site and the Woodland Plant would be recycled through the use of settling ponds located at the Woodland Plant site.

The proposed dewatering activities would not adversely affect any active wells within 1,000 feet of the mining pit boundary. In addition, the project applicant would monitor water levels in the wet pit(s), evaluate nearby monitoring wells on a quarterly basis,

and quantify the amount of water pumped from and returned to the wet pit(s). Accordingly, sufficient water supplies would be available to serve the project.

Following mining, the project site would be reclaimed to agricultural use and open space. In order to evaluate water supply during reclamation, the study took into account nearby wells located within 1,000 feet of the project site. In addition, estimations were made of the reclaimed lake seasonal water levels that may be reasonably expected during stable, drier, and wetter periods. The report modeled the predicted groundwater level following reclamation of the project site and determined that during all three conditions, impacts to the proposed reclamation lake and groundwater levels would not be substantially different from what has been historically observed.

Thus, based on the above, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.11-8 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to public services, utilities, and service systems. The impact would be *less than significant*.

Table 4.11-2 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to public services, utilities, and service systems. It should be noted that consistency with other standards in the Surface Mining and Reclamation Act, the County Zoning Ordinance, and the Surface Mining Reclamation Ordinance that are specific to land use and planning issues are discussed in Chapter 4.9, Land Use and Planning, of this EIR. As shown in the table, the proposed project would be generally consistent with applicable standards related to public services, utilities, and service systems. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Table 4.11-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy LU-5.5 Ensure that public facilities, services and amenities are distributed equitably and in locations that enhance the quality of life for the broadest number of County residents.	The proposed project would be adequately served by existing public facilities and services within the County and would not result in adverse impacts related to increased service capacity. Therefore, the project would be consistent with this policy.

(Continued on next page)

Table 4.11-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Policy CC-1.11 Require the development of open space corridors, bicycle paths and trails integrating waterways, scenic areas and County parks where appropriate, in collaboration with affected land owners as a part of project approval. The intent is to connect each community and city and other special places and corridors, throughout the County.	The project proposes to reclaim the mining site to a combination of agriculture, riparian habitat, and lake. The applicant may be providing trails and/or dedicated reclaimed land that would be integrated into the Cache Creek Parkway, subject to the DA between the applicant and the County, Thus, the project would increase public open space opportunities. Therefore, the project would be consistent with this policy.
Policy PF-4.3 Maintain a minimum ratio of 3.9 sworn officers per 1,000 people, including the necessary facilities, equipment and non-uniformed personnel to support that ratio.	See Impact 4.11-2 above. As demonstrated in the impact analysis, the project would be consistent with this policy. Note that the relevant CEQA threshold is whether new or physically altered public services facilities are needed to meet response times or other performance objectives, the construction of which could cause environmental impacts. An increase in demand for police service that does not result in the construction or expansion of new facilities would not necessarily cause a significant impact under CEQA.
Policy PF-5.3 Require assertive fire protection measures in all development to supplement limited rural fire district resources.	See Impact 4.11-1 above. As demonstrated in the impact analysis, the project would be consistent with this policy.
Policy CO-5.1 Coordinate with water purveyors and water users to manage supplies to avoid long-term overdraft, water quality degradation, land subsidence and other potential problems.	See Impact 4.11-7 above. The proposed project would rely solely on groundwater for water supplies. As demonstrated in the impact analysis, the proposed project would not adversely affect groundwater conditions in the project vicinity. With regard to water quality, see Impact 4.8-1 of this EIR. Subsidence is addressed in Impact 4.6-3 of the Geology and Soils, Mineral Resources, and Paleontological Resources chapter of this EIR. As discussed therein, existing regulations would ensure that risks related to subsidence would be reduced to a less-than-significant level, including sections 10-4.406 an 10-4.431 of the OCSMO, as well as the California Code of Regulations Title 8, Subchapter 17 (related to benching of excavated slopes), among others. A Condition of Approval is included requiring adherence to all recommendations within the project-specific Slope Stability Evaluation be incorporated into the project approvals.

(Continued on next page)

Table 4.11-2
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	Therefore, the project is consistent with this policy.
Policy CO-5.3 Strive to manage the County's groundwater resources on a sustainable yield basis that can provide water purveyors and individual users with reliable, high quality groundwater to serve existing and planned land uses during prolonged drought periods.	See Impact 4.11-7 above and Chapter 4.8 of this EIR. As demonstrated, water supply and quality would not be adversely impacted by the project. Therefore, the project would be consistent with this policy.

4.12 Transportation and Circulation

4.12 TRANSPORTATION AND CIRCULATION

4.12.1 INTRODUCTION

The Transportation and Circulation chapter of the EIR addresses the existing and cumulative transportation and circulation conditions associated with the development of the proposed project. The analysis includes consideration of vehicle traffic impacts on roadway capacity, circulation, transit, and bicycle and pedestrian facilities, as well as vehicle miles travelled (VMT).

Documents referenced to prepare this chapter include a Transportation Impact Assessment (TIA)[1] and Vehicle Miles Travelled Impact Evaluation (VMT Memo)[2] prepared for the project by Fehr & Peers (see Appendix M), as well as the *Yolo County General Plan*[3] and the associated EIR[4]. All technical calculations are included as an appendix to the TIA.

In response to the NOP, the County received comments related to Transportation and Circulation from a number of residents in the area. These commenters expressed that the Draft EIR should consider the following:

- Cumulative transportation and circulation impacts (Resident);
- Potential impacts to County Roads 20, 21, 95B, 96, 97, and 98, State Route (SR) 16, and Kentucky Avenue (Resident);
- Increased vehicle volumes leading to wear and tear on local roadways (Resident);
- Increased hazards on roadways resulting from traffic congestion (Resident);
- Trucks entering and exiting the project site from County Road 94B (Resident);
- Damage to vehicles traveling on SR 16 from large gravel trucks and increased debris on the roadways (Resident);
- Potential impacts to SR 16 and surrounding access to roads and highways (Resident);
- Lack of traffic signal at the intersection of SR 16 and County Road 94B (Resident);
- Lack of access to Interstate (I) 505 (Resident);
- On-site vehicle parking and electric vehicle charging (EVC) stations (Resident);
- Pedestrian and bicycle infrastructure facilities (Resident);
- Traffic counting that would occur during the time of the year where background traffic activity is minimal (winter) (Resident);
- Compliance with the truck haul road regulations and standards (Resident);
- Impacts to narrow roadways that already experience a substantial amount of traffic by farmers, residents, and commuters (Resident);
- Reduction of the speed limit on County Road 96 (Resident); and
- Potential impacts regarding the stability of the County Road 94B bridge (Resident).

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1 Fehr & Peers. *Shifler Mining and Reclamation Project Traffic Impact Study.* August 2018.
2 Fehr & Peers. *Shifler Mining Project Vehicle Miles Traveled Impact Evaluation (Revised). September 25*, 2020.
3 Yolo County. *2030 Countywide General Plan.* November 10, 2009.
4 Yolo County. *Yolo County 2030 Countywide General Plan Environmental Impact Report. SCH# 2008102034*. April 2009.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by Yolo County and are reflected in the analysis of impacts in this chapter. Appendix B includes all NOP comments received.

Concepts and Terminology

The following definitions are common terms used to discuss issues related to transportation and circulation:

Per the CEQA Guidelines, vehicle miles travelled (VMT) is the primary metric used to identify transportation impacts under CEQA. VMT is a measure of the total amount of vehicle travel occurring on a given roadway system.

In 2013, Senate Bill (SB) 743 was passed to amend Sections 65088.1 and 65088.4 of the Government Code, amend Sections 21181, 21183, 21186, 21187, 21189.1, and 21189.3 of the Public Resources Code (PRC), to add Section 21155.4 to the PRC, to add Chapter 2.7 (commencing with Section 21099) to Division 13 of the PRC, to add and repeal Section 21168.6.6 of the PRC, and to repeal and add Section 21185 of the PRC, relating to environmental quality. As a result of SB 743, as discussed in further detail below, local jurisdictions may no longer rely on vehicle level of service (LOS) and similar measures related to delay as the basis for determining the significance of transportation impacts under CEQA. However, because the County considers LOS as a matter of General Plan policy (Policy CI-3.1) existing LOS at the study roadway facilities is presented herein for informational purposes. Detailed methodology used for evaluation of LOS at the study roadway facilities is provided in Appendix M to this EIR.

4.12.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the project site and surrounding area in relation to the existing transportation system within the project region, including the roadway network, transit, bicycle and pedestrian facilities.

Description of Regional Environment

The project region is characterized primarily by continuous agricultural lands within a broad, alluvial valley surrounded by distant rolling hills. Cache Creek generally meanders west to east and runs into the Sacramento Valley, ending in a settling basin east of Woodland, eventually flowing into the Sacramento River. Regional topography is generally flat. Vegetation, other than agricultural crops, is primarily limited to grasslands and scattered native vegetation.

The region is rural and sparsely populated, with urban development being primarily concentrated within small towns such as Capay, Esparto, and Madison. Rural residences, farm dwellings with various accessory and agricultural structures, and commercial uses sparsely dot the landscape. Roads provide interconnections between agricultural properties having various crops, such as row crops, orchards, and vineyards. Telephone and electricity poles frequently parallel the roadways throughout the region. Aggregate mining operations, inclusive of above-ground structures and equipment, are prevalent throughout the region, in particular, along the banks of Cache Creek, within the Cache Creek Area Plan (CCAP) boundaries.

Regional access to the project area is provided by SR 16. SR 16 is an east-west highway that runs from SR 20 in Colusa County to SR 49, outside Plymouth in Amador County. SR 16 is part of the California Freeway and Expressway System. The portion of SR 16 that passes through Woodland runs from west of I-505 to County Road 98, at which point SR 16/County Road 98 runs north-south to I-5. SR 16 is a two-lane roadway with a speed limit of up to 55 miles per hour (mph) outside of developed areas. The nearest major highways to the project site are I-5 and I-505. Both are north-south highways with two lanes in each direction. The roads in the vicinity primarily service rural areas.

Description of Local Environment

The central and southern portions of the project site consist primarily of actively managed agricultural land. Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. The northeastern portion of the site previously contained a ranch headquarters (Stevens Ranch); however, the structures that comprised the headquarters were burned down as part of a fire department training exercise in the late 1970s or early 1980s. Currently, structures do not exist at the location and the area is currently overgrown by low-lying brush. The northern portion of the site consists of 52 scattered oak trees and ruderal grassland vegetation.

Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD), bisects the central portion of the site from west to east. Magnolia Canal is an unlined water conveyance structure owned and operated by the YCFCWCD that intersects the Moore Canal on the northeastern portion of the project site. An existing groundwater well used for agricultural purposes is located along the western site boundary. In addition, a domestic water supply well is located at the location of the former ranch headquarters. The northern portion of the site also includes an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Woodland Storz mining site to the Woodland Plant located north of the project site.

The environment of the immediate vicinity is dominated by aggregate mining operations to the north; a golf course (Yolo Fliers Club), Wild Wings Subdivision, airport (Watts-Woodland), and farm dwellings to the west/southwest; rural residential and cemetery (Monument Hill Memorial Park cemetery) to the south; and farm dwellings to the east. The existing aggregate mining operations in the vicinity consist of Teichert's Storz mining site to the west and Teichert's Woodland Plant site to the northeast, beyond which is Teichert's Schwarzgruber mining site. The Teichert-Woodland Plant has been in continuous operation for over 50 years.

The following is a description of the roads extending to the project site.

County Road 20

County Road 20 is a rural east-west roadway that extends from Teichert Woodland Plant in the west to SR 16/County Road 98 in the east, at which point the roadway becomes Kentucky Avenue. County Road 20 intersects SR 16 west of I-5, and becomes Kentucky Avenue in the developed area east of SR 16. County Road 20 is a two-lane roadway with a speed limit of 50 mph within the project vicinity.

County Road 94B

County Road 94B is a rural north-south roadway that extends from County Road 24 (Gibson Road) in the south to County Road 95 in the north. County Road 94B is a two-lane roadway with a speed limit of 45 mph.

County Road 96

County Road 96 is a rural north-south roadway that extends from County Road 24 (Gibson Road) in the south to Magnolia Canal in the north. Within the project area, County Road 96 is a two-lane roadway with a speed limit of 50 mph.

Study Area

The following roadways, intersections, freeway mainline segments, and freeway ramp junctions were selected for analysis in the TIA based on the project location, estimates of project-generated traffic, and locations of planned roadways in the project vicinity (see Figure 4.12-1):

Roadways

- County Road 96 – County Road 20 to SR 16;
- County Road 20 – West of County Road 96;
- County Road 20 – County Road 96 to County Road 98;
- SR 16 – I-505 to County Road 94B;
- SR 16 – County Road 94B to County Road 96; and
- SR 16 (County Road 98) – County Road 20 to I-5.

Intersections

1. County Road 20/County Road 96;
2. SR 16/County Road 96;
3. County Road 20/County Road 97;
4. County Road 20/SR 16 (County Road 98);
5. SR 16/I-5 Southbound Ramps;
6. SR 16/I-5 Northbound Ramps;
7. SR 16/County Road 94B;
8. SR 16/I-505 Northbound Ramps; and
9. SR 16/I-505 Southbound Ramps.

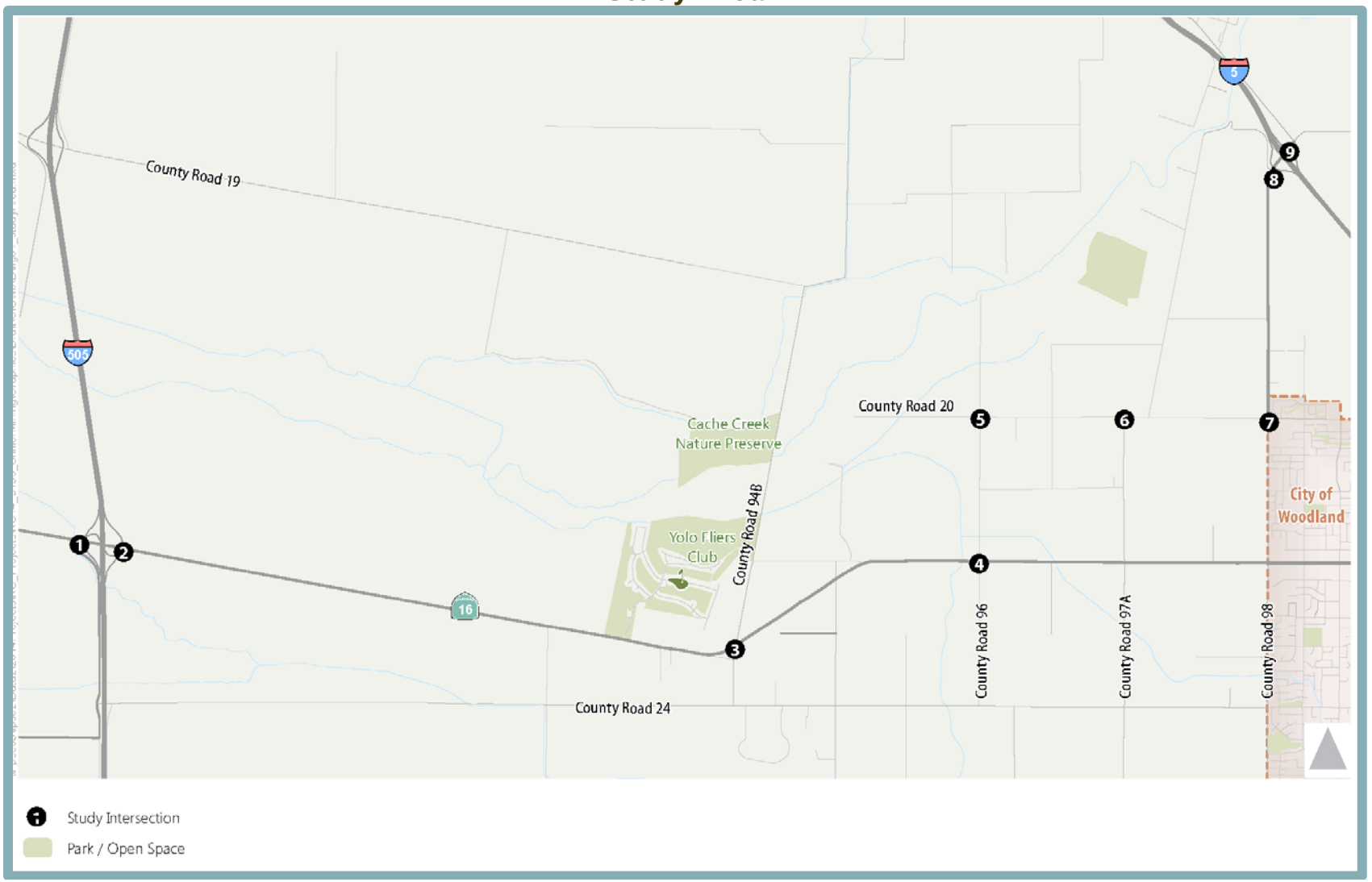
Freeway Mainline Segments

- I-5 NB south of SR 16;
- I-5 NB north of SR 16;
- I-5 SB south of SR 16;
- I-5 SB north of SR 16;
- I-505 NB south of SR 16;
- I-505 NB north of SR 16;
- I-505 SB south of SR 16; and
- I-505 SB north of SR 16.

Freeway Ramp Junctions (Merge/Diverge)

- I-5 NB off-ramp to SR 16;
- I-5 NB loop on-ramp from SR 16;
- I-5 NB on-ramp from SR 16;

Figure 4.12-1
Study Area



Source: Fehr & Peers, 2018.

- I-5 SB off-ramp to SR 16;
- I-5 SB on-ramp from SR 16;
- I-505 NB off-ramp to SR 16;
- I-505 NB loop on-ramp from SR 16;
- I-505 NB on-ramp from SR 16;
- I-505 SB off-ramp to SR 16;
- I-505 SB loop on-ramp from SR 16; and
- I-505 SB on-ramp from SR 16.

Vehicle Miles Travelled

Currently, both the Woodland Plant and the Esparto Plant generates haul truck traffic associated with ongoing processing operations at the plant. The Woodland Plant, located to the northeast of the project site, would be used to process aggregate mined at the Shifler project site.

Total vehicle traffic associated with the existing processing operations at the two plants can be quantified in terms of VMT. The existing VMT conditions evaluated in this assessment for the Teichert Woodland Plant and Esparto Plant operations were developed using the average annual production over the ten-year period between 2004 and 2014, equal to 721,257 tons per year at the Woodland Plant and 416,007 tons per year at the Esparto Plant. Based on the methodology discussed further below under the Method of Analysis section, the existing annual VMT associated with the two processing plants is summarized in Table 4.12-1 below.

Table 4.12-1
Woodland and Esparto Plants: Annual Vehicle Miles Traveled (Existing)

Metric	Existing Conditions
Annual Production (tons)	1,137,265
Employee Avg. Trip Length (mi)	34.6
Truck Avg. Trip Length (mi)	27.9
Employee VMT (VMT per total employees)	635,579
Truck VMT (truck miles travelled per year)	2,533,940
Total VMT (vehicle miles travelled per year)	**3,169,519**

Source: Fehr & Peers, 2020.

The total annual VMT presented in the table provides a reasonable estimate of existing VMT associated with the Woodland and Esparto Plants. As noted in the Method of Analysis section of this chapter, under the existing Teichert mining permits, the maximum permitted level of production at the Woodland and Esparto Plants could equal up to 1,200,000 tons per year at the Woodland Plant and 1,000,000 tons per year at the Esparto Plant. However, the County has chosen to focus on the ten-year average annual production level of 1,137,265 tons in order to provide a more realistic representation of existing traffic conditions.

Transit System

The Yolo County Transportation District operates Yolobus, the local and intercity bus service, extending to Davis, West Sacramento, Winters, Woodland, downtown Sacramento, Esparto, Madison, Dunnigan, and Knights Landing. Yolobus operates 48 compressed natural gas (CNG) buses, which are low-emission buses. The service provides an alternative to conventional transportation.

Yolobus Route 215 runs along SR 16 from Cache Creek Casino to the City of Woodland. Service is provided daily from 4:55 AM to 1:55 AM, with six round trips in the morning, six round trips in the afternoon, and five round trips at night. Route 217 runs along I-5 from the City of Woodland to Dunnigan on Tuesdays and Thursdays only. One round trip is provided in the morning (8:50 AM to 10:19 AM) and one in the afternoon (2:15 PM to 4:00 PM). Both routes provide connections to Yolobus lines extending to Davis, the Sacramento airport, West Sacramento, and downtown Sacramento.

Bicycle and Pedestrian System

The Yolo County Bicycle Transportation Plan (BTP) classifies bike paths throughout the County into the following three types:

- Class I – off-street bike paths;
- Class II – on-street bike lanes marked by pavement striping; and
- Class III – on-street bike routes that share the road with motorized vehicles.

Due to the rural nature of the project study area, existing bicycle and pedestrian facilities are minimal. Within the project area, the only existing pedestrian and bicycle facilities are located at the intersection of County Road 20 and SR 16. The intersection includes crosswalks, pedestrian push buttons, and sidewalks on all corners. The other roadways and intersections in the project area do not include existing bicycle or pedestrian facilities.

4.12.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of transportation and circulation under the CEQA process.

Federal Regulations

Federal regulations applicable to transportation and circulation within the project area do not exist.

State Regulations

The following are the State environmental laws and policies relevant to transportation.

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining all State-owned roadways in Yolo County. Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the State highway system within the County need to be approved by Caltrans. The County does not have the ability to unilaterally make improvements to the State highway system. Caltrans' *Guide for the Preparation of Traffic Impact Studies* (December 2002) provides guidance on the evaluation of traffic impacts to State highway facilities. The document outlines when a traffic impact study is needed and what should be included in the scope of the study.

Caltrans has completed transportation or route concept reports for a number of state freeways and highways in Yolo County. The reports identify long-range improvements for specific state freeway and highway corridors and establish the "concept," or desired, LOS for specific corridor segments. The reports also identify long-range improvements needed to bring an existing facility up to expected standards needed to adequately serve 20-year traffic forecasts. Additionally, the reports identify the ultimate design concept for conditions beyond the immediate 20-year design

period. Yolo County freeways and highways that have concept reports are I-5, I-80, I-505, SR 16, SR 45, SR 84, SR 113, and SR 128.

Senate Bill 743

SB 743 (Stats. 2013, ch. 386) requires the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metric beyond TPAs. In response, OPR released the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which identified VMT as the preferred transportation impact metric. OPR applied their discretion to require the use of VMT statewide. SB 743 requires that as of April 27, 2019, vehicle LOS and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts. Determination of impacts based on VMT is required Statewide as of July 1, 2020.

CEQA Guidelines Section 15064.3

Section 15064.3 of the CEQA Guidelines was added in 2018 to address the requirements of SB 743 and the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA. Section 15064.3 states the following:

> (a) Purpose.
>
> This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact.
>
> (b) Criteria for Analyzing Transportation Impacts.
>
> (1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.
> (2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.
> (3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other

destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

(c) Applicability.

The provisions of this section shall apply prospectively as described in section 15007. A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide.

Technical Advisory on Evaluating Transportation Impacts in CEQA

The OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA includes potential significance thresholds for different types of land use projects and transportation projects. Distinct threshold recommendations are provided for residential, office, and retail projects. Such uses tend to have the greatest influence on VMT. Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types. In developing thresholds for other project types, the Technical Advisory directs lead agencies to consider the purposes described in Section 21099 of the Public Resources Code (PRC) and regulations in the CEQA Guidelines on the development of thresholds of significance (e.g., CEQA Guidelines Section 15064.7).

The Technical Advisory suggests that lead agencies may screen out VMT impacts using project size, map-based approaches to low-VMT areas, transit availability, and provision of affordable housing. However, none of the screening criteria included in the Technical Advisory would apply to the proposed project.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Yolo County General Plan

The following goals and policies related to transportation and circulation are applicable to the project:

Goal CI-3 Service Thresholds. Balance the preservation of community and rural values with a safe and efficient circulation system.

Policy CI-3.1 Maintain Level of Service (LOS) C or better for roadways and intersections in the unincorporated county. In no case shall land use be approved that would either result in worse than LOS C conditions, or require additional improvements to maintain the required level of service, except as specified below. The intent

of this policy is to consider level of service as a limit on the capacity of the County's roadways.

A. Interstate 5 (County Road 6 to Interstate 505) – LOS D is acceptable to the County, assuming that one additional auxiliary lane is constructed in each direction through this segment. The County will secure a fair share towards these improvements from planned development. LOS D is anticipated by Caltrans according to the Interstate 5 Transportation Concept Report 1996 to 2016 (Caltrans, April 1997).
B. Interstate 5 (Interstate 505 to Woodland City Limit) – LOS D is acceptable to the County. LOS D is anticipated by Caltrans according to the Interstate 5 Transportation Concept Report 1996 to 2016 (Caltrans, April 1997).
C. Interstate 5 (Woodland City Limit to Sacramento County Line) – LOS F is acceptable to the County. The County will secure a fair share towards intersection improvements from all feasible sources including planned development at the Elkhorn site. LOS C is anticipated by Caltrans according to the State Route 99 and Interstate 5 Corridor System Management Plan (Caltrans, May 2009).
D. D. Interstate 80 (Davis City Limit to West Sacramento City Limit) – LOS F is acceptable to the County. LOS F is anticipated by Caltrans according to the Interstate 80 and Capital City Freeway Corridor System Management Plan (Caltrans, May 2009).
E. State Route 16 (County Road 78 to County Road 85B) – LOS D is acceptable.
F. State Route 16 (County Road 85B to County Road 21A) – LOS E is acceptable.
G. State Route 16 (County Road 21A to Interstate 505) – LOS D is acceptable, assuming that this segment is widened to four lanes with intersection improvements appropriate for an arterial roadway. The County will secure a fair share towards these improvements from planned development. Caltrans and the Rumsey Band of Wintun Indians shall be encouraged to provide funding for the project.
H. State Route 16 (Interstate 505 to County Road 98) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources. Caltrans and the Rumsey Band of Wintun Indians shall be encouraged to establish a funding mechanism to pay the remainder.
I. State Route 113 (Sutter County Line to County Road 102) – LOS F is acceptable to the County. The County

will secure a fair share towards these improvements from planned development. LOS F is anticipated by Caltrans according to the State Route 113 Transportation Concept Report 1991-2019 (Caltrans, May 2000).

J. State Route 113 (County Road 102 to Woodland City Limits) – LOS D is acceptable.
K. State Route 128 (Interstate 505 to Napa County Line) – LOS D is acceptable.
L. Old River Road (Interstate 5 to West Sacramento City limits) – LOS D is acceptable.
M. South River Road (West Sacramento City Limit to the Freeport Bridge) – LOS D is acceptable.
N. County Road 6 (County Road 99W to the Tehama Colusa Canal) – LOS D is acceptable, assuming this segment is widened to four lanes. The County will secure a fair share towards these improvements from all feasible sources.
O. County Road 24 (County Road 95 to County Road 98 – LOS D is acceptable.
P. County Road 27 (County Road 98 to State Route 113 – LOS D is acceptable.
Q. County Road 31 (County Road 95 to County Road 98) – LOS D is acceptable.
R. County Road 32A (County Road 105 to Interstate 80) – LOS D is acceptable.
S. County Road 98 (County Road 29 to County Road 27) – LOS D is acceptable.
T. County Road 99W (County Road 2 to County Road 8) – LOS D is acceptable, assuming that this segment is widened to four lanes. The County will secure a fair share towards these improvements from all feasible sources.
U. County Road 102 (County Road 13 to County Road 17) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources.
V. County Road 102 (County Road 17 to the Woodland City Limit) - LOS E is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources.
W. County Road 102 (Woodland City Limit to Davis City Limit) – LOS D is acceptable assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources.
X. Additional exceptions to this policy may be allowed by the Board of Supervisors on a case-by-case basis,

where reducing the level of service would result in a clear public benefit. Such circumstances may include, but are not limited to, the following:

1. Preserving agriculture or open space land;
2. Enhancing the agricultural economy;
3. Preserving scenic roadways/highways;
4. Preserving the rural character of the county;
5. Avoiding adverse impacts to alternative transportation modes;
6. Avoiding growth inducement; or
7. Preserving downtown community environments.
8. Where right-of-way constraints would make the improvements infeasible.

Policy CI-3.4 Define level of service consistent with the latest edition of the Highway Capacity Manual and calculate using the methodologies contained in that manual. At a minimum, weekday AM and PM peak hour traffic volumes will be used in determining compliance with the level of service standard. For recreational and other non-typical peak hour uses, weekday afternoon, weekday late evening, or weekends shall be considered.

Policy CI-3.7 Consider designs for planned roadway capacity improvements that recognize the unique conditions associated with rural and agricultural areas in accordance with established standards including, but not limited to, the following:

- American Association of State Highway and Transportation Officials (AASHTO) publication "A Policy on Geometric Design of Highways and Streets;"
- Caltrans' Main Streets: Flexibility in Design and Operations;
- Federal Highway Administration's Flexibility in Highway Design;
- 2007 California Fire Code; and
- Institute of Transportation Engineers' Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.

Policy CI-3.9 To the greatest feasible extent, require new development to construct safety improvements consistent with current design standards on existing roadways that are anticipated to accommodate additional traffic from planned development.

Policy CI-3.11 Require new development to finance and construct all off-site circulation improvements necessary to mitigate a project's transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts, and



impacts to the State Highway System). For mitigation to be considered feasible, it must be consistent with the policies of the General Plan.

Policy CI-3.12 Collect the fair share cost of all feasible transportation improvements necessary to reduce the severity of cumulative transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts).

Policy CI-3.13 Ensure that transportation and circulation improvements (including improvements to comply with County design standards) are constructed and operational prior to or concurrent with the need, to the extent feasible.

Policy CI-3.16 Ensure that funding for the long-term maintenance of affected roads is provided by planned development.

Policy CI-3.18 Ensure adequate access for emergency vehicles.

Off-Channel Mining Plan

The following goal and action from the adopted Yolo County Off-Channel Mining Plan (OCMP) related to transportation and circulation are applicable to the proposed project:

Goal 2.2-3 Prevent or minimize the adverse environmental effects of surface mining.

Action 2.4-21 Ensure that each mining operation adheres to approved haul routes and approved ingress/egress locations. Ensure through conditions of approval and other appropriate mechanisms that mining operations are funding their fair share of roadway and related impacts, including both one-time improvements and ongoing operations and maintenance, along approved haul routes and in proximity to approved operation ingress/egress locations.

Capital Improvement Plan

The Yolo County Board of Supervisors established the Capital Improvement Plan (CIP) in recognition of the need to develop and adopt a consolidated capital asset management plan, budget for plan implementation, and incorporate the impact of the plan on the operating budget. The most recent 2019-2023 CIP includes capital projects that are in the stages of implementation and those projects that are scheduled to be implemented within the next five fiscal years. The CIP continues to be used as a tool for the implementation of projects included in various Board-adopted plans, including the Yolo County Strategic Plan, General Plan, Information Technology Strategic Plan, Facilities plans, Parks Master Plan, Airport Master Plan, CCAP, and other special projects.

Transportation Impact Study Guidelines

The County's *Transportation Impact Study Guidelines* document establishes protocol for transportation impact studies and reports based on the current state-of-the-practice in transportation planning and engineering. The following types of projects, which involve

development activity in and around Yolo County and affect the County's transportation system, may require a Transportation Impact Study per the Guidelines:

- Transportation infrastructure modification or expansion, including CIP projects on County roads and state highways.
- Land use entitlements requiring discretionary approval by Yolo County, including annexations, general plan amendments, specific plans, zoning changes, conditional use permits, and tentative maps.
- Land use activity advanced by agencies other than Yolo County that is subject to jurisdictional review under State and federal law.
- Land use activity advanced by agencies other than Yolo County that is inconsistent with the County's General Plan.

Off-Channel Surface Mining Ordinance

Section 10-4.402 of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO) states the following regarding access standards:

> Section 10-4.402. Access Roads
> The first one-hundred (100) feet of access road intersecting a County-maintained road shall be surfaced in a manner approved by the Public Works Department, with an approach constructed to County standards. Traffic control and warning signs shall be installed as required by the Public Works Department.

Sections 10-4.408 and 10-4.409 of the OCSMO state the following regarding improvements to and maintenance of County roads:

> Section 10-4.408. County Road Improvements
> It is the intent of this program that each operator shall pay for any road improvements determined to be necessary to support their operation consistent with County and CCAP standards, and for ongoing operations and maintenance. Each operator shall pay its fair share toward improvements required to maintain a structural capacity (traffic index) sufficient for the project traffic and to maintain operations on County roads and on State Highways within the OCMP planning area consistent with applicable General Plan policies related to LOS and applicable State policy related to VMT. Fair share mitigation shall also be required to improve existing operational as well as structural deficiencies of the transportation system. Specific locations shall be identified through the project-specific environmental review process for each operator's long-term mining permit application. Each operator shall participate in a funding program operated by the County which is designed to ensure that all improvements are made in a timely manner and that a reimbursement mechanism is in place to ensure repayment of any costs contributed in excess of fair share amounts. The program shall be initiated upon the approval of the long-term mining permits and shall be updated biennially by the County to ensure any new or modified impacts or funding sources are being addressed.
>
> Each operator shall have the option to complete the work at their expense without triggering the competitive bid process, as long as they comply with the applicable legal requirements of the County. If the operator declines the option, the County shall utilize the competitive bid process.
>
> Section 10-4.409. County Road Maintenance
> The operator shall agree to assume joint pavement maintenance responsibility with the County (or shared with another producer using the same roadway) for all County roads



along a designated haul route from the access point of the surface mining operation to an appropriate State Highway. The County will provide maintenance of the county-maintained roadside drainage ditches, traffic signs, and striping. By May 15 of each year, the operator shall submit to the County an annual evaluation report documenting the structural integrity of the pavement structural section and the PCI of the roads maintained by the operator. The annual report shall be signed and sealed by a civil engineer licensed in the State of California. The report shall contain a proposed action plan for pavement maintenance and pavement improvements to maintain safe and efficient traffic operation on the roads, and a PCI of 70 or more, unless otherwise agreed by the County, as defined by American Society for Testing and Materials (ASTM) Method D6433 (Standard Practice for Roads and Parking Lots Pavement Condition Index Survey), for each upcoming year. Within 30 days, the County will review the report and recommend revisions if necessary. Following acceptance of the report by the County, the operator shall secure a County encroachment permit specific to the action plan (at no cost to the operator) and complete the proposed pavement maintenance and improvement activities prior to the submittal of the annual report. Striping may be provided by the County if County striping equipment and material are available. Otherwise striping will be provided by the operator. Once the work is completed, the operator will resubmit the annual evaluation report by November 1 each year, and include the scope and dates that work was completed.

If minor emergency asphalt repairs (work requiring a single County Public Works maintenance pick-up truck with asphalt patching material) are identified within the maintenance areas of the hauling routes after the Applicant's yearly maintenance has been completed, county crews will perform the minor asphalt repair maintenance once in a sixty (60) consecutive day period. The types of asphalt pavement failures requiring repairs include, but are not limited to, cracking, pot holes, depressions, rutting, shoving, upheaval, and raveling and any other pavement damage or failures requiring immediate repair by the county.

If major emergency roadway repairs associated with the permitted activities (work requiring more than a single County Public Works maintenance pick-up truck with asphalt patching material, or minor asphalt repairs occurring in less than the sixty (60) consecutive day period) are identified after the Applicant's yearly maintenance has been completed, the Applicant shall obtain a County encroachment permit (at no cost to Applicant) and complete the major roadway repairs. If major roadway repairs that are the Applicant's fair share obligation are not completed by the Applicant in a timely manner as determined by the County, and the County must make repairs when the public's safety is considered at risk by the County Engineer, then the Applicant will be billed for the County's major roadway repair work on a time and materials basis. An applicant may coordinate with the County to have the County complete required improvements, and in such case, must fully fund the County's costs to do so. The operator does not assume the liability for the roadway, except for cases where the operator has not fulfilled its maintenance obligations.

If a subsequent mining operation utilizes a road previously required to be improved pursuant to this subsection, then the subsequent operator shall be responsible for compliance with the agreements and requirements of the previous operator.

4.12.4 IMPACTS AND MITIGATION MEASURES

The standards of significance to be used in identifying transportation and circulation impacts are presented below. The standards are based on policies of Yolo County. In addition, the methods used to analyze the impacts of the project on the roadway, bicycle, pedestrian, and transit systems are provided in this section. A discussion of the project's impacts, as well as mitigation measures where necessary, are also presented.



Standards of Significance

The significance criteria used for this analysis were developed from Appendix G of the CEQA Guidelines, and applicable policies and regulations of Yolo County. A transportation and circulation impact is considered significant if the proposed project would:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to transportation and circulation.

VMT Thresholds

The OPR *Technical Advisory On Evaluating Transportation Impacts in CEQA* recommends that lead agencies establish project-level thresholds for VMT analysis. Per Section 15064.3(b)(3) of the CEQA Guidelines, a lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the change in absolute terms, per capita, per household or in any other measure. Where appropriate, a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. Existing guidance available in the *Technical Advisory On Evaluating Transportation Impacts in CEQA* includes recommended numeric thresholds for residential, office, and retail projects. The OPR Technical Advisory states that lead agencies may develop their own specific thresholds, which may include other land use types, using more location-specific information. Therefore, Yolo County has considerable discretion in choosing a suitable VMT impact analysis approach for the purposes of the proposed project.

Yolo County does not currently have established VMT significance thresholds for environmental review purposes. For the purposes of this EIR analysis and in accordance with the CEQA Guidelines, a VMT-related impact would be considered significant if implementation of the proposed project would trigger the following condition:

- The Existing Plus Project VMT is greater than Existing (no project) VMT.

Impacts Found Less-than-Significant in Initial Study

The Initial Study prepared for the proposed project (see Appendix A) did not identify any less-than-significant impacts related to transportation and circulation.

Method of Analysis

Documents referenced to prepare this chapter include a VMT Memo[5] and TIA[6] prepared for the project by Fehr & Peers (see Appendix M). The methodology used within both documents is summarized below.

[5] Fehr & Peers. *Shifler Mining Project Vehicle Miles Traveled Impact Evaluation.* February 4, 2020.
[6] Fehr & Peers. *Shifler Mining and Reclamation Project Traffic Impact Study.* August 2018.

VMT Analysis Scenarios

The following VMT analysis scenarios are included in this EIR:

- **Existing:** VMT is analyzed under existing conditions, using a level of production at the Woodland and Esparto plants equal to the ten-year average (2005 to 2014) at the plants, equal to 721,257 tons per year at the Woodland Plant and 416,007 tons per year at the Esparto Plant.
- **Existing Plus Project:** VMT is analyzed under plus project conditions, assuming maximum permitted level of production at the Woodland Plant, equal to 2,200,000 tons per year. This scenario represents the highest VMT that could be expected from the project.
- **Baseline (Permitted Capacity):** VMT is analyzed under existing conditions, assuming maximum permitted level of production at the Woodland and Esparto plants, equal to 1,200,000 tons per year at the Woodland Plant and 1,000,000 tons per year at the Esparto Plant. This scenario is included for informational purposes only and is not used in VMT impact evaluation. This scenario is included to account for additional VMT that could reasonably occur under the existing mining permits, without the proposed project.

Project Trip Generation

Currently, the Teichert Woodland Plant is permitted to produce up to 1.2 million tons of aggregate per year. In addition to the Woodland Plant, the Esparto Plant, located approximately 13 miles west of the Woodland Plant, has a cap of 1 million tons sold per year. As part of the proposed project, Teichert is requesting to transfer the Esparto Plant's current annual permitted volume of 1 million tons sold (1.18 million tons mined) to the Woodland Plant once mining is complete at Esparto or the Esparto permit expires, whichever occurs first, allowing production at the Woodland Plant to reach up to 2.2 million tons sold in a given year. The following four trip generation scenarios were analyzed in the traffic study appendix (see Appendix M to the EIR):

- Scenario 1: Production of 1.2 million tons per year at the Woodland Plant (existing permitted maximum tons sold) and 1.0 million tons processed at Esparto.
- Scenario 2: Production of 1.5 million tons per year at the Woodland Plant (existing permitted maximum tons sold plus 300,000 tons per year of existing permitted Esparto Plant volume).
- Scenario 3: Production of 1.8 million tons per year at the Woodland Plant (existing permitted maximum tons sold plus 600,000 tons per year of existing permitted Esparto Plant volume).
- Scenario 4: Production of 2.2 million tons per year at the Woodland Plant (existing permitted maximum tons sold plus 1 million tons per year of existing permitted Esparto Plant volume) and 0 processed at Esparto (Esparto facility closed).

In order to determine AM and PM peak hour trip generation associated with the proposed project, Fehr & Peers relied on historical records of trip generation associated with other Teichert facilities in the project area, specifically, data from 2009 to 2013. The data showed that in 2010, the Woodland Plant produced approximately 1,000,000 tons of aggregate for sale. Thus, the 2010 Woodland Plant data is roughly equivalent to the total annual permitted volume of aggregate sold that would be transferred to the Shifler site from Esparto as part of the proposed project, and the 2010 data was used to develop trip generation estimates for the project.

The calculated AM and PM peak hour trips for each of the four scenarios are as follows:

- Scenario 1: 110 AM peak hour trips, 4 PM peak hour trips;
- Scenario 2: 138 AM peak hour trips, 6 PM peak hour trips;
- Scenario 3: 166 AM peak hour trips, 8 PM peak hour trips; and
- Scenario 4: 202 AM peak hour trips, 8 PM peak hour trips.

Additional information related to calculation of the total number of truck loads per year, along with the AM and PM peak hour trips, is provided in Appendix M to this EIR.

Project generated traffic volumes were distributed to the surrounding roadway network based on existing travel patterns at the Woodland Plant. Project trips were distributed based on the following:

- 4 percent to/from north on I-5 via County Road 20 and County Road 98;
- 67 percent to/from south on I-5 via County Road 20 and County Road 98;
- 5 percent to/from north on I-505 via County Road 20, County Road 96, and SR 16;
- 20 percent to/from south on I-505 via County Road 20, County Road 96, and SR 16; and
- 4 percent to/from west on SR 16 via County Road 20 and County Road 96.

In accordance with the applicant's approved haul route, project haul trips were not routed across the County Road 94B bridge.

Project Vehicle Miles Travelled

Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts. While changes to driving conditions that increase intersection delay are an important consideration for traffic operations and management, the method of analysis does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Section 15064.3(3) changes the focus of transportation impact analysis in CEQA from measuring impact to drivers to measuring the impact of driving.

The existing VMT conditions evaluated in this assessment for the Teichert Woodland Plant operations were developed using the average annual production over the ten-year period between 2004 and 2014, similar to the existing scenario analyzed in Chapter 4.10, Noise, of this EIR. VMT generated by current agricultural land use at the Shifler site is presumed to be nominal compared to VMT generated by current mining operations, based on the type of crops planted at the site over the past decade (e.g., wheat, alfalfa, tomoatoes, cucumbers, canola, sunflower, and safflower).

For the purposes of assessing mining land use projects, VMT is a two-part formula calculated by the following equation:

$$VMT = (Avg.\ trip\ length \times Vehicle\ trips)_{Trucks} + (Avg.\ trip\ length \times Vehicle\ trips)_{Employees}$$

Teichert has historical records documenting historical aggregate production and sales for the Esparto and Woodland Plants. Such data was used to derive the average truck haul tonnage and number of truck trips to/from both plants. Teichert also has historical records regarding employee

residence locations and aggregate sales locations throughout the greater Sacramento region, which was used to develop average trip lengths for both employees and trucks traveling to/from both plants. Together, both inputs were used to develop truck and employee VMT estimates under Existing conditions.

The project will not result in an increase in the combined permitted annual capacity available to Teichert, and thus may result in the same VMT as the Existing Conditions. However, it is also feasible that Teichert will maximize its production in any given year, which would result in a significant increase in VMT. In order to fully analyze this potential impact and to advance CEQA's policy of being more protective of the environment, this EIR conservatively measures VMT assuming Teichert will maximize its production, even if historical data show actual volumes being lower. Accordingly, the Existing Plus Project conditions assume the transfer of the Esparto Plant's current annual permitted volume of one million tons sold to the Woodland Plant, which would increase the annual permitted volume at the Woodland Plant to 2.2 million tons sold. Using the average trip lengths and trip generation data developed for existing conditions, VMT estimates were developed for trucks and employees under Existing Plus Project conditions. Table 4.12-2 shows Existing and Existing Plus Project VMT analysis results.

Table 4.12-2
Vehicle Miles Traveled (Mining Operations): Existing and Existing Plus Project[1]

Metric	Existing Conditions[2]	Existing Plus Project Conditions
Production (tons)	1,137,265	2,200,000
Employee Avg. Trip Length (mi)	34.6	32.7
Truck Avg. Trip Length (mi)	27.9	26.4
Employee VMT	635,579	980,996
Truck VMT	2,533,940	4,647,016
Total VMT	3,169,519	5,628,012
Change in VMT (Compared to Existing Conditions)	0	+2,458,493

[1] VMT related to current agricultural land uses at the Shifler site are presumed to be nominal compared to current mining operations VMT, based on the type of crops planted at the site over the past decade, which include wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower.
[2] Existing conditions consider the combined production of the current Esparto Plant and Woodland Plant. Current mining operations do not occur on the Shifler project site.

Source: Fehr & Peers, 2020.

It should be noted while a portion of the project site is proposed to be reclaimed to a lake upon completion of mining activities, VMT associated with members of the public visiting the lake would be relatively minimal compared to VMT occurring during active mining operations at the site. Thus, VMT associated with the reclaimed project site would not affect the analysis or conclusions presented herein, and is not discussed further.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to transportation and circulation resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.12-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities. This impact would be *less than significant*.

Key elements of project include the following: 1) relocation of a segment of Moore Canal to the northerly portion of the site and modification of Magnolia Canal to align with the relocated Moore Canal; 2) transfer of tonnage from the Teichert Esparto and Teichert Schwarzgruber operation to the Teichert Shifler operation; 3) continued operation and expansion of the Teichert Woodland Plant facilities (including new equipment and increased processing capacity); 4) excavation at the Shifler site; 5) reclamation of the Shifler site; 6) delayed reclamation at Woodland Plant site; 7) dedication of various reclaimed properties to the County; and 8) completion of an in-channel gravel bar removal project. The Magnolia Canal modification would include removal of a 1,200-foot-long segment of the canal. The project would also include installation of a new water pipe, to be located alongside the existing conveyor belt alignment. None of the project components are anticipated to result in substantial bicycle or pedestrian trips on the surrounding public roadway network, or substantially increased demand for transit services.

Due to the rural nature of the project study area, existing bicycle and pedestrian facilities are minimal. Within the project area, the only existing pedestrian and bicycle facilities are located at the intersection of County Road 20 and SR 16. The intersection includes crosswalks, pedestrian push buttons, and sidewalks on all corners. The other roadways and intersections in the project area do not include existing bicycle or pedestrian facilities. The Yolo County Bicycle Master Plan does not identify any planned bicycle facilities in the project vicinity.[7]

Anticipated recreation, parkway, and open space uses associated with future use of dedicated lands could increase bicycle and pedestrian use of trails throughout the Cache Creek Parkway. This activity is expected to be minimal and would be consistent with planned use of the Parkway.

Therefore, the proposed project would not conflict with any programs, plans, ordinances, or policies addressing transit, bicycle, or pedestrian facilities, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.12-2 Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). The impact would be *significant*.

The applicant is requesting to transfer the annual permitted tonnage allocation associated with the Teichert Schwarzgruber operation and the Teichert Esparto operation upon completion of mining or permit expiration at both sites. Together, the

[7] Yolo County. *Bicycle Transportation Plan, Bicycle Routes and Priorities.* March 2013.

proposed transfers would allow the Teichert Shifler operation to mine a maximum of 2,588,237 tons (2.2 million tons sold) in any given year, provided that production over a consecutive 10-year period does not exceed 23,529,430 tons mined (20 million tons sold) (see Table 3-2 of this EIR).

Section 15064.3 of the CEQA Guidelines states that generally, VMT is the most appropriate measure for evaluating the transportation impacts of a project. Per Section 15064.3(b), vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Yolo County does not currently have established VMT significance thresholds for environmental review purposes. For the purposes of this EIR analysis and in accordance with the CEQA Guidelines, a VMT-related impact is considered significant if implementation of the proposed project would trigger the following condition: the annual Existing Plus Project VMT is greater than Existing (no project) VMT. Specifically, a significant impact would occur if total annual VMT associated with the Woodland and Esparto Plants is increased under the Existing Plus Project conditions (2,200,000 tons of aggregate sold per year at the Woodland Plant) compared to Existing conditions (721,257 tons of aggregate sold per year at the Woodland Plant and 416,007 tons per year at the Esparto Plant).

The data provided by Teichert indicates that compared to the Esparto plant, the Woodland plant is located closer to employee residence locations and aggregate sales locations. As a result, the proposed project would reduce the average trip length for both employee commutes and truck deliveries by approximately 5.4 percent each (as compared to existing conditions). This amounts to lower VMT per employee and lower VMT per ton produced under Existing Plus Project conditions.

If the future production matches the historic levels, VMT generated by Teichert's mining operations would decrease over existing conditions due to the proximity of the Woodland Plant. However, given that the Existing conditions are based on the average production levels, while the Existing Plus Project conditions are analyzed at the maximum production level, the level of production assumed in the Existing Plus Project scenario is approximately 93 percent higher than the level of production under the Existing Scenario. Compared to existing conditions, the proposed project would increase VMT by 2,458,493 annually, or approximately 78 percent given that VMT efficiencies gained by combining productions at the Woodland Plant are negated by the increase in production between the two scenarios (i.e., production of 1,137,265 tons per year under Existing conditions versus 2,200,000 tons per year under Existing Plus Project conditions).

As mining is completed, reclamation will occur in compliance with proposed reclamation plans resulting in approximately 86 acres of agricultural land on the west, approximately 31 acres of agricultural land on the east, a 113-acre open water lake in the central portion of the proposed mining area, 24 acres of riparian habitat along the lake frontage, and 24 acres in grassy slopes and access roads. The lake and surrounding habitat will be dedicated to the County upon completion for future public recreation, public trails, open space, and protected habitat. The applicant has also agreed to dedicate the Shifler In-Channel property, reclaimed Schwarzgruber property, and potentially the reclaimed Woodland Plant site, for similar future uses. VMT generated as a result of future recreational, parkway, open space uses is expected to be minimal because the Cache Creek Parkway will fulfill area demand for



open water and passive recreation opportunities not available locally and currently filled elsewhere in the region, primarily outside the County.

Based on the above, the proposed project could result in a ***significant*** impact with respect to conflicting with or being inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

Mitigation Measure(s)

Mitigation measures that would reduce VMT must result in one of two outcomes – a decrease in average trip length or a decrease in trip generation. The proposed project's remote location and specialized land use type would limit the range and effectiveness of potential VMT mitigation options, particularly those that are commonly applicable in urban or suburban settings (e.g., co-locating complementary land uses, providing subsidized transit passes, improving pedestrian/bicycle networks, managing parking supply, etc.).

Table 4.12-3 provides an assessment of the feasibility of potential actions that would reduce average trip length and/or trip generation and, in turn, VMT generated by the proposed project. As shown in the table, feasible mitigation actions for the project are limited to those that could decrease employee trip generation through commute trip reduction strategies.

Table 4.12-3
Potential VMT Mitigation Feasibility Assessment

Action	VMT Reduction Effect	Feasibility
Decrease annual aggregate production.	Reduce trip generation associated with aggregate deliveries.	Potential feasibility issues due to mine operations/business model. Also, would prevent mine from operating up to its permitted production levels.
Decrease number of mine employees.	Reduce trip generation associated with employee commutes.	Potential feasibility issues due to mine operations/business model.
Implement transportation demand management (TDM) program.	Reduce trip generation associated with employee commutes.	Feasible.

Source: Fehr & Peers, 2020.

Given the project's land use type (an industrial mining operation) and the project site location in rural Yolo County, a TDM program aimed at reducing employee commute trips would have relatively limited effectiveness. As shown in Table 4.12-2, employee commutes would generate only 980,996 VMT under Existing Plus Project conditions, or approximately 17 percent of total annual VMT. The larger proportion of VMT is associated with the haul trips, which are already arguably minimized by ensuring a local source of aggregate. Thus, measures aimed at reducing employee commute VMT only have the potential to address a small portion of the overall VMT. An approximately 78 percent employee VMT reduction would be necessary to reduce Existing Plus Project VMT to the Existing (no project) level. Therefore, implementation of Mitigation Measure 4.12-2 below would not be sufficient to reduce Existing Plus

Project VMT to Existing conditions, and the impact would remain *significant and unavoidable*.

4.12-2 ***Transportation Demand Management (TDM) Program.*** *Prior to commencement of mining activities at the project site, the project applicant shall develop and implement a TDM program to reduce the number of daily employee commute trips made to the project site, and shall submit the TDM Program to Yolo County for review and approval. The TDM Program shall identify trip reduction strategies as well as mechanisms for funding and overseeing the delivery of trip reduction programs and strategies. The TDM Program shall be designed to achieve the following trip reduction:*

- *Reduce employee commute VMT to the maximum extent feasible.*

Feasible trip reduction strategies may include, but are not limited to, the following:

- *Develop an employer-led program that considers:*
  - *Carpooling encouragement;*
  - *Ride-matching assistance; and*
  - *Vanpool assistance.*

4.12-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). The impact would be *less than significant*.

Aggregate trucks going to and from the Woodland Plant currently access the plant from its entrance on County Road 20. Trucks are required to use designated haul routes of County Road 20, County Road 96, and SR 16 to and from I-5 and I-505. Local deliveries are allowed to use roads other than SR 16, County Road 20, or County Road 96.

In order to allow mining equipment to move between the Woodland Plant site and the project site, an over-crossing of the relocated Moore Canal would be constructed as part of the proposed project. Aggregate trucks would continue to access the Woodland Plant site by way of the existing entrance on County Road 20, using the existing haul routes noted above. The project does not include changes to the designated haul routes. Thus, the project would not result in any new or exacerbated hazards associated with haul truck traffic. Project workers, as well as emergency vehicles, would also access the project site through the existing driveway at County Road 20. While concerns were raised during the NOP comment period regarding trucks entering and exiting the project site from County Road 94B, the proposed project would not allow access from County Road 94B to occur. Comments were also received regarding a community petition to lower the posted speed limit on County Road 96, to improve traffic safety. The proposed project would not increase traffic volumes on County Road

96 relative to existing conditions and, thus, would not exacerbate any potential pre-existing safety concerns.

With regard to issues related to degradation of local roadways due to haul truck traffic, Section 10-4.408 of the OCSMO requires operators to pay a fair share toward improvements required to maintain a structural capacity (traffic index) sufficient for the project traffic and to maintain operations on County roads and on State Highways within the OCMP planning area consistent with applicable General Plan policies related to LOS and applicable State policy related to VMT. Fair share fees must provide for improvement of existing operational and structural deficiencies of the transportation system. See Table 4.12-20 below regarding conditions of approval to be placed on the proposed project to address maintenance concerns.

Given that only non-emergency access to the project site would occur through the existing Woodland Plant entrance at County Road 20, the proposed project would not create any substantial new hazards associated with intersection improvements or other circulation features. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.12-4 Result in inadequate emergency access. The impact would be *less than significant*.

Project workers, as well as emergency vehicles, would access the project site through the existing Woodland Plant driveway at County Road 20. The proposed project would not include any modifications to the existing access. In addition, emergency vehicles would be able to access the project site directly through a gated entrance off of County Road 22, near the Monument Hill Memorial Park cemetery. The gated entrance at County Road 22 would not be used for any other project operations. Given that two emergency access points would be provided to the project site, emergency vehicles would be afforded adequate access to the proposed mining area, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.12-5 Cause a significant environmental impact due to a conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating impacts to transportation and circulation. The impact would be *less than significant*.

Table 4.12-20 below provides an analysis of the proposed project's consistency with applicable policies and regulations that have been adopted for the purpose of avoiding or mitigating environmental effects related to transportation and circulation. As shown in Table 4.12-20, and based on the analysis below, the proposed project is anticipated to be generally consistent with applicable standards. The applicant has agreed to dedicate the Shifler lake and surrounding habitat, Shifler In-Channel property,

reclaimed Schwarzgruber property, and potentially the reclaimed Woodland Plant site, for future recreational, parkway, trails, and open space uses. These dedications are consistent with the CCAP and the cache Creek Parkway Plan documents. Thus, a ***less-than-significant impact*** would occur.

Mitigation Measure(s)

None required.

The following LOS discussion is provided given that the County's General Plan has adopted policies related to LOS.

Study Intersections under Existing Plus Project Conditions

Operations of roadway facilities are described with the term level of service (LOS), a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. LOS is a qualitative measure of traffic operating conditions, whereby a letter grade, from A to F is assigned. The grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions, and LOS F represents severe delay under stop-and-go conditions.

The Circulation Element of the Yolo County 2030 Countywide General Plan (April 2009) defines the minimum acceptable operation level for roadways and intersections in the unincorporated county to be LOS C. Certain exceptions are outlined in Policy CI-3.1 of the General Plan. The exceptions include the following study roadways and intersections:

- Interstate 5 (Interstate 505 to Woodland City Limit) – LOS D is acceptable. LOS D is anticipated by Caltrans according to the Interstate 5 Transportation Concept Report 1996 to 2016 (Caltrans, April 1997).
- State Route 16 (Interstate 505 to County Road 98) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources.

Project generated traffic volumes were added to existing traffic volumes for the Existing Plus Project conditions peak hour operations analysis. To prevent double counting of truck trips, existing trips to and from the Woodland Plant were subtracted from the existing traffic volumes prior to adding anticipated traffic based on each production scenario.

Table 4.12-4 shows the Existing Plus Project conditions intersection LOS analysis results for Scenario 1 (1.2 million tons of aggregate per year). Table 4.12-5 shows the Existing Plus Project conditions intersection LOS analysis results for Scenario 4 (2.2 million tons of aggregate per year). As shown in the tables, the study intersections would continue to operate at acceptable levels under both Scenario 1 and Scenario 4.

The Scenario 4 intersection LOS results indicate that under Existing Plus Project conditions, the study intersections would continue to operate at acceptable LOS with

project traffic generated by the production of 2.2 million tons of aggregate per year. Scenarios 2 and 3 would generate less traffic than Scenario 4 and, therefore, would also result in acceptable operations at the study intersections.

Because all study intersections would operate at acceptable levels with implementation of the project under each of the four scenarios analyzed, the proposed project would be consistent with the County's applicable LOS standards for the study intersections under Existing Plus Project conditions.

Study Roadway Operations under Existing Plus Project Conditions

Table 4.12-6 shows the Existing Plus Project conditions roadway operations analysis results for Scenario 1. Table 4.12-7 shows the Existing Plus Project conditions roadway operations analysis results for Scenario 4. As shown in the tables, all study roadway segments would continue to operate at acceptable levels under both Scenario 1 and Scenario 4.

The Scenario 4 roadway operations results indicate that under Existing Plus Project conditions, the study roadway segments would continue to operate at acceptable LOS with project traffic generated by the production of 2.2 million tons of aggregate per year. Scenarios 2 and 3 would generate less traffic than Scenario 4 and, therefore, would also result in acceptable operations at the study roadway segments.

Because all study roadway segments would operate at acceptable levels with implementation of the project under each of the four scenarios analyzed, the proposed project would be consistent with the County's applicable LOS standards for the study roadway segments under Existing Plus Project conditions.

Study Roadway Capacity under Existing Plus Project Conditions

Table 4.12-8 shows results of the Existing Plus Project conditions roadway capacity analysis results for Scenario 1. Table 4.12-9 shows the results of the Existing Plus Project conditions roadway capacity analysis results for Scenario 4. As shown in the tables, all study roadway segments would continue to have sufficient capacity under both Scenario 1 and Scenario 4.

The Scenario 4 roadway operations results indicate that under Existing Plus Project conditions, the study roadway segments would continue to have sufficient capacity with project traffic generated by the production of 2.2 million tons of aggregate per year. Scenarios 2 and 3 would generate less traffic than Scenario 4 and, therefore, would also result in sufficient capacity at the study roadway segments.

Because all study roadway segments would have sufficient capacity with implementation of the project under each of the four scenarios analyzed, the proposed project would be consistent with the County's applicable LOS standards for the study roadway segments under Existing Plus Project conditions.

Table 4.12-4
Intersection LOS – Existing Plus Scenario 1

Intersection	Control	Existing				Existing Plus Scenario 1			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 16/I-505 Southbound Ramps	Side Street Stop	1 (15)	A (B)	1 (20)	A (C)	1 (16)	A (C)	1 (20)	A (C)
2. SR 16/I-505 Northbound Ramps	Traffic Signal	6	A	7	A	6	A	7	A
3. SR 16/County Road 94B	Side Street Stop	1 (16)	A (C)	2 (22)	A (C)	1 (18)	A (C)	2 (22)	A (C)
4. SR 16/County Road 96	Side Street Stop	2 (17)	A (C)	2 (18)	A (C)	3 (19)	A (C)	2 (19)	A (C)
5. County Road 20/County Road 96	All Way Stop	7	A	7	A	10	A	8	A
6. County Road 20/County Road 97	Side Street Stop	2 (9)	A (A)	3 (9)	A (A)	1 (10)	A (A)	3 (9)	A (A)
7. County Road 20/SR 16 (County Road 98)	Traffic Signal	15	B	15	B	17	B	15	B
8. SR 16/I-5 Southbound Ramps	Side Street Stop	3 (12)	A (B)	2 (15)	A (B)	2 (13)	A (B)	2 (15)	A (B)
9. SR 16/I-5 Northbound Ramps	Side Street Stop	4 (10)	A (A)	5 (10)	A (B)	6 (11)	A (B)	5 (10)	A (B)

Note: For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For unsignalized (side street stop controlled) intersections, average intersection delay is reported in seconds per vehicle for the overall intersection (worst movement). All results are rounded to the nearest second.

Source: Fehr & Peers, 2018.

Table 4.12-5
Intersection LOS – Existing Plus Scenario 4

Intersection	Control	Existing				Existing Plus Scenario 4			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 16/I-505 Southbound Ramps	Side Street Stop	1 (15)	A (B)	1 (20)	A (C)	1 (16)	A (C)	1 (20)	A (C)
2. SR 16/I-505 Northbound Ramps	Traffic Signal	6	A	7	A	6	A	7	A
3. SR 16/County Road 94B	Side Street Stop	1 (16)	A (C)	2 (22)	A (C)	1 (18)	A (C)	2 (22)	A (C)
4. SR 16/County Road 96	Side Street Stop	2 (17)	A (C)	2 (18)	A (C)	3 (19)	A (C)	2 (19)	A (C)
5. County Road 20/County Road 96	All Way Stop	7	A	7	A	10	A	8	A
6. County Road 20/County Road 97	Side Street Stop	2 (9)	A (A)	3 (9)	A (A)	1 (10)	A (A)	3 (9)	A (A)
7. County Road 20/SR 16 (County Road 98)	Traffic Signal	15	B	15	B	17	B	15	B
8. SR 16/ I-5 Southbound Ramps	Side Street Stop	3 (12)	A (B)	2 (15)	A (B)	2 (13)	A (B)	2 (15)	A (B)
9. SR 16/I-5 Northbound Ramps	Side Street Stop	4 (10)	A (A)	5 (10)	A (B)	6 (11)	A (B)	5 (10)	A (B)

Note: For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For unsignalized (side street stop controlled) intersections, average intersection delay is reported in seconds per vehicle for the overall intersection (worst movement). All results are rounded to the nearest second.

Source: Fehr & Peers, 2018.

Table 4.12-6
Roadway LOS – Existing Plus Scenario 1

Roadway – Location	Roadway Classification	AM Peak Hour			PM Peak Hour		
		ATS (mph)	PTSF (%)	LOS	ATS (mph)	PTSF (%)	LOS
SR 16–I-505 to County Road	Class I Hwy	EB – 44.0	EB – 70.1	D	EB – 42.9	EB – 65.6	D
		WB – 44.6	WB – 48.8	D	WB – 43.7	WB – 68.3	D
SR 16 – County Road 94B to County Road 96	Class I Hwy	EB – 43.7	EB – 68.6	D	EB – 41.7	EB – 70.4	D
		WB – 44.3	WB – 49.3	D	WB – 42.4	WB – 72.5	D
County Road 96 – County Road 20 to SR 16	Class II Hwy	NA	NB – 31.4	A	NA	NB – 16.2	A
		NA	SB – 25.5	A	NA	SB – 34.4	A
County Road 20–West of County Road 96	Class II Hwy	NA	EB – 23.7	A	NA	EB – 13.7	A
		NA	WB – 31.8	A	NA	WB – 14.7	A
County Road 20–County Road 96 to County Road 98	Class II Hwy	NA	EB – 40.0	A	NA	EB – 31.1	A
		NA	WB – 42.3	B	NA	WB – 33.2	A
SR 16 (County Road 98) – County Road 20 to I-5	Class II Hwy	NB – 46.9	NB – 45.7	C	NB – 47.4	NB – 48.9	C
		SB – 46.6	SB – 54.2	C	SB – 47.6	SB – 44.3	C

Note: Roadway classification based on HCM 2010. Average Travel Speed (ATS) is only reported for Class I Highways based on HCM 2010 methodology.
Source: Fehr & Peers, 2018.

Table 4.12-7
Roadway LOS – Existing Plus Scenario 4

Roadway – Location	Roadway Classification	AM Peak Hour			PM Peak Hour		
		ATS (mph)	PTSF (%)	LOS	ATS (mph)	PTSF (%)	LOS
SR 16–I-505 to County Road	Class I Hwy	EB – 43.7	EB – 71.6	D	EB – 42.9	EB – 65.6	D
		WB – 44.3	WB – 49.6	D	WB – 43.7	WB – 68.3	D
SR 16 – County Road 94B to County Road 96	Class I Hwy	EB – 43.4	EB – 68.4	D	EB – 41.7	EB – 70.4	D
		WB – 44.1	WB – 51.1	D	WB – 42.4	WB – 72.5	D
County Road 96 – County Road 20 to SR 16	Class II Hwy	NA	NB – 34.6	A	NA	NB – 16.2	A
		NA	SB – 28.3	A	NA	SB – 34.4	A
County Road 20–West of County Road 96	Class II Hwy	NA	EB – 34.8	A	NA	EB – 14.3	A
		NA	WB – 46.9	B	NA	WB – 15.3	A
County Road 20–County Road 96 to County Road 98	Class II Hwy	NA	EB – 45.3	B	NA	EB – 31.5	A
		NA	WB – 48.1	B	NA	WB – 33.4	A
SR 16 (County Road 98) – County Road 20 to I-5	Class II Hwy	NB – 46.2	NB – 50.5	C	NB – 47.3	NB – 48.9	C
		SB – 45.8	SB – 58.1	C	SB – 47.5	SB – 44.4	C

Note: Roadway classification based on HCM 2010. Average Travel Speed (ATS) is only reported for Class I Highways based on HCM 2010 methodology.
Source: Fehr & Peers, 2018.

Table 4.12-8
Roadway Segment Capacity – Existing Plus Scenario 1

Roadway – Location	Roadway Classification	Number of Lanes	AM Peak Hour		PM Peak Hour	
			One-Way Volume	LOS	One-Way Volume	LOS
SR 16 – I-505 to County Road 94B	Conventional Two-Lane Highway	2	EB – 422 WB – 230	C B	EB – 401 WB – 482	C C
SR 16 – County Road 94B to County Road 96	Conventional Two-Lane Highway	2	EB – 451 WB – 276	C B	EB – 478 WB – 535	C C
County Road 96 – County Road 20 to SR 16	Local Roadway	2	NB - 81 SB – 74	N/A N/A	NB - 46 SB – 90	N/A N/A
County Road 20 – West of County Road 96	Local Roadway	2	EB – 62 WB – 60	N/A N/A	EB – 6 WB – 6	N/A N/A
County Road 20 – County Road 96 to County Road 98	Local Roadway	2	EB – 138 WB – 126	N/A N/A	EB – 97 WB – 118	N/A N/A
SR 16 (County Road 98) – County Road 20 to I-5	Conventional Two-Lane Highway	2	NB – 202 SB – 235	B B	NB – 204 SB – 185	B B

Note: The General Plan does not provide capacity thresholds for Local Roadways.

Source: Fehr & Peers, 2018.

Table 4.12-9
Roadway Segment Capacity – Existing Plus Scenario 4

Roadway – Location	Roadway Classification	Number of Lanes	AM Peak Hour		PM Peak Hour	
			One-Way Volume	LOS	One-Way Volume	LOS
SR 16 – I-505 to County Road 94B	Conventional Two-Lane Highway	2	EB – 435 WB – 243	C B	EB – 401 WB – 482	C C
SR 16 – County Road 94B to County Road 96	Conventional Two-Lane Highway	2	EB – 464 WB – 289	C B	EB – 478 WB – 535	C C
County Road 96 – County Road 20 to SR 16	Local Roadway	2	NB - 94 SB – 87	N/A N/A	NB - 46 SB – 90	N/A N/A
County Road 20 – West of County Road 96	Local Roadway	2	EB – 108 WB – 106	N/A N/A	EB – 8 WB – 8	N/A N/A
County Road 20 – County Road 96 to County Road 98	Local Roadway	2	EB – 171 WB – 159	N/A N/A	EB – 99 WB – 120	N/A N/A
SR 16 (County Road 98) – County Road 20 to I-5	Conventional Two-Lane Highway	2	NB – 235 SB – 268	B B	NB – 206 SB – 187	B B

Note: The General Plan does not provide capacity thresholds for Local Roadways.

Source: Fehr & Peers, 2018.

Freeway Operations under Existing Plus Project Conditions

Table 4.12-10 shows the results of the Existing Plus Project conditions peak hour freeway facilities (including basic, merge, and diverge sections) LOS analysis results for Scenario 1. Table 4.12-11 shows the results of the Existing Plus Project conditions peak hour freeway facilities LOS analysis results for Scenario 4. As shown in the tables, the study freeway facilities are expected to operate at acceptable LOS under both Scenario 1 and Scenario 4.

The Scenario 4 freeway operations results indicate that under Existing Plus Project conditions, the study freeway facilities would continue to operate acceptably with project traffic generated by the production of 2.2 million tons of aggregate per year. Scenarios 2 and 3 would generate less traffic than Scenario 4 and, therefore, would also result in acceptable operations at the study freeway facilities.

Because all study freeway facilities would operate at acceptable levels with implementation of the project under each of the four scenarios analyzed, the proposed project would be consistent with the State's applicable LOS standards for the study freeway facilities under Existing Plus Project conditions.

Study Intersections under Cumulative Plus Project Conditions

The cumulative baseline conditions analysis assumes that the Woodland and Esparto plants will be operating at full capacity (1.2 million tons per year production at Woodland and 1 million tons per year production at Esparto) based on allowed production allotments, which is the same as the Scenario 1 analysis. In order to determine potential impacts of the proposed project, the results of the project analysis scenarios were compared to the cumulative baseline conditions analysis results. The following project scenarios were analyzed:

- Scenario 2: Production of 1.5 million tons per year at the Woodland Plant; 0.7 million tons per year at the Esparto Plant.
- Scenario 3: Production of 1.8 million tons per year at the Woodland Plant; 0.4 million tons per year at the Esparto Plant.
- Scenario 4: Production of 2.2 million tons per year at the Woodland Plant; 0 tons per year at the Esparto Plant.

Scenario 2

Table 4.12-12 shows the Cumulative Plus Project conditions intersection LOS analysis results for Scenario 2. As shown in the table, SR 16/County Road 94B intersection is expected to operate at LOS F during the AM and PM peak hours, both with and without the addition of project traffic. The SR 16/County Road 96 intersection is expected to degrade from LOS D (acceptable operations) to LOS E (unacceptable operations) during the AM peak hour under Cumulative Plus Scenario 2 conditions. The remaining study intersections would operate acceptably under Cumulative Plus Scenario 2 conditions.

Table 4.12-10
Freeway LOS – Existing Plus Scenario 1

Freeway Direction	Location	Facility Type	AM Peak Hour			PM Peak Hour		
			v/c Ratio	Density (pcplpm)	LOS	v/c Ratio	Density (pcplpm)	LOS
I-5 Northbound	South of SR 16	Basic	0.19	6.4	A	0.20	6.9	A
	SR 16 Off-Ramp	Diverge	0.20	10.7	B	0.22	11.3	B
	SR 16 Loop On-Ramp	Merge	0.16	10.1	B	0.18	10.7	B
	SR 16 On-Ramp	Merge	0.16	9.3	A	0.18	10.0	A
	North of SR 16	Basic	0.16	5.4	A	0.18	6.0	A
I-5 Southbound	North of SR 16	Basic	0.16	5.4	A	0.18	6.1	A
	SR 16 Off-Ramp	Diverge	0.17	9.0	A	0.19	9.9	A
	SR 16 On-Ramp	Merge	0.19	10.4	B	0.21	11.2	B
	South of SR 16	Basic	0.18	6.1	A	0.20	6.8	A
I-505 Northbound	South of SR 16	Basic	0.07	2.3	A	0.11	3.6	A
	SR 16 Off-Ramp	Diverge	0.07	5.5	A	0.12	7.1	A
	SR 16 Loop On-Ramp	Merge	0.05	5.7	A	0.05	5.7	A
	SR 16 On-Ramp	Merge	0.05	6.1	A	0.05	6.1	A
	North of SR 16	Basic	0.05	1.6	A	0.05	1.6	A
I-505 Southbound	North of SR 16	Basic	0.05	1.6	A	0.05	1.6	A
	SR 16 Off-Ramp	Diverge	0.05	4.9	A	0.05	4.9	A
	SR 16 Loop On-Ramp	Merge	0.06	5.9	A	0.06	5.7	A
	SR 16 On-Ramp	Merge	0.09	6.9	A	0.11	7.6	A
	South of SR 16	Basic	0.09	3.1	A	0.11	3.7	A

Source: Fehr & Peers, 2018.

Table 4.12-11
Freeway LOS – Existing Plus Scenario 4

Freeway Direction	Location	Facility Type	AM Peak Hour			PM Peak Hour		
			v/c Ratio	Density (pcplpm)	LOS	v/c Ratio	Density (pcplpm)	LOS
I-5 Northbound	South of SR 16	Basic	0.20	6.7	A	0.20	6.9	A
	SR 16 Off-Ramp	Diverge	0.21	11.1	B	0.22	11.3	B
	SR 16 Loop On-Ramp	Merge	0.16	10.1	B	0.18	10.7	B
	SR 16 On-Ramp	Merge	0.16	9.3	A	0.18	10.0	A
	North of SR 16	Basic	0.16	5.4	A	0.18	6.0	A
I-5 Southbound	North of SR 16	Basic	0.16	5.4	A	0.18	6.1	A
	SR 16 Off-Ramp	Diverge	0.17	9.1	A	0.19	9.9	A
	SR 16 On-Ramp	Merge	0.19	10.7	B	0.21	11.2	B
	South of SR 16	Basic	0.19	6.4	A	0.20	6.8	A
I-505 Northbound	South of SR 16	Basic	0.07	2.4	A	0.11	3.6	A
	SR 16 Off-Ramp	Diverge	0.08	5.6	A	0.12	7.1	A
	SR 16 Loop On-Ramp	Merge	0.05	5.7	A	0.05	5.7	A
	SR 16 On-Ramp	Merge	0.05	6.1	A	0.05	6.1	A
	North of SR 16	Basic	0.05	1.6	A	0.05	1.6	A
I-505 Southbound	North of SR 16	Basic	0.05	1.6	A	0.05	1.6	A
	SR 16 Off-Ramp	Diverge	0.05	4.9	A	0.05	4.9	A
	SR 16 Loop On-Ramp	Merge	0.06	5.9	A	0.06	5.7	A
	SR 16 On-Ramp	Merge	0.10	7.0	A	0.11	7.6	A
	South of SR 16	Basic	0.09	3.2	A	0.11	3.7	A

Source: Fehr & Peers, 2018.

Table 4.12-12
Intersection LOS – Cumulative Plus Scenario 2

Intersection	Control	Cumulative				Cumulative Plus Scenario 2			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 16/I-505 Southbound Ramps	Side Street Stop	1 (25)	A (D)	1 (34)	A (D)	1 (25)	A (D)	1 (34)	A (D)
2. SR 16/I-505 Northbound Ramps	Traffic Signal	8	A	9	A	8	A	9	A
3. SR 16/County Road 94B	Side Street Stop	8 (**69**)	A (**F**)	33 (**268**)	D (**F**)	8 (**70**)	A (**F**)	33 (**268**)	D (**F**)
4. SR 16/County Road 96	Side Street Stop	3 (34)	A (D)	2 (27)	A (D)	4 (**36**)	A (**E**)	2 (27)	A (D)
5. County Road 20/County Road 96	All Way Stop	9	A	8	A	9	A	8	A
6. County Road 20/County Road 97	Side Street Stop	2 (10)	A (A)	3 (9)	A (A)	2 (10)	A (B)	3 (9)	A (A)
7. County Road 20/SR 16 (County Road 98)	Traffic Signal	17	B	16	B	17	B	16	B
8. SR 16/ I-5 Southbound Ramps	Side Street Stop	2 (13)	A (B)	2 (14)	A (B)	2 (13)	A (B)	2 (14)	A (B)
9. SR 16/I-5 Northbound Ramps	Side Street Stop	6 (11)	A (B)	5 (10)	A (B)	6 (11)	A (B)	5 (10)	A (B)

Notes:
- For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For unsignalized (side street stop controlled) intersections, average intersection delay is reported in seconds per vehicle for the overall intersection (worst movement). All results are rounded to the nearest second.
- **Bold** text indicates unacceptable operations.
- **Bold and shaded** text indicates a significant impact.

Source: Fehr & Peers, 2018.

At the SR 16/County Road 94B intersection, the project would not add 10 or more vehicles to the intersection and, therefore, would not create a significant impact at the intersection. With regard to the SR 16/County Road 96 intersection, given that the project would degrade operations to unacceptable levels, the proposed project could conflict with the County's LOS standards at the intersection under Cumulative Plus Scenario 2 conditions.

Scenario 3

Table 4.12-13 shows the cumulative plus project conditions intersection LOS analysis results for Scenario 3. As shown in the table, the SR 16/County Road 94B intersection is expected to operate at LOS F during the AM and PM peak hours, both with and without the addition of project traffic. The SR 16/County Road 96 intersection is expected to degrade from LOS D (acceptable operations) to LOS E (unacceptable operations) during the AM peak hour under Cumulative Plus Scenario 3 conditions. The remaining study intersections would operate acceptably under Cumulative Plus Scenario 3 conditions.

Table 4.12-13
Intersection LOS – Cumulative Plus Scenario 3

Intersection	Control	Cumulative				Cumulative Plus Scenario 3			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 16/I-505 Southbound Ramps	Side Street Stop	1 (25)	A (D)	1 (34)	A (D)	1 (25)	A (D)	1 (34)	A (D)
2. SR 16/I-505 Northbound Ramps	Traffic Signal	8	A	9	A	8	A	9	A
3. SR 16/County Road 94B	Side Street Stop	8 (**69**)	A (**F**)	33 (**268**)	D (**F**)	8 (**72**)	A (**F**)	33 (**268**)	D (**F**)
4. SR 16/County Road 96	Side Street Stop	3 (34)	A (D)	2 (27)	A (D)	4 (**36**)	A (**E**)	2 (27)	A (D)
5. County Road 20/County Road 96	All Way Stop	9	A	8	A	9	A	8	A
6. County Road 20/County Road 97	Side Street Stop	2 (10)	A (A)	3 (9)	A (A)	1 (10)	A (B)	3 (9)	A (A)
7. County Road 20/SR 16 (County Road 98)	Traffic Signal	17	B	16	B	17	B	16	B
8. SR 16/ I-5 Southbound Ramps	Side Street Stop	2 (13)	A (B)	2 (14)	A (B)	2 (13)	A (B)	2 (14)	A (B)
9. SR16/I-5 Northbound Ramps	Side Street Stop	6 (11)	A (B)	5 (10)	A (B)	6 (11)	A (B)	5 (10)	A (B)

Notes:
- For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For unsignalized (side street stop controlled) intersections, average intersection delay is reported in seconds per vehicle for the overall intersection (worst movement). All results are rounded to the nearest second.
- **Bold** text indicates unacceptable operations.
- **Bold and shaded** text indicates a significant impact.

Source: Fehr & Peers, 2018.

At the SR 16/County Road 94B intersection, the project would add 10 or more vehicles to the intersection. With regard to the SR 16/County Road 96 intersection, the project would degrade operations to unacceptable levels. Therefore, the proposed project could conflict with the County's applicable LOS standards at both study intersections.

Scenario 4

Table 4.12-14 shows the cumulative plus project conditions intersection LOS analysis results for Scenario 4. As shown in the table, SR 16/County Road 94B intersection is expected to operate at LOS F during the AM and PM peak hours, both with and without the addition of project traffic. The SR 16/County Road 96 intersection is expected to degrade from LOS D (acceptable operations) to LOS E (unacceptable operations) during the AM peak hour under Cumulative Plus Scenario 4 conditions. The remaining study intersections would operate acceptably under Cumulative Plus Scenario 4 conditions.

Table 4.12-14
Intersection LOS – Cumulative Plus Scenario 4

Intersection	Control	Cumulative				Cumulative Plus Scenario 4			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 16/I-505 Southbound Ramps	Side Street Stop	1 (25)	A (D)	1 (34)	A (D)	1 (25)	A (D)	1 (34)	A (D)
2. SR 16/I-505 Northbound Ramps	Traffic Signal	8	A	9	A	8	A	9	A
3. SR 16/County Road 94B	Side Street Stop	8 **(69)**	A **(F)**	33 (**268**)	D **(F)**	8 (**74**)	A (**F**)	33 **(268)**	D **(F)**
4. SR 16/County Road 96	Side Street Stop	3 (34)	A (D)	2 (27)	A (D)	4 (**37**)	A (**E**)	2 (27)	A (D)
5. County Road 20/County Road 96	All Way Stop	9	A	8	A	10	A	8	A
6. County Road 20/County Road 97	Side Street Stop	2 (10)	A (A)	3 (9)	A (A)	1 (10)	A (B)	3 (9)	A (A)
7. County Road 20/SR 16 (County Road 98)	Traffic Signal	17	B	16	B	18	B	16	B
8. SR 16/ I-5 Southbound Ramps	Side Street Stop	2 (13)	A (B)	2 (14)	A (B)	2 (13)	A (B)	2 (14)	A (B)
9. SR 16/I-5 Northbound Ramps	Side Street Stop	6 (11)	A (B)	5 (10)	A (B)	7 (12)	A (B)	5 (10)	A (B)

Notes:
- For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For unsignalized (side street stop controlled) intersections, average intersection delay is reported in seconds per vehicle for the overall intersection (worst movement). All results are rounded to the nearest second.
- **Bold** text indicates unacceptable operations.
- **Bold and shaded** text indicates a significant impact.

Source: Fehr & Peers, 2018.

At the SR 16/County Road 94B intersection, the project would add 10 or more vehicles to the intersection. With regard to the SR 16/County Road 96 intersection, the project would degrade operations to unacceptable levels. Therefore, the proposed project could conflict with the County's LOS standards at both study intersections.

Conclusion

Based on the above, under Cumulative Plus Project conditions, the addition of project traffic could conflict with the County's applicable LOS standards at the following intersections:

- SR 16/County Road 94B (Scenarios 3 and 4); and
- SR 16/County Road 96 (Scenarios 2, 3, and 4).

The remaining study intersections would operate acceptably under all study scenarios.

As summarized earlier, as result of SB 743, local jurisdictions may no longer rely on vehicle level of service (LOS) and similar measures related to delay as the basis for determining the significance of transportation impacts under CEQA. However,

because the County considers LOS as a matter of General Plan policy (Policy CI-3.1) there is a nexus for, and the County retains full discretion to, requiring a project to ensure General Plan consistency through project conditions of approval.

Full funding and installation of improvements to these intersections sufficient to alleviate the projected LOS deficiencies would constitute costs that are beyond the project's fair share contribution, and without inclusion in the County's CIP, the full funding for the improvements cannot be guaranteed. Alternatively, the County has identified an equivalent improvement for which there is a nexus to require full funding by the applicant, commensurate with their fair share based on trip contributions to the two intersections.

The County shall condition the project, if approved, to require the applicant to fully construct the following improvement:

- The applicant shall install 5 percent shoulders with a 2:1 back slope along both sides of CR 96, for the approximately one-mile segment between CR 20 and CR 16.

Study Roadway Operations under Cumulative Plus Project Conditions

Table 4.12-15 shows the Cumulative Plus Project conditions roadway operations analysis results for Scenario 4. As shown in the table, the study roadway segments would continue to operate at acceptable LOS with project traffic generated by the production of 2.2 million tons of aggregate per year. Scenarios 2 and 3 would generate less traffic than Scenario 4 and, therefore, would also result in acceptable operations at the study roadway segments.

Study Roadway Capacity under Cumulative Plus Project Conditions

Table 4.12-16 shows results of the Cumulative Plus Project conditions roadway capacity analysis results for Scenario 4. As shown in the table, the study roadway segments would continue to have sufficient capacity with project traffic generated by the production of 2.2 million tons of aggregate per year at the Woodland Plant. Scenarios 2 and 3 would generate less traffic than Scenario 4 and, therefore, would also result in sufficient capacity at the study roadway segments.

Because all study roadway segments would have sufficient capacity with implementation of the project under each of the three scenarios analyzed, the proposed project would be consistent with the County's applicable LOS standards for the study roadway segments under Cumulative Plus Project conditions.

Table 4.12-15
Roadway LOS – Cumulative Plus Scenario 4

Roadway – Location	Roadway Classification	AM Peak Hour			PM Peak Hour		
		ATS (mph)	PTSF (%)	LOS	ATS (mph)	PTSF (%)	LOS
SR 16 – I-505 to County Road	Class I Hwy	EB – 41.3	EB – 79.7	D	EB – 40.2	EB – 75.7	D
		WB – 41.8	WB – 65.1	D	WB – 40.9	WB – 77.0	D
SR 16 – County Road 94B to County Road 96	Class I Hwy	EB – 41.8	EB – 76.6	D	EB – 40.5	EB – 74.9	D
		WB – 42.6	WB – 59.7	D	WB – 41.1	WB – 75.3	D
County Road 96 – County Road 20 to SR 16	Class II Hwy	NA	NB – 46.3	B	NA	NB – 18.9	A
		NA	SB – 35.6	A	NA	SB – 38.1	A
County Road 20 – West of County Road 96	Class II Hwy	NA	EB – 35.3	A	NA	EB – 19.3	A
		NA	WB – 50.4	B	NA	WB – 15.1	A
County Road 20 – County Road 96 to County Road 98	Class II Hwy	NA	EB – 51.8	B	NA	EB – 32.9	A
		NA	WB – 54.8	B	NA	WB – 37.0	A
SR 16 (County Road 98) – County Road 20 to I-5	Class II Hwy	NB – 45.9	NB – 56.4	C	NB – 46.9	NB – 54.3	C
		SB – 45.7	SB – 56.9	C	SB – 47.0	SB – 47.4	C

Note: Roadway classification based on HCM 2010. Average Travel Speed (ATS) is only reported for Class I Highways based on HCM 2010 methodology.
Source: Fehr & Peers, 2018.

Table 4.12-16
Roadway Segment Capacity – Cumulative Plus Scenario 4

Roadway – Location	Roadway Classification	Number of Lanes	AM Peak Hour		PM Peak Hour	
			One-Way Volume	LOS	One-Way Volume	LOS
SR 16 – I-505 to County Road 94B	Conventional Two-Lane Highway	2	EB – 669 WB – 449	C C	EB – 621 WB – 691	C C
SR 16 – County Road 94B to County Road 96	Conventional Two-Lane Highway	2	EB – 594 WB – 394	C C	EB – 596 WB – 626	C C
County Road 96 – County Road 20 to SR 16	Local Roadway	2	NB - 149 SB – 129	N/A N/A	NB - 61 SB – 111	N/A N/A
County Road 20 – West of County Road 96	Local Roadway	2	EB – 121 WB – 131	N/A N/A	EB – 19 WB – 14	N/A N/A
County Road 20 – County Road 96 to County Road 98	Local Roadway	2	EB – 222 WB – 212	N/A N/A	EB – 123 WB – 143	N/A N/A
SR 16 (County Road 98) – County Road 20 to I-5	Conventional Two-Lane Highway	2	NB – 287 SB – 292	B C	NB – 243 SB – 213	B B

Note: The General Plan does not provide capacity thresholds for Local Roadways.

Source: Fehr & Peers, 2018.

Freeway Operations under Cumulative Plus Project Conditions

Table 4.12-17 shows the results of the Cumulative Plus Project conditions peak hour freeway facilities (including basic, merge, and diverge sections) LOS analysis results for Scenario 2. Table 4.12-18 shows the results of the Cumulative Plus Project conditions peak hour freeway facilities LOS analysis results for Scenario 3. As shown in the tables, the study freeway facilities would operate at acceptable LOS under both Scenario 2 and Scenario 3. It should be noted that under Scenarios 2 and 3, the project would generate less traffic on I-5 than Scenario 4, with more traffic generated on I-505 due to trips from the Esparto Plant. As noted below, all I-5 freeway facilities would

operate acceptably under Scenario 4; thus, Table 4.12-17 and Table 4.12-18 do not include the I-5 freeway facilities.

Table 4.12-17
Freeway LOS – Cumulative Plus Scenario 2

Freeway Direction	Location	Facility Type	AM Peak Hour			PM Peak Hour		
			v/c Ratio	Density (pcplpm)	LOS	v/c Ratio	Density (pcplpm)	LOS
I-505 Northbound	South of SR 16	Basic	0.28	9.5	A	0.25	8.7	A
	SR 16 Off-Ramp	Diverge	0.24	8.2	A	0.25	8.6	A
	SR 16 Loop On-Ramp	Merge	0.26	12.6	B	0.27	13.0	B
	SR 16 On-Ramp	Merge	0.16	9.8	A	0.12	8.5	A
	North of SR 16	Basic	0.17	10.3	B	0.13	8.9	A
I-505 Southbound	North of SR 16	Basic	0.16	5.4	A	0.12	4.2	A
	SR 16 Off-Ramp	Diverge	0.16	5.4	A	0.14	4.8	A
	SR 16 Loop On-Ramp	Merge	0.17	9.5	A	0.15	8.7	A
	SR 16 On-Ramp	Merge	0.23	11.6	B	0.18	10.1	B
	South of SR 16	Basic	0.29	13.9	B	0.26	13.0	B

Source: Fehr & Peers, 2018.

Table 4.12-18
Freeway LOS – Cumulative Plus Scenario 3

Freeway Direction	Location	Facility Type	AM Peak Hour			PM Peak Hour		
			v/c Ratio	Density (pcplpm)	LOS	v/c Ratio	Density (pcplpm)	LOS
I-505 Northbound	South of SR 16	Basic	0.24	8.1	A	0.25	8.5	A
	SR 16 Off-Ramp	Diverge	0.26	12.5	B	0.27	13.0	B
	SR 16 Loop On-Ramp	Merge	0.16	9.7	A	0.12	8.5	A
	SR 16 On-Ramp	Merge	0.16	10.2	B	0.13	8.9	A
	North of SR 16	Basic	0.16	5.3	A	0.12	4.2	A
I-505 Southbound	North of SR 16	Basic	0.16	5.3	A	0.14	4.8	A
	SR 16 Off-Ramp	Diverge	0.17	9.4	A	0.15	8.7	A
	SR 16 Loop On-Ramp	Merge	0.22	11.5	B	0.18	10.1	B
	SR 16 On-Ramp	Merge	0.29	13.8	B	0.26	13.0	B
	South of SR 16	Basic	0.27	9.4	A	0.25	8.7	A

Source: Fehr & Peers, 2018.

Table 4.12-19 shows the results of the Cumulative Plus Project conditions peak hour freeway facilities LOS analysis results for Scenario 4. As shown in the table, the study freeway facilities would operate at acceptable LOS.

Because all study freeway facilities would operate at acceptable levels with implementation of the project under each of the three scenarios analyzed, the proposed project would be consistent with the State's applicable LOS standards for the study freeway facilities would occur under Cumulative Plus Project conditions.

Table 4.12-19
Freeway LOS – Cumulative Plus Scenario 4

Freeway Direction	Location	Facility Type	AM Peak Hour			PM Peak Hour		
			v/c Ratio	Density (pcplpm)	LOS	v/c Ratio	Density (pcplpm)	LOS
I-5 Northbound	South of SR 16	Basic	0.37	12.8	B	0.32	11.1	B
	SR 16 Off-Ramp	Diverge	0.41	18.4	B	0.35	16.4	B
	SR 16 Loop On-Ramp	Merge	0.35	16.8	B	0.32	15.5	B
	SR 16 On-Ramp	Merge	0.35	16.0	B	0.32	14.8	B
	North of SR 16	Basic	0.34	11.6	B	0.30	10.4	A
I-5 Southbound	North of SR 16	Basic	0.30	10.1	A	0.35	11.9	B
	SR 16 Off-Ramp	Diverge	0.32	14.7	B	0.38	16.8	B
	SR 16 On-Ramp	Merge	0.34	16.0	B	0.38	17.4	B
	South of SR 16	Basic	0.33	11.3	B	0.37	12.5	B
I-505 Northbound	South of SR 16	Basic	0.23	8.0	A	0.25	8.5	A
	SR 16 Off-Ramp	Diverge	0.26	12.4	B	0.27	13.0	B
	SR 16 Loop On-Ramp	Merge	0.15	9.6	A	0.12	8.5	A
	SR 16 On-Ramp	Merge	0.16	10.0	B	0.13	8.9	A
	North of SR 16	Basic	0.15	5.2	A	0.12	4.2	A
I-505 Southbound	North of SR 16	Basic	0.15	5.2	A	0.14	4.7	A
	SR 16 Off-Ramp	Diverge	0.17	9.2	A	0.15	8.7	A
	SR 16 Loop On-Ramp	Merge	0.22	11.4	B	0.18	10.1	B
	SR 16 On-Ramp	Merge	0.28	13.6	B	0.26	13.0	B
	South of SR 16	Basic	0.27	9.3	A	0.25	8.7	A

Source: Fehr & Peers, 2018.

Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
Yolo County General Plan	
Policy CI-3.1 Maintain Level of Service (LOS) C or better for roadways and intersections in the unincorporated county. In no case shall land use be approved that would either result in worse than LOS C conditions, or require additional improvements to maintain the required level of service, except as specified below. The intent of this policy is to consider level of service as a limit on the capacity of the County's roadways. A. Interstate 5 (County Road 6 to Interstate 505) – LOS D is acceptable to the County, assuming that one additional auxiliary lane is constructed in each direction through this segment. The County will secure a fair share towards these improvements from planned development. LOS D is anticipated by Caltrans according to the Interstate 5 Transportation Concept Report 1996 to 2016 (Caltrans, April 1997).	As demonstrated in Appendix M, the proposed project would be consistent with the County's LOS standards for most of the study intersections. However, as noted above, the proposed project could conflict with the County's LOS standards at the following intersections, during the Cumulative Plus Project conditions: • SR 16/County Road 94B (Scenarios 3 and 4); and • SR 16/County Road 96 (Scenarios 2, 3, 4 and 4). As result of SB 743, local jurisdictions may no longer rely on vehicle level of service (LOS) and similar measures related to delay as the basis for determining the significance of transportation impacts under CEQA. However, because the County considers LOS as a matter of General Plan policy (Policy CI-3.1) there is a nexus for, and the

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
B. Interstate 5 (Interstate 505 to Woodland City Limit) – LOS D is acceptable to the County. LOS D is anticipated by Caltrans according to the Interstate 5 Transportation Concept Report 1996 to 2016 (Caltrans, April 1997). C. Interstate 5 (Woodland City Limit to Sacramento County Line) – LOS F is acceptable to the County. The County will secure a fair share towards intersection improvements from all feasible sources including planned development at the Elkhorn site. LOS C is anticipated by Caltrans according to the State Route 99 and Interstate 5 Corridor System Management Plan (Caltrans, May 2009). D. Interstate 80 (Davis City Limit to West Sacramento City Limit) – LOS F is acceptable to the County. LOS F is anticipated by Caltrans according to the Interstate 80 and Capital City Freeway Corridor System Management Plan (Caltrans, May 2009). E. State Route 16 (County Road 78 to County Road 85B) – LOS D is acceptable. F. State Route 16 (County Road 85B to County Road 21A) – LOS E is acceptable. G. State Route 16 (County Road 21A to Interstate 505) – LOS D is acceptable, assuming that this segment is widened to four lanes with intersection improvements appropriate for an arterial roadway. The County will secure a fair share towards these improvements from planned development. Caltrans and the Rumsey Band of Wintun Indians shall be encouraged to provide funding for the project. H. State Route 16 (Interstate 505 to County Road 98) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources. Caltrans and the Rumsey Band of Wintun Indians shall be encouraged to establish a funding mechanism to pay the remainder. I. State Route 113 (Sutter County Line to County Road 102) – LOS F is acceptable	County retains full discretion to require a project to ensure General Plan consistency through project conditions of approval. Full funding and installation of improvements to these intersections sufficient to alleviate the projected LOS deficiencies would constitute costs that are beyond the project's fair share contribution, and without inclusion in the County's CIP, the full funding for the improvements cannot be guaranteed. Alternatively, the County has identified an equivalent improvement for which there is a nexus to require full funding by the applicant, commensurate with their fair share based on trip contributions to the two intersections. The County shall condition the project, if approved, to require the applicant to fully construct the following improvement: • The applicant shall install 5 percent shoulders with a 2:1 back slope along both sides of CR 96, for the approximately one-mile segment between CR 20 and CR 16.

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
to the County. The County will secure a fair share towards these improvements from planned development. LOS F is anticipated by Caltrans according to the State Route 113 Transportation Concept Report 1991-2019 (Caltrans, May 2000). J. State Route 113 (County Road 102 to Woodland City Limits) – LOS D is acceptable. K. State Route 128 (Interstate 505 to Napa County Line) – LOS D is acceptable. L. Old River Road (Interstate 5 to West Sacramento City limits) – LOS D is acceptable. M. South River Road (West Sacramento City Limit to the Freeport Bridge) – LOS D is acceptable. N. County Road 6 (County Road 99W to the Tehama Colusa Canal) – LOS D is acceptable, assuming this segment is widened to four lanes. The County will secure a fair share towards these improvements from all feasible sources. O. County Road 24 (County Road 95 to County Road 98 – LOS D is acceptable. P. County Road 27 (County Road 98 to State Route 113 – LOS D is acceptable. Q. County Road 31 (County Road 95 to County Road 98) – LOS D is acceptable. R. County Road 32A (County Road 105 to Interstate 80) – LOS D is acceptable. S. County Road 98 (County Road 29 to County Road 27) – LOS D is acceptable. T. County Road 99W (County Road 2 to County Road 8) – LOS D is acceptable, assuming that this segment is widened to four lanes. The County will secure a fair share towards these improvements from all feasible sources. U. County Road 102 (County Road 13 to County Road 17) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources. V. County Road 102 (County Road 17 to the Woodland City Limit) - LOS E is acceptable, assuming that passing lanes and appropriate intersection improvements	

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
are constructed. The County will secure a fair share towards these improvements from all feasible sources. W. County Road 102 (Woodland City Limit to Davis City Limit) – LOS D is acceptable assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from all feasible sources. X. Additional exceptions to this policy may be allowed by the Board of Supervisors on a case-by-case basis, where reducing the level of service would result in a clear public benefit. Such circumstances may include, but are not limited to, the following: 1. Preserving agriculture or open space land; 2. Enhancing the agricultural economy; 3. Preserving scenic roadways/highways; 4. Preserving the rural character of the county; 5. Avoiding adverse impacts to alternative transportation modes; 6. Avoiding growth inducement; or 7. Preserving downtown community environments. 8. Where right-of-way constraints would make the improvements infeasible.	
Policy CI-3.4 Define level of service consistent with the latest edition of the Highway Capacity Manual and calculate using the methodologies contained in that manual. At a minimum, weekday AM and PM peak hour traffic volumes will be used in determining compliance with the level of service standard. For recreational and other non-typical peak hour uses, weekday afternoon, weekday late evening, or weekends shall be considered.	LOS at the study roadway facilities has been evaluated consistent with the HCM 2010 (see Appendix M). Standard peak hour periods of 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM were determined to be appropriate for the proposed project. Therefore, the proposed project is consistent with this policy.
Policy CI-3.7 Consider designs for planned roadway capacity improvements that recognize the unique conditions associated with rural and agricultural areas in accordance with established standards including, but not limited to, the following:	The roadway improvements identified above as a condition of approval related to trips added to the SR 16/County Road 94B and SR 16/County Road 96 intersections would be designed in accordance with the referenced standards, and would be subject to final approval by the County Public Works Division. Therefore, the proposed project is consistent with this policy.

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
• American Association of State Highway and Transportation Officials (AASHTO) publication "A Policy on Geometric Design of Highways and Streets;" • Caltrans' Main Streets: Flexibility in Design and Operations; • Federal Highway Administration's Flexibility in Highway Design; • 2007 California Fire Code; and • Institute of Transportation Engineers' Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.	
Policy CI-3.9 To the greatest feasible extent, require new development to construct safety improvements consistent with current design standards on existing roadways that are anticipated to accommodate additional traffic from planned development.	See discussion related to Policy CI-3.1.
Policy CI-3.11 Require new development to finance and construct all off-site circulation improvements necessary to mitigate a project's transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts, and impacts to the State Highway System). For mitigation to be considered feasible, it must be consistent with the policies of the General Plan.	See discussion of OCSMO Section 10-4.409 below.
Policy CI-3.12 Collect the fair share cost of all feasible transportation improvements necessary to reduce the severity of cumulative transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts).	See discussion related to Policy CI-3.1.
Policy CI-3.13 Ensure that transportation and circulation improvements (including improvements to comply with County design standards) are constructed and operational prior to or concurrent with the need, to the extent feasible.	The conditions of approval discussed above include timing requirements based on the anticipated impact triggers (i.e., production levels at the Woodland Plant). Therefore, the proposed project would be consistent with this policy.
Policy CI-3.16 Ensure that funding for the long-term maintenance of affected roads is provided by planned development.	See discussion of OCSMO Section 10-4.409 below.
Policy CI-3.18 Ensure adequate access for emergency vehicles.	As discussed under Impact 4.12-4, the proposed project would provide for adequate emergency

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
	access to the project site. Thus, the proposed project would be consistent with this policy.
Off-Channel Mining Plan	
Action 2.4-21 Ensure that each mining operation adheres to approved haul routes and approved ingress/egress locations. Ensure through conditions of approval and other appropriate mechanisms that mining operations are funding their fair share of roadway and related impacts, including both one-time improvements and ongoing operations and maintenance, along approved haul routes and in proximity to approved operation ingress/egress locations.	Aggregate trucks going to and from the Woodland Plant currently access the plant from its entrance on County Road 20. Trucks are required to use designated haul routes of County Road 20, County Road 96, and State Route 16 to and from Interstates 5 and 505. Local deliveries are allowed to use roads other than State Route 16, County Road 20, or County Road 96. The project does not propose changes to the designated haul routes. With regard to funding, see OCSMO Sections 10-4.408 and 10-4.409 below. The proposed project would comply with this action.
Off-Channel Surface Mining Ordinance	
Section 10-4.402 The first one-hundred (100) feet of access road intersecting a County-maintained road shall be surfaced in a manner approved by the Public Works Department, with an approach constructed to County standards. Traffic control and warning signs shall be installed as required by the Public Works Department.	The proposed project would use the existing driveway access at the Woodland Plant. Thus, the proposed project would be consistent with this action.
Section 10-4.408 It is the intent of this program that each operator shall pay for any road improvements determined to be necessary to support their operation consistent with County and CCAP standards, and for ongoing operations and maintenance. Each operator shall pay its fair share toward improvements required to maintain a structural capacity (traffic index) sufficient for the project traffic and to maintain operations on County roads and on State Highways within the OCMP planning area consistent with applicable General Plan policies related to LOS and applicable State policy related to VMT. Fair share mitigation shall also be required to improve existing operational as well as structural deficiencies of the transportation system. Specific locations shall be identified through the project-specific environmental review process for each operator's long-term mining permit application. Each operator shall participate in a funding program operated by the County which is designed to ensure that all improvements are made in a timely manner and that a reimbursement mechanism is in place to ensure repayment of any costs contributed in excess of fair share amounts.	See discussion of General Plan Policy CI-3.1 above.

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
The program shall be initiated upon the approval of the long-term mining permits and shall be updated biennially by the County to ensure any new or modified impacts or funding sources are being addressed. Each operator shall have the option to complete the work at their expense without triggering the competitive bid process, as long as they comply with the applicable legal requirements of the County. If the operator declines the option, the County shall utilize the competitive bid process.	
Section 10-4.409 The operator shall agree to assume joint pavement maintenance responsibility with the County (or shared with another producer using the same roadway) for all County roads along a designated haul route from the access point of the surface mining operation to an appropriate State Highway. The County will provide maintenance of the county-maintained roadside drainage ditches, traffic signs, and striping. By May 15 of each year, the operator shall submit to the County an annual evaluation report documenting the structural integrity of the pavement structural section and the PCI of the roads maintained by the operator. The annual report shall be signed and sealed by a civil engineer licensed in the State of California. The report shall contain a proposed action plan for pavement maintenance and pavement improvements to maintain safe and efficient traffic operation on the roads, and a PCI of 70 or more, unless otherwise agreed by the County, as defined by American Society for Testing and Materials (ASTM) Method D6433 (Standard Practice for Roads and Parking Lots Pavement Condition Index Survey), for each upcoming year. Within 30 days, the County will review the report and recommend revisions if necessary. Following acceptance of the report by the County, the operator shall secure a County encroachment permit specific to the action plan (at no cost to the operator) and complete the proposed pavement maintenance and improvement activities prior to the submittal of the annual report. Striping may be provided by the County if County striping equipment and material are available. Otherwise striping will be provided by the operator. Once the work is completed, the operator will resubmit the annual evaluation report	The project would intensify pavement wear and tear related to increased gravel truck use. Pursuant to OCSMO Section 10-4.409 of the Mining Ordinance, the project applicant would be required to assume joint pavement maintenance responsibility with the County for the following roadway segments for the duration of the permit period: • County Road 20 and County Road 98 between the project access and I-5; and • County Road 20 and County Road 96 between the project access and SR 16. The project applicant would be required to submit an annual evaluation of the structural integrity of the roads and implement pavement improvements to maintain safe and efficient traffic operation on the roads for each upcoming year. Therefore, the proposed project would be consistent with this regulation.

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Table 4.12-20
Consistency with Applicable Standards

Policy / Regulation	Consistency Discussion
by November 1 each year, and include the scope and dates that work was completed. If minor emergency asphalt repairs (work requiring a single County Public Works maintenance pick-up truck with asphalt patching material) are identified within the maintenance areas of the hauling routes after the Applicant's yearly maintenance has been completed, county crews will perform the minor asphalt repair maintenance once in a sixty (60) consecutive day period. The types of asphalt pavement failures requiring repairs include, but are not limited to, cracking, pot holes, depressions, rutting, shoving, upheaval, and raveling and any other pavement damage or failures requiring immediate repair by the county. If major emergency roadway repairs associated with the permitted activities (work requiring more than a single County Public Works maintenance pick-up truck with asphalt patching material, or minor asphalt repairs occurring in less than the sixty (60) consecutive day period) are identified after the Applicant's yearly maintenance has been completed, the Applicant shall obtain a County encroachment permit (at no cost to Applicant) and complete the major roadway repairs. If major roadway repairs that are the Applicant's fair share obligation are not completed by the Applicant in a timely manner as determined by the County, and the County must make repairs when the public's safety is considered at risk by the County Engineer, then the Applicant will be billed for the County's major roadway repair work on a time and materials basis. An applicant may coordinate with the County to have the County complete required improvements, and in such case, must fully fund the County's costs to do so. The operator does not assume the liability for the roadway, except for cases where the operator has not fulfilled its maintenance obligations. If a subsequent mining operation utilizes a road previously required to be improved pursuant to this subsection, then the subsequent operator shall be responsible for compliance with the agreements and requirements of the previous operator.	

5. Cumulative Impacts and Other Required Sections

5. CUMULATIVE IMPACTS AND OTHER REQUIRED SECTIONS

5.1 INTRODUCTION

The Cumulative Impacts and Other Required Sections chapter of the Draft EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to CEQA Guidelines, Section 15126. The chapter includes a discussion of the proposed project's potential to induce growth. In addition, the chapter includes lists of significant irreversible environmental changes, and cumulative impacts caused by the proposed project.

5.2 GROWTH-INDUCING IMPACTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth in the vicinity of the project and how that growth would, in turn, affect the surrounding environment (see CEQA Guidelines, Section 15126.2[d]). Growth can be induced in a number of ways, including through the elimination of obstacles to growth or through the stimulation of economic activity within the region. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that induced growth is necessarily significant or adverse. Growth-inducing impacts associated with the proposed project would be considered to be any effects of the project allowing for additional growth or increases in population beyond that proposed by the project or anticipated in the project area. The proposed project would not create housing, which would directly affect growth-inducing factors and the project would not remove obstacles to growth within the area.

The proposed project would allow for mining of approximately 277 acres of the 319.3-acre project site thus ensuring continued availability of aggregate resources from local sources. Furthermore, the proposed project would maintain similar levels of employment as the Woodland Plant, the Esparto Plant, and the Schwarzgruber mining site. The Woodland Plant currently employees 28 staff to operate the site, and 24 already working at the Teichert Esparto site would be transferred. In other words, there would be no new jobs created by the proposed project. Continued employment of approximately 52 staff would not be growth inducing as those individuals are already residing and working in the area.

The proposed project is a continuation of Teichert's previous operations within the region. Teichert is proposing to transfer the annual production allotment from the Teichert Esparto operation to the Shifler site. Given that the proposed project would transfer the Teichert Esparto production to the Shifler site, the annual amount of mined aggregate would remain relatively similar. In addition, mining activities at the project site have been considered in the past and planned for most recently in the 2019 update to the Cache Creek Area Plan (CCAP). The CCAP Update FEIR included an analysis of growth-inducing impacts, including the potential for the CCAP to foster population

growth, eliminate obstacles to population growth, foster economic growth, and affect service levels, facility capacity, or infrastructure demand. The CCAP Update FEIR determined that the potential for environmental impacts to occur from increased employment, housing, and population growth would be less-than-significant. As demonstrated throughout the subject Teichert Shifler Draft EIR, the proposed project would be generally consistent with the CCAP and would accommodate growth consistent with local general plans and land use decisions. The proposed project is not driving or creating the demand for aggregate material. Rather, the proposed project is a result of the increased demand for aggregate in the region. As such, the proposed project is market driven and would not result in growth-inducing impacts.

5.3 REQUIRED FINDINGS

Per Section 15065(a)(a)(2) and (4) of the CEQA Guidelines, a proposed project is considered to have a significant effect on the environment therefore requires preparation of an EIR if there is substantial evidence, in light of the whole record, if any of the following conditions may occur:

- The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals; or
- The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

This EIR includes mitigation measures to reduce the severity of all identified environmental impacts to the maximum extent feasible. However, as summarized in Section 2.8 of this EIR, the proposed project would result in significant and unavoidable impacts related to the following issue areas: Agricultural Resources; Cultural and Tribal Cultural Resources; and Transportation and Circulation. Therefore, the proposed project has the potential to disadvantage long-term environmental goals.

Per Chapter 4.7, Hazards and Hazardous Materials, and Chapter 4.10, Noise, all impacts related to hazards, hazardous materials, and noise would be reduced to less-than-significant levels. Per Chapter 4.2, Air Quality, Greenhouse Gas Emissions, and Energy, impacts related to exposure of receptors to substantial pollutant concentrations would be less than significant. Thus, the environmental effects of the proposed project would not have the potential to cause substantial adverse effects on human beings.

5.4 CUMULATIVE IMPACTS

CEQA Guidelines, Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that adversely affect the environment. “Cumulative impacts” are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines, Section 15355). “[I]ndividual effects may be changes resulting from a single project or a number of separate projects” (CEQA Guidelines, Section 15355, subd. [a]). “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (CEQA Guidelines, Section 15355, subd. [b]).

The need for cumulative impact assessment reflects the fact that, although a project may cause an “individually limited” or “individually minor” incremental impact that, by itself, is not significant, the increment may be “cumulatively considerable,” and, thus, significant, when viewed together

with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines, Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). Accordingly, particular impacts may be less than significant on a project-specific basis but significant on a cumulative basis if their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable. However, it should be noted that CEQA Guidelines, Section 15064, Subdivision (h)(5) states, "[…] the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, even where cumulative impacts are significant, any level of incremental contribution is not necessarily deemed cumulatively considerable.

Section 15130(b) of CEQA Guidelines indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, but that analysis should reflect the severity of the impacts and their likelihood of occurrence, and that the analysis should be focused, practical, and reasonable. To be adequate, a discussion of cumulative effects must include the following elements:

> (1) Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are reference and made available for public inspection at a specified location;
>
> (2) A summary of the individual projects' environmental effects, with specific reference to additional information and stating where such information is available; and
>
> (3) A reasonable analysis of all of the relevant projects' cumulative impacts, with an examination of reasonable, feasible options for mitigating or avoiding the project's contribution to such effects (Section 15130[b]).

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130[c]). Section 15130(a)(3) states that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund the project's fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Cumulative Setting

The lead agency should define the relevant geographic area of inquiry for each impact category (id., Section 15130, subd. [b][3]), and should identify the universe of "past, present, and probable future projects producing related or cumulative impacts" relevant to the various categories, either through the preparation of a "list" of such projects or through the use of "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact" (id., subd. [b][1]).

The majority of the cumulative analyses for the proposed project presented within this chapter are based on implementation of the CCAP. The CCAP is a rivershed management plan adopted by Yolo County for 14.5 miles of Lower Cache Creek, located generally between an area just west

of the Capay Dam and the town of Yolo. The CCAP was adopted as a "specific plan" pursuant to Section 65450 et seq. of the California Government Code, and as a part of the County's General Plan.

Implementation of the CCAP, in combination with buildout of the County's General Plan, was evaluated in the CCAP Update FEIR. The CCAP Update FEIR is a program EIR, as defined per CEQA Guidelines Section 15168. Per Section 15168 of the CEQA Guidelines, a program EIR is one that may be prepared on a series of actions that can be characterized as one large project, and that are related: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar effects that can be mitigated in similar ways. Program EIRs help avoid duplicative analysis of CEQA issues associated with initial broad policy considerations, allowing the lead agency to consider broad policy alternatives and program-wide mitigation measures early in the decision-making process at a time when the agency has greater flexibility to deal with basic problems or cumulative impacts. The CCAP Update FEIR was intended to facilitate environmental review of subsequent in-channel and off-channel projects occurring within the CCAP area, consistent with CCAP policies and regulations, and within the planning horizon of the updated CCAP.

The proposed project would allow the Teichert Shifler operation to excavate a maximum of 2,588,237 tons mined (2.2 million tons sold) in any given year, provided that production over a consecutive 10-year period does not exceed 20 million tons sold (23,529,430 tons mined). Table 5-1 below provides a summary of the CCAP mining tonnages evaluated in the CCAP Update FEIR.[1] This table provides a summary of all extraction authorized to date, as well as assumed potential future extraction for purposes of cumulative impact analysis required under CEQA. This activity has and will occur over an extended period of time commencing in 1997, based on the length of the approved permits, caps on annual and overall extraction, and market conditions. As shown in Row 10 of Table 5-1, the CCAP Update FEIR assumed a total of 2,200,000 tons maximum of aggregate sold from the Shifler site, consistent the proposed project. Thus, the proposed project is included in the mining tonnages evaluated as part of the CCAP Update FEIR.

Because the proposed project is located within the CCAP area and is consistent with the CCAP, as shown in Figure 5-1, the proposed project was contemplated within the cumulative analysis provided in the CCAP Update FEIR. Thus, this Draft EIR relies on the CCAP Update FEIR for the purpose of satisfying the CEQA requirements for cumulative analysis.

[1] Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069.* December 2019.

Figure 5-1
Off-Channel Mining Plan Boundary

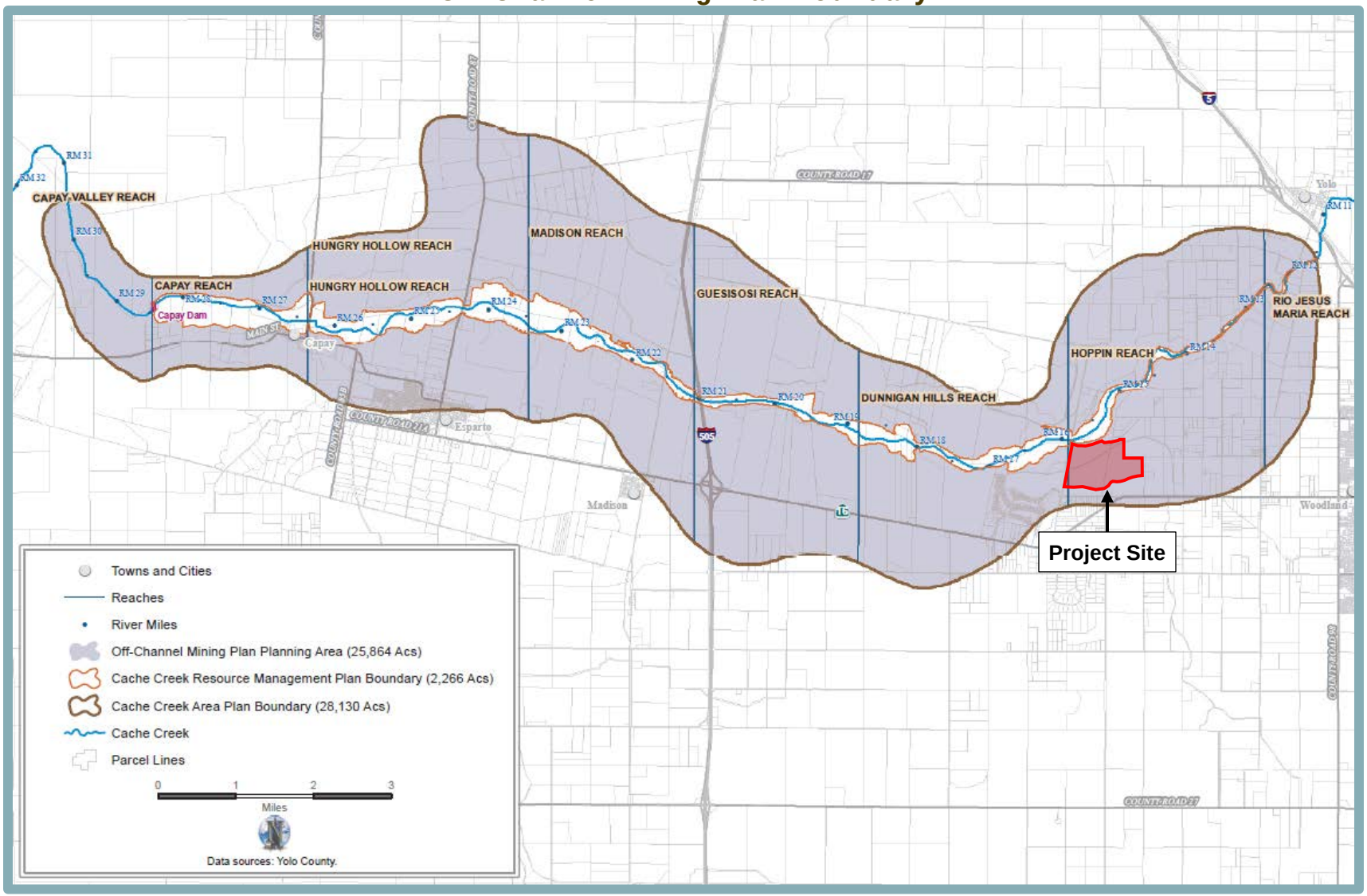


Table 5-1
Summary of CCAP Mining Tonnages

Ref #[1] / Site	Permit Approvals[2]					
	Annual Permitted		Annual 20% Exceedance[3]		Total Permitted[4]	
	Tons Sold	Tons Mined	Tons Sold	Tons Mined	Tons Sold[5]	Tons Mined[5]
1/CEMEX[6]	1,000,000	1,204,819	200,000	240,964	26.7	32.17
2/Granite Capay[7] / 3/Granite Esparto[8]	1,870,000	2,075,269	374,000	415,054	56.1	62.26
4/Granite Woodland[9]	Site reclaimed. Allocation of 420,000 tons mined (370,000 tons sold) annually transferred to Granite Esparto or Granite Capay site in 2011.[10]					
5/Syar	1,000,000	1,111,111	200,000	222,222	30.0	33.33
6/Teichert Esparto	1,000,000	1,176,471	None[11]	None[11]	22.0	25.88
7/Teichert Woodland	Allocation of 1,176,471 tons mined (1,000,000 tons sold) annually transferred to Teichert Schwarzgruber site upon cessation of mining.[12] Site undergoing reclamation.				15.2	17.88
8/Teichert Schwarzgruber	1,000,000[13]	1,176,471[13]	200,000[13]	235,295[13]	4.0[13]	4.65[13]
9/Original In-Channel Maintenance Extraction	180,000[14]	200,000[14]	N/A	N/A	9.9[15]	11.0[15]
Sub-Total Existing Conditions	**6,050,000**	**6,944,141**	**974,000[24]**	**1,113,535**	**163.9**	**187.2**
10/Proposed Teichert Shifler[16]	2,000,000	2,352,942	200,000	235,295	35.25[16]	41.6[16]
11/SGRO (Existing + 2019 CCAP)[17]	1,000,000[18]	1,100,000[18]	200,000[18]	220,000[18]	114.7[19]	124.4[19]
12/Proposed In-Channel Maintenance Extraction	621,720[20]	690,800[20,21]	N/A	N/A	12.53[21]	13.92[17,21]
Sub-Total Assumed Future Conditions	1,441,720[22]	1,590,800[22]	200,000	220,000	162.5	179.9
Total	**7,491,720[22]**	**8,534,941[22,23]**	**1,144,000[22]**	**1,333,535[22]**	**326.4**	**367.1**

1 Rows 1-9 reflect "existing" conditions" as analyzed and/or approved. Actual existing conditions are lower – see County tonnage records. Rows 10-12 comprise assumed future conditions.
2 Total allocated/approved by County under CCAP pursuant to approval of individual applications. See Development Agreements for project specific details unless otherwise footnoted.
3 In any given year, if exercised by Applicant. Must be approved by County pursuant to Mining Code Section 10-4.405.
4 This number is "as approved" – actual could be lower. This number will change as permits expire or are approved over time. Accurate as of table update date of Dec 19, 2018.
5 In million tons.
6 Previously Rinker, originally Solano.
7 Originally R.C. Collet aka Cache Creek Aggregates. Originally approved for 1,000,000 tons sold (1,075,269

Table 5-1
Summary of CCAP Mining Tonnages

tons mined) plus 20% exceedance of 200,000 tons sold (240,964 tons mined). Amended in 2011 as a part of the Granite Esparto approval to allow a combined total tonnage of 1,870,000 tons sold (2,075,269 tons mined) plus 20 percent exceedance of 374,000 tons sold (415,054 tons mined). Mining at Granite Esparto is precluded until mining at Granite Capay has ceased.

[8] A 30-year permit was approved November 8, 2011 for mining on 313 acres at Granite Esparto site. Mining at the site is precluded until mining at the Granite Capay site has ceased. Total tonnage allocation of 2,244,000 tons sold can be used at either site. The Granite Esparto application used all remaining Unallocated tonnage (505,859 tons mined; 500,000 tons sold) originally analyzed as part of cumulative conditions in the OCMP EIR.

[9] Between 1997 and 2001.

[10] This tonnage was identified in the OCMP but not the OCMP EIR.

[11] Not approved to utilize the 20 percent exceedance.

[12] Remaining 235,294 tons mined (200,000 tons sold) from Teichert Woodland approval relinquished.

[13] A 15-year permit was approved Nov 13, 2012 on 40.7 acres Teichert Schwarzgruber site. Mining precluded until mining at Teichert Woodland has ended.

[14] Not included in OCMP EIR and OCMP totals because authorization for this was provided through the Cache Creek Resource Management Plan (CCRMP) EIR and CCRMP.

[15] Cumulative total tonnage for which CEQA clearance was provided in 1996 Program EIR, OCMP DEIR, pages 3-22 and 3-23.

[16] Application received September 26, 2018 for 30-year permit to mine on 277 acres of a 319-acre site. Understood to reflect transfer of both Schwarzgruber plus Teichert Esparto tonnage which would zero out the annual permitted for both those operations in the chart (no change to the bottom line totals for those two columns), but would be additive to the Total Permitted.

[17] There are 1,001 acres countywide currently zoned Sand and Gravel Reserve Overlay (SGRO) for future mining. The 2019 update to the CCAP increased that area by 1,188 ac to a total of 2,189 acres. Currently mining is approved on 2,464 acres for a cumulative total of 187.2 million tons mined (see CCAP Update Figure 5, Past, Current, and Future Mining). The total SGRO land comprises 89 percent of the currently mined land. A conservative assumption for future mining is 89 percent of the currently approved total of 187.2 million tons mined, or 166 million new tons mined (149.4 mil tons sold).

[18] Assumes one new operation of an average size of approximately 440 acres with 1,100,000 annual tons mined at each and 1,000,000 annual tons sold (assumes 10% average waste). All other acreage/tonnage assumed to be brought online over time as currently approved mining sites are mined out. In other words, "new" acreage/tonnage is assumed to replace "old" acreage/tonnage, not be "in addition to".

[19] The 1,188 acres of new SGRO proposed in the CCAP Update includes the Shifler site. This number was developed several years prior to receipt of the Teichert Shifler application in 2018. The Teichert Shifler application is reflected separately in row 9. To avoid double counting of total tons mined, the Shifler tonnage has been backed out of the numbers in row 10. 166.0 mil tons mined – 41.6 mil tons mined = 124.4 mil tons mined. 150.0 mil tons sold – 35.3 mil tons sold = 114.7 mil tons sold.

[20] Reflects CCAP Update. In-Channel change from 210,000 (sometimes rounded to 200,000) to 690,800 tons mined (621,720 tons sold assuming 10% waste).

[21] In-channel removal assumptions based on sediment transport modeling undertaken for 2017 Technical Studies: In about 10 of the 50 years 690,800 tons (690,800 x 10 = 6.908,000). In about three of the 50 years twice that amount or 1,381,600 tons (1,381,600 x 3 = 4,144,800). In the remaining 37 years 77,542 tons (77,542 x 37 = 2,869,054). Total in-channel removal over 50 years 6,908,000 + 4,144,800 + 2,869,054 = 13,921,854.

[22] Column total minus Teichert Esparto, Teichert Schwarzgruber, and original in-channel acres.

[23] Includes 74,141 tons more than combined total of transferred Granite Woodland allocation (420,000 tons mined) plus Unallocated tonnage (505,859 tons mined) combined. The Unallocated tons mined number was a derived number – see 2009 version of this table in Granite Esparto DEIR (page 5-3).

[24] This sum was found to be incorrect following certification of the CCAP Update FEIR. The error related to corrections made to the Granite Esparto approved annual 20% exceedance amount of 174,000 tons sold in earlier versions of the table.

***Source: Yolo County, Cache Creek Area Plan Update, Final Environmental Impact Report, 2019,* as corrected by footnote 24.**

Cumulative Impacts and Mitigation Measures

The analysis chapters of this EIR (Chapters 4.1 through 4.12) describe the existing environmental setting, regulatory context, and impacts and mitigation measures for each CEQA issue area, while the Cumulative Impacts and Other Required Sections chapter of the EIR includes cumulative analyses as shown below.

5-1 Cumulative impacts to aesthetics. The project's incremental contribution to the cumulative impact is *less than cumulatively considerable*.

As described in the CCAP Update FEIR, the OCMP and supporting OCSMO include policies and ordinances minimize potential adverse effects on views and vistas from new off-channel mining projects. Specifically, Sections 10-4.429, 10-4.430, and 10-4.502 would help limit direct, close-range visual exposure of mining facilities and operations. In addition, as disclosed in the CCAP Update FEIR, future areas of new mining identified by the OCMP would be subject to site-specific CEQA review. The FEIR notes that the use of berms, vegetative screens, seeding, special plant materials, and contouring the sides and top surfaces of modified landforms, or other measures, may be incorporated into individual mine and reclamation plans, as appropriate, to limit changes to landform alterations from public viewpoints. With regard to light and glare, the CCAP Update FEIR determined that night lighting of mining facilities through the OCMP area and headlights of heavy equipment travelling around processing facilities and stockpiles could potentially affect nearby sensitive receptors, depending on their proximity to the light sources. The OCMP and supporting OCSMO include policies and ordinances that address and minimize adverse effects of night lighting by controlling spillover light and ensuring that night lighting does not extend to public areas or adjacent properties, and would keep new facilities a sufficient distance from potential sensitive receptors. In addition to Section 10-4.429(a) of the OCSMO requires setbacks for mining and processing activities. Section 10-4.420 of the OCSMO specifically addresses lighting by requiring that all lighting used in off-channel mining operations be arranged and controlled so as not to illuminate public rights-of-way or adjacent properties. However, given the subjective nature of visual impacts and the fact that the CCAP Update included an overall increase in acreage identified for future off-channel mining, cumulative impacts to aesthetics were determined to be cumulatively considerable, and significant and unavoidable, over the entire plan area and plan horizon. The proposed project is consistent with the CCAP.

Implementation of the proposed project would change the visual character of the project site from agricultural land to mining operations. As mining is completed in an area of the site, reclamation would be initiated as soon as possible, which would limit the total amount of disturbed area at any one time. As discussed under Impact 4.1-1 of this EIR, the proposed project would not result in substantial degradation of the visual character and quality of the project area. Based on the visual analysis performed in this chapter, the key viewpoints of the project site were determined to have moderate/average visual quality. Furthermore, given that the proposed project would occur for the 30-year term of the permit, after which time the site would be reclaimed as a lake and agricultural land, implementation of the proposed project, including associated issues related to degradation of visual character and quality, would not result in permanent adverse effects. As discussed under Impact 4.1-2 of this EIR, the



proposed project would not result in a significant project-level impact related to the creation of new sources of light and glare given compliance with OCSMO standards. The proposed project would be subject to compliance with Section 10-4.420 of the OCSMO. Furthermore, mining operations would primarily take place during the day resulting in minimal light pollution during the evening hours.

This Draft EIR does not identify any project-level significant impacts related to substantially degrading the visual character or quality of the area or resulting in substantial new sources of light and glare at nearby receptors. Based on the above, the project's incremental contribution to the cumulative impact would be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

5-2 Cumulative impacts to farmland. The project's incremental contribution to the cumulative impact is *cumulatively considerable*.

The CCAP Update FEIR analyzed the potential for implementation of the CCAP to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), to non-agricultural use. As noted in the CCAP Update FEIR, OCMP Action 5.4-7 identifies "reclamation to viable agricultural uses" as the highest priority land use for reclamation under the CCAP. In some situations, reclaimed agricultural soils can be higher quality than the original soils as a result of mixing and amendments of the final soils layers. However, because the effect of mining is a net loss in soil/minerals as the minable sand and gravel is removed, processed, and sold from a particular site, not all land at any given mining site can be reclaimed to agriculture. Due to lack of suitable material to fill in mined areas and other constraints, some lands will be reclaimed to native habitat, and public recreation/and open space uses. The CCAP Update FEIR concluded that implementation of applicable CCAP regulations, including Section 10-5.525 of the SMRO, would help to reduce potential impacts. However, even with such regulations, cumulative impacts to farmland were determined to remain significant and unavoidable.

Development of the proposed project would result in impacts to 267.5 acres of Prime Farmland, 8.25 acres of Unique Farmland, and 0.5 acres of Farmland of Statewide Importance (see Impact 4.2-1 of this EIR) for a total impact of 276.25 acres. Upon completion of the proposed mining activities, the proposed project would reclaim 116.7 acres of land to Prime Farmland for a net permanent impact of 159.6 acres. Mitigation Measure 4.2-1 requires the applicant to mitigate for loss of agricultural resources at a 1:1 ratio (minimum), consistent with SMRO standards, and identifies additional mitigation required in the form of agricultural easements or other public benefits identified in Section 10-5.525 of the SMRO. Because the proposed project would result in a net loss of on-site farmland, project-level impacts regarding the conversion of agricultural land to non-agricultural uses were determined to remain significant and unavoidable.

Therefore, the project's incremental contribution to the cumulative loss of agricultural land would be considered ***cumulatively considerable and significant and unavoidable***.

Mitigation Measure(s)
Implement Mitigation Measure 4.2-1.

5-3 Cumulative impacts to air quality. The project's incremental contribution to the cumulative impact is *less than cumulatively considerable.*

Issues related to air quality are, by nature, cumulative. Specifically, emissions of criteria pollutants from a given project, in combination with other proposed and pending projects in the region, have the potential to significantly contribute to air quality effects within the Sacramento Valley Air Basin (SVAB), resulting in an overall significant cumulative impact. This impact is addressed in Chapter 4.3 of this EIR, see Impact 4.3-6. Cumulative impacts were found to be less than cumulatively considerable.

Mitigation Measure(s)
None required.

5-4 Cumulative greenhouse gas emissions. The project's incremental contribution to the cumulative impact is *less than cumulatively considerable.*

Issues related to Greenhouse Gas (GHG) emissions are, by nature, cumulative. Specifically, emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). This impact is addressed in Chapter 4.3 of this EIR, see Impact 4.3-7. Cumulative impacts were found to be less than cumulatively considerable.

Mitigation Measure(s)
None required.

5-5 Cumulative impacts to energy. The cumulative impact is *less than significant.*

The CCAP Update FEIR analyzed potential impacts related to energy efficiency associated with implementation of the CCAP. As noted in the CCAP Update FEIR, energy would be used in the form of fossil fuels and electricity during the in-channel material removal and off-channel mining operations under the CCAP Update. However, the CCAP Update FEIR noted that it is in the mining operators' interests to minimize the costs of operations by conserving fossil fuels and electricity required during mining operations. In addition, existing regulations require the proper maintenance and tuning of diesel engine driven equipment (Section 10-3.408 of the In-Channel Ordinance) and limit on idling time (Section 10-4.415 of the OCSMO) which

would encourage efficient use of fuel. Furthermore, protection of lands containing identified mineral deposits from the encroachment of incompatible land uses would allow aggregate resources to remain available for future use, and thereby reduce transportation energy use requirements. The CCAP does not conflict with adopted goals, policies, actions, and measures related to energy conservation in the General Plan or the County CAP. Therefore, the CCAP Update FEIR concluded that implementation of the CCAP would not result in energy resources being used in a wasteful, inefficient, or unnecessary manner, and a less-than-significant cumulative impact would occur. The proposed project is consistent with the CCAP.

As discussed in Impacts 4.3-4 and 4.3-5 of this EIR, all of the off-road equipment operated as part of the project would be subject to the In-Use Off-Road Diesel Vehicle Regulations, which require strict emissions reductions into the future. Emissions reductions are often achieved through the re-powering of equipment with higher tier engines, which emit fewer emissions, partially through increased fuel efficiency. With regard to electricity, the project applicant has previously installed a photovoltaic renewable energy system at the Woodland Plant, which would continue to provide electricity to the Woodland Plant with implementation of the proposed project. The provision of on-site renewable energy systems represents an efficient means of meeting the project's electricity demand. Moreover, per OCSMO 10-4.407, the proposed conveyor system would be electrically powered, which would provide a more efficient source of energy as compared to diesel powered conveyor systems. The on-site photovoltaic system would continue to support the County's CAP goal of reducing GHG emissions from electricity through increased reliance on renewable energy. Thus, the proposed project would not create a new significant cumulative impact beyond what was analyzed in the CCAP Update FEIR.

Based on the above, a ***less-than-significant*** cumulative impact would occur related to energy.

Mitigation Measure(s)

None required.

5-6 Cumulative impacts to biological resources. The project's incremental contribution to the cumulative impact is *less than cumulatively considerable.*

As discussed previously, the project site would be required to obtain coverage under the Yolo HCP/NCCP, remit payment of applicable HCP/NCCP fees, and implement Yolo HCP/NCCP AMMs. Payment of HCP/NCCP development fees by the proposed project, in combination with fee payment from other cumulative development in the Yolo HCP/NCCP Permit Area, would ensure that cumulative habitat loss of the 12 covered species would be mitigated through the protection of similar habitat elsewhere in the Yolo HCP/NCCP Permit Area. The protections for these species have co-benefits for other species in the County.

The CCAP Update FEIR concluded that other potential cumulative impacts to biological resources associated with implementation of the CCAP would be reduced to less-than-significant levels, with compliance with the regulations included in the

OCMP and the SMRO, as well as required coverage under the Yolo HCP/NCCP. As demonstrated in this EIR, the proposed project would comply with all applicable County regulations related to biological resources, and would be consistent with the CCAP. Furthermore, this EIR includes additional project-specific mitigation measures to ensure that impacts to biological resources are less-than-significant. Therefore, cumulative impacts to biological resources would be ***less than significant***.

Mitigation Measure(s)
None required.

5-7 Cumulative impacts to cultural and tribal cultural resources. The cumulative impact is *less than significant.*

As described in the CCAP Update FEIR, future mining occurring with the OCMP area would be subject to General Plan policies and OCSMO regulations related to preservation of cultural resources, including OCSMO Sections 10-4.410 and 10-4.502. As individual projects are proposed within the Cache Creek corridor that might affect tribal cultural resources, General Plan Policy CO-4.12 requires development projects to work with culturally affiliated tribes to identify and address tribal sacred sites, and Actions CO-A63, COA64 and CO-A69 require review of project areas with the NWIC, the development of a cultural resources inventory and mitigation plan, if necessary, to protect resources before issuance of permits and consultation with affiliated tribes in archaeologically sensitive areas. Action CO-A65 as well as Section 10-3.404 of the In-Channel Ordinance and Section 10-4.410 of the Mining Ordinance identify actions to be taken should tribal cultural resources be identified (including human remains) prior to any groundbreaking activities and during in-channel and off-channel activities. Action CO-A70 requires referral of draft environmental documents to the appropriate culturally-affiliated tribes for review and comment as part of the public review process. Given compliance with the aforementioned policies, actions, and regulations, the CCAP Update FEIR concluded that implementation of the CCAP would result in less-than-significant cumulative impacts to cultural and tribal cultural resources. The proposed project would be consistent with the CCAP.

Per Impact 4.5-1 in this EIR, implementation of Mitigation Measure 4.5-1 would ensure that potential impacts related to relocation of the Moore Canal as part of the proposed project would be reduced to the maximum extent feasible. In addition, compliance with OCSMO Section 10-4.410 would ensure that impacts to archaeological resources and human remains would be less than significant. The project site does not contain any cultural resources that represent the last known example of their kind. While the proposed project could result in a significant and unavoidable impact related to relocation of the Moore Canal within the project site, the broader reaches of Moore Canal beyond the project site boundaries continue to function as working infrastructure and have been subject to heavy modification. Thus, relocation of the canal as part of the proposed project would not create a new significant cumulative impact beyond what was analyzed in the CCAP Update FEIR.

Based on the above, a ***less-than-significant*** cumulative impact would occur related to cultural resources.

Mitigation Measure(s)
None required.

5-8 Cumulative increase in the potential for impacts to geology and soils, mineral resources, and paleontological resources. The cumulative impact is *less than significant*.

The CCAP Update FEIR concluded that implementation of the CCAP would result in less-than-significant cumulative impacts related to geology and soils, mineral resources, and paleontological resources given compliance with applicable CCAP policies and regulations, including OCSMO Section 10-4.410. The proposed project would be consistent with the CCAP.

Existing geological and soil conditions on the site would be adequate to support mining and reclamation of the project site. In addition, all recommendations in the Slope Stability Evaluation prepared for the proposed project would be incorporated to mitigate any potential impacts. While some geologic characteristics may affect regional construction practices, impacts and mitigation measures are primarily site-specific and project-specific. The soil conditions, and the implications of such conditions on any given site are independent. Although the proposed project could result in adverse impacts to paleontological resources, mitigation has been included that would require a protocol for discovery of any resources. Any potential impacts resultant of the proposed project would only affect undiscovered paleontological resources located at the project site.

Based on the above, cumulative impacts related to geology, soils, seismicity, mineral resources, and paleontological resources would be ***less than significant*** with implementation of the proposed project.

Mitigation Measure(s)
None required.

5-9 Cumulative exposure to potential hazards and increases in the transport, storage, and use of hazardous materials. The cumulative impact is *less than significant*.

The CCAP Update FEIR acknowledges that projects occurring under the CCAP may require routine storage of petroleum, lubricants, and other hazardous materials in drums or above ground storage tanks for fueling and maintenance activities. However, the CCAP Update FEIR notes that future off-channel mining projects would be required to comply with various OCSMO regulations related to hazards, including OCSMO Sections 10-4.403 and 10-4.415. The CCAP Update FEIR concluded that, with compliance with applicable regulations, implementation of the CCAP would result in less-than-significant cumulative impacts to hazards and hazardous materials. The proposed project would be consistent with the CCAP. Per Chapter 4.7, Hazards and Hazardous Materials, of this EIR, project-specific impacts related to hazards and hazardous materials were found to be less than significant with implementation of mitigation. Such mitigation would address all existing hazards identified on the project site, and the project would not result in the introduction of new substantial hazards to

the project area. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by other development within the project area.

Cumulative development projects and other operations within Yolo County would be subject to the same federal, State, and local hazardous materials management requirements as the proposed project, which would minimize potential risks associated with increased hazardous materials use in the community. Therefore, cumulative impacts associated with hazardous materials transport, storage, and use associated with implementation of past, present, and reasonably foreseeable future projects, as well as the proposed project, would be ***less than significant***.

Mitigation Measure(s)

None required.

5-10 Cumulative impacts related to the violation of water quality standards or waste discharge requirements, groundwater quality, management, and recharge, and impacts resulting from the alteration of existing drainage patterns. The project's incremental contribution to the significant cumulative impact is *less than cumulatively considerable*.

The cumulative setting for impacts related to hydrology and water quality is buildout of the County's General Plan and the CCAP, to the extent that such plans include new development and/or mining activities within the Cache Creek watershed. Impacts related to stormwater quality, groundwater, and drainage patterns are discussed separately below.

Stormwater Quality

The CCAP Update FEIR notes that off-channel activities conducted under the CCAP could violate water quality standards (i.e., adversely affect water quality in the wet pits and adjacent groundwater) in the off-channel area if mining operations resulted in the discharge of contaminants to downstream waterways. However, the CCAP Update FEIR concluded that with compliance with County ordinances related to water quality, implementation of the CCAP would result in a less-than-significant cumulative impact related to violation of water quality standards or otherwise degrading surface water or groundwater quality. Such regulations include, but are not limited to, the following: OCSMO Sections 10-4.413, 10-4.415, 10-4.417, 10-4.427, 10-4.437, and 10-4.438; and SMRO Sections 10-5.510 and 10-5.517. The proposed project would be consistent with the CCAP and the above noted regulations.

Construction activities have the potential to affect water quality and contribute to localized violations of water quality standards if stormwater runoff from ground-disturbing activities enters receiving waters. Runoff from additional construction or mining sites within the project area could carry sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products, which could result in water quality degradation if runoff containing such sediment or contaminants should enter receiving waters in sufficient quantities.

Based on the above, ground-disturbing activities associated with the proposed project, in combination with construction activities associated with other reasonably foreseeable projects in the Cache Creek watershed, could result in cumulative impacts related to water quality. However, all construction projects resulting in disturbance of more than one acre of land are required to comply with the most current Construction General Permit requirements. Conformance with the Construction General Permit would require preparation of SWPPPs for all such projects, and subsequent implementation of BMPs to prevent the discharge of pollutants. Considering the existing permitting requirements for construction activity in the project area, cumulative construction within the Cache Creek watershed would be heavily regulated and impacts related to the degradation of water quality would be minimized to the extent feasible.

Furthermore, similar to the proposed project, any other mining or reclamation activities occurring under the CCAP would be subject to compliance with applicable regulations in the OCSMO and the SMRO related to water quality, including those listed above. Thus, urban pollutants entering and potentially polluting the local drainage system would not be expected to occur as a result of the project. The project would be subject to NPDES Industrial General Permit requirements, including implementation of BMPs and preparation of a site-specific SWPPP. Cumulative development projects within the project area would also be subject to all County requirements related to stormwater treatment and control. Compliance with the foregoing regulations would ensure that cumulative impacts related to the alteration of drainage patterns, the discharge of pollutants, and flooding are minimized to the extent feasible.

Groundwater

The CCAP Update FEIR concluded that given compliance with applicable regulations from the OCSMO and SMRO, including Section 10-5.530 related to maintaining steep slopes below the groundwater table in mining wet pits, a less-than-significant impact would occur to groundwater. Per the CCAP Update FEIR, steeper slopes within mining pits discourage "clogging" of the aquifer and encourage the free flow of groundwater into and out of the wet pit lakes.

The proposed project is consistent with the CCAP and would comply with all applicable policies and regulations related to groundwater. Furthermore, the project site itself would continue to provide for groundwater recharge, both during mining activities and upon completion of reclamation. As discussed under Impact 4.8-2, the proposed project would not substantially decrease groundwater levels at active off-site wells within 1,000 feet of the proposed mining pit or result in substantial adverse effects to groundwater levels at either of the Wild Wings subdivision wells. In addition, the project would not adversely affect groundwater quality. Thus, the proposed project, in combination with cumulative development within the region, would not result in a significant cumulative impact to groundwater recharge.

Drainage Patterns

The CCAP Update FEIR notes that off-channel mining activities associated with new mining areas identified in the CCAP would be located outside of the 100-year floodplain associated with Cache Creek. Furthermore, Section 10-4.416 of the OCSMO requires that all off-channel mining operations be provided with a minimum



100-year flood protection. Thus, the CCAP Update FEIR concluded that mining activities that could include modification of the topography and construction of facilities would not impede or redirect flood flows, and a less-than-significant impact would occur.

The proposed project would not include the discharge of stormwater runoff to Cache Creek and, thus, would not have the potential to result in off-site flooding hazards due to increased stormwater flows to the creek. All stormwater runoff would flow to the proposed wet pit. While other cumulative development within the Cache Creek watershed could result in the creation of impervious surfaces, potentially increasing the rate or volume of stormwater entering Cache Creek, such effects would occur independently of the proposed project, and would not be exacerbated by the proposed project. Consequently, the proposed project would not result in a cumulatively significant impact to drainage patterns in the drainage shed.

Conclusion

As discussed throughout this chapter, implementation of the proposed project would include BMPs to minimize the potential for the proposed project to result in impacts related to hydrology and water quality. Furthermore, the proposed project would comply with all applicable standards and regulations included in the CCAP related to hydrology and water quality. Given that the proposed project is consistent with the CCAP and all project-level impacts would be mitigated to less-than-significant levels, the project's incremental contribution to the significant cumulative impact would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

5-11 Cumulative land use impacts. The cumulative impact is *less than significant*.

The CCAP Update FEIR also evaluated cumulative land use impacts related to implementation of the CCAP. The Initial Study prepared for the CCAP Update FEIR stated that the CCAP is consistent with the County General Plan and Zoning Code, and no conflicts were identified with other land use plans or regulations. The Initial Study concluded that no impact would occur with regard to land use and planning issues.

The project site is located within the boundaries of the CCAP and the proposed project would be consistent with the CCAP, including all applicable OCMP policies and applicable OCSMO and SMRO regulations. As discussed in Chapter 4.9, Land Use and Planning, the proposed project would not result in significant project-level impacts related to land use and planning. Thus, the cumulative impact to land use and planning would be ***less than significant*** with implementation of the proposed project.

Mitigation Measure(s)

None required.

5-12 Generation of a substantial permanent cumulative increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The project's incremental contribution to the cumulative impact is *less than cumulatively considerable.*

Per the CCAP Update FEIR, new off-channel mining operations within the OCMP area would generate new trucks trips on the County roadway network. The CCAP Update FEIR concluded that because a cumulative impact was identified in the General Plan EIR, the noise contribution from the off-channel mining that could occur under the CCAP could result in a cumulatively considerable and significant and unavoidable impact related to noise.

To assess noise impacts due to project-related traffic increases on the existing local roadway network, noise levels have been calculated for the Cumulative Plus Project condition along local roadways. Traffic noise occurring under the Cumulative Plus Project condition was modeled with the FHWA model using the assumptions discussed under the Method of Analysis section in Chapter 4.10 of this EIR. Table 5-2 displays the predicted noise level estimates at a distance of 50 feet from the roadway centerlines for Cumulative No Project and Cumulative Plus Project conditions. Cumulative no project conditions consist of future traffic volume increases on the local roadway network which will occur over time with the growth in the region plus currently permitted Teichert Woodland Plant production of 1.2 million tons per year.

Table 5-2
Cumulative Plus Project Traffic Noise Levels

Roadway	Segment	Noise Level (L_{dn}, dB) at 50 Feet from Roadway Centerline			
		Cumulative No Project	Cumulative Plus Project	Change	Substantial Increase?
CR 20	Woodland Entrance – CR 96	65.4	69.6	4.2	No
CR 20	CR 96 – CR 98	67.7	70.3	2.7	No
CR 98	I-5 – CR 20	69.0	71.3	2.2	No
CR 96	CR 20 – SR 16	64.9	67.0	2.0	No
SR 16	West of I-505	73.1	73.2	0.1	No
SR 16	I-505 – CR 94B	73.2	73.6	0.4	No
SR 16	CR 94B – CR 96	72.9	73.3	0.5	No

Source: Bollard Acoustical Consultants, Inc., 2020.

As shown in the table, noise levels at existing residential receptors would continue to exceed the City's 60 decibel (dB) exterior noise level threshold along a majority of the study roadway segments. However, the noise level increases projected to occur under Cumulative Plus Project conditions would be below the 5.0 dB threshold established by the County's OCSMO. In addition, traffic noise levels along County Road 19 and County Road 19A in the vicinity of the Esparto Plant would decrease as a result of shifting the production allotment from the Esparto Plant to the Woodland Plant. The shift would decrease haul truck traffic along County Road 19 and County Road 19A.

Based on the above, the project's incremental contribution to cumulative traffic noise impacts along local roadways would be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

5-13 Cumulative impacts to public services, utilities, and service systems. Based on the analysis below, the cumulative impact is *less than significant*.

The CCAP Update FEIR concluded that while off-channel mining projects could incrementally increase fire hazards associated with operation of heavy-duty mining equipment, impacts related to fire protection services would be less than significant. Furthermore, the CCAP Update FEIR concluded that the Cache Creek corridor is already patrolled by the Yolo County Sheriff's Department, and future mining projects would not result in a significant newt change in the need for police protection. Because implementation of the CCAP would not include construction of any housing, the CCAP Update FEIR concluded that significant impacts to schools and other public services would not occur. With regard to utilities and service systems, as noted in the Initial Study prepared for the CCAP Update FEIR, future mining projects occurring pursuant to the CCAP would not result in substantial water demands, would not require connection to public stormwater or sewer infrastructure, and would not generate substantial quantities of solid waste. The CCAP Update FEIR Initial Study concluded less-than-significant impacts or no impact would occur related to utilities and service systems. The proposed project would be consistent with the CCAP.

The relevant CEQA threshold for public services is whether new or physically altered public services facilities are needed to meet response times or other performance objectives, the construction of which could cause environmental impacts. An increase in demand for service that does not result in the construction or expansion of new facilities would not necessarily cause a significant impact.

As discussed in Chapter 4.11 of this EIR, mining is an allowed use on the site and, therefore, by definition, has already been factored into service considerations and planning for fire and police protection. Fire and police protection service demand of the proposed project would not differ materially from the existing demand associated with the site or from the levels anticipated for the site per the CCAP Update FEIR. Upon completion of mining operations, approximately 117 acres of the mining area would be reclaimed to agricultural use, while the remainder of the mining area would be reclaimed to a lake, with riparian woodland along the fringes/shoreline. The reclaimed uses would result in a similar demand for fire and police protection services to existing conditions. Furthermore, the proposed project would not induce population growth. Thus, the project would not likely result in an increased need for fire or police protection services, schools, or other public facilities such that new or expanded facilities would be required.

Water supplies for the proposed project would be provided by the County. As discussed under Impact 4.11-3 of this EIR, as is currently the case for the Teichert Schwarzgruber mining operations, water for aggregate processing and dust

suppression at the project site would be supplied by two wells at the Woodland Plant site and groundwater from the proposed mining pit. The existing off-site wells would be sufficient to supply water to the site. Based on historical data and modeled predictions, the project would not deplete groundwater supplies during stable, drier, or wetter climatological periods. Additionally, based on modeling of groundwater conditions in the project vicinity, the proposed project would not substantially lower groundwater levels at any active water wells within 1,000 feet of the project site. As such, the project's incremental contribution to cumulative impacts related to water supplies would not impact development within other areas of the County. The project would provide portable toilets on-site and would not require connection to any public sewer infrastructure. Environmental effects associated with the construction of new or expanded electricity and natural gas facilities would primarily be project-specific, rather than cumulative. Furthermore, substantial extension of existing off-site infrastructure would not be required.

Based on the above, a ***less than significant*** cumulative impact would occur related to public services, utilities, and service systems.

Mitigation Measure(s)
None required.

5-14 Cumulative impacts to transportation and circulation. The project's incremental contribution to the cumulative impact is *cumulatively considerable*.

Per Section 10-of the OCSMO, applications for new off-channel mining facilities within the OCMP would be required to include a traffic analysis to evaluate the impacts of proposed haul routes on the operations of County roads and State highways. Furthermore, the CCAP Update FEIR states that minimization of aggregate truck trips is a fundamental consideration in implementation of the CCAP. The CCAP Update FEIR notes that by ensuring a local source of aggregate, Yolo has maximized the opportunity to reduce mining truck traffic in the County, thereby reducing vehicle miles travelled (VMT). The CCAP Update FEIR concluded that with implementation of applicable OCSMO standards, including Sections 10-4.402, 10-4.408, 10-4.409, 10-4.419, and 10-4.502, impacts to transportation and circulation would be less than significant. The proposed project is consistent with the CCAP.

The Existing Plus Project and Cumulative Plus Project conditions evaluated in the Transportation Impact Assessment (TIA)[2] and Vehicle Miles Travelled Impact Evaluation (VMT Memo)[3][4] prepared for the project by Fehr & Peers (see Appendix M), confirm that travel characteristics associated with the proposed project would not materially alter the project's effect on surrounding transportation system operating conditions or performance related to bicycle facilities, pedestrian facilities, transit facilities and services, and emergency vehicle access. Therefore, the proposed project

[2] Fehr & Peers. *Shifler Mining and Reclamation Project Traffic Impact Study.* August 2018.
[3] Fehr & Peers. *Shifler Mining Project Vehicle Miles Traveled Impact Evaluation.* February 4, 2020.

would not result in a considerable contribution to cumulative impacts on the topics listed above beyond the impacts evaluated in Chapter 4.12 of this EIR.

However, Impact 4.12-2 identifies a significant and unavoidable impact related to VMT. The conclusions of the VMT discussion provided under Impact 4.12-2 would not change under Cumulative Plus Project conditions. Specifically, the VMT associated with the proposed project is a function of the total amount of aggregate sold annually (i.e., the number of haul trucks generated annually), and the haul trip lengths would not be altered by new development potentially occurring within the region. Given that VMT increases resulting from the proposed project would not serve to maintain or lower the VMT in the region, cumulative impacts to transportation and circulation would remain ***cumulatively considerable and significant and unavoidable*** with implementation of the proposed project.

Mitigation Measure(s)

Implement Mitigation Measure 4.12-2

5.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines mandate that an EIR address significant irreversible environmental changes that would result if the proposed project were implemented (CEQA Guidelines, Section 15126.2[c]). An impact would fall into this category if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing of the proposed consumption of resources is not justified (e.g., the project involves a wasteful use of energy).

The CCAP Update FEIR examined significant irreversible changes that would result from continued implementation of the CCAP with projects such as the proposed Teichert Shifler project. The proposed project would likely result in, or contribute to, the following significant irreversible environmental changes:

- Mining of a non-renewable local resource;
- Irreversible consumption of energy and natural resources associated with the proposed excavation;
- Permanent conversion of approximately 159.55 acres of Farmland to reclaimed lake, habitat, and open space (of the total 276.25 acres of agricultural resources impacted by mining, 116.7 acres would be reclaimed to Prime Farmland); and
- Relocation of a segment of the Moore Canal that bisects the project site.

6. Alternatives Analysis

6. ALTERNATIVES ANALYSIS

6.1 INTRODUCTION

The Alternatives Analysis chapter of the EIR includes consideration and discussion of a range of reasonable alternatives to the proposed project, as required per CEQA Guidelines Section 15126.6. This chapter includes discussions of the following: the purpose of an alternatives analysis; alternatives considered but dismissed; reasonable range of project alternatives and their associated impacts in comparison to the proposed project's impacts; and the environmentally superior alternative.

6.2 CEQA REQUIREMENTS FOR ALTERNATIVES ANALYSIS

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to "[…] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Section 15126.6(f) of CEQA Guidelines states, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." Section 15126.6(f) of CEQA Guidelines further states:

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In addition, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained" and/or "implementation is remote and speculative."

The CEQA Guidelines provide the following guidance for discussing alternatives to a proposed project:

- An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6[a]).
- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable

of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6[b]).

- The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination […] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section 15126.6[d]).
- If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (CEQA Guidelines Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section 15126.6[e][1]).
- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Project Objectives

Based on the above, reasonable alternatives to the project must be capable of feasibly attaining most of the basic objectives of the project. The following objectives have been submitted by the project applicant:

1. Permit an additional 277± acres of permitted mining area with approximately 35.25 million tons sold (41.6 million tons mined) of Portland Cement Concrete (PCC) grade aggregate reserves for mining and processing at Teichert's Woodland Plant for a period of 30 years;
2. Extend the life of the existing Woodland Plant consistent with the requested 30-year life of the Shifler mining permit and allow the facility to continue to operate as needed to meet market demand;
3. Allow Teichert to transfer the Esparto Plant's current annual permitted volume of 1 million tons sold (1.18 million tons mined) to the Woodland Plant once mining is complete at Esparto or the Esparto permit expires, whichever occurs first;
4. Ensure that irrigation water deliveries in Moore Canal are not affected by the proposed project;
5. Reclaim the mined land to agriculture and a mix of habitat uses, including pond, grassland, riparian woodland, and native landscape, in accordance with the requirements of the Surface Mining and Reclamation Act (SMARA), the Yolo County Off-Channel Mining Plan

(OCMP), Off-Channel Surface Mining Ordinance (OCSMO), and Surface-Mining Reclamation Ordinance (SMRO).

6.3 SELECTION AND ANALYSIS OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained, while reducing the magnitude of, or avoiding, one or more of the environmental impacts of the proposed project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the CEQA Guidelines require the EIR to "set forth only those alternatives necessary to permit a reasoned choice." As stated in Section 15126.6(a), an EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. The CEQA Guidelines provide a definition for "a range of reasonable alternatives" and thus limit the number and type of alternatives that may need to be evaluated in a given EIR. According to the CEQA Guidelines Section 15126.6(f):

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

Alternatives in an EIR must be feasible. In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Finally, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

Alternatives Considered in the EIR

In light of the requirements of CEQA, the following alternatives to the proposed project were identified and considered:

1. No Project Alternative
2. Off-Site Alternative
3. Reduced Tonnage Alternative
4. Moore Canal Avoidance Alternative
5. Moore Canal Southern Alignment Alternative
6. Mining Setback 700-Feet from Creek Alternative

As described further below, the first five of these were found to be appropriate for further consideration and analysis. Alternative 6 was considered but rejected from further analysis based on the information provided below.

Alternatives Dismissed From Further Analysis

Consistent with CEQA, primary consideration was given to alternatives that could reduce significant impacts, while still meeting most of the basic project objectives.

As stated in Guidelines Section 15126.6(c), among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

(i) failure to meet most of the basic project objectives,
(ii) infeasibility, or
(iii) inability to avoid significant environmental impacts.

Regarding item (ii), infeasibility, among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

The Mining Setback 700-Feet from Creek Alternative was considered but dismissed from detailed analysis in this EIR. The reason(s) for dismissal, within the context of CEQA Section 15126.6(c) summarized above, are provided below.

Mining Setback 700 feet from Creek Alternative

The Mining Setback 700 feet from Creek Alternative would maintain a 700-foot setback between Cache Creek and the northern limits of mining activities on the site. In addition, the southern limits of the mining activities associated with the alternative would not extend south further than the existing Storz mining site to the east, thereby maintaining an approximately 1,600-foot setback from County Road 22. The total site acreage under the Alternative would be approximately 134.0 acres, a reduction of 185.3 acres relative to the proposed project. The limits of the mining area associated with this alternative are shown in Figure 6-1 below.

Under the Mining Setback 700 feet from Creek Alternative, the total tonnage of aggregate mined over the lifetime of the Mining Permit would be reduced relative to the proposed project. However, a similar amount of material would be mined and sold during each year of operations. Thus, daily truck trips associated with the Mining Setback 700 feet from Cache Creek would be similar to the proposed project. In addition, the Alternative would require relocation of Moore Canal. The Mining Setback 700 feet from Creek Alternative would include reclamation of the mined portions of the site to agriculture, lake, and open space uses.

Because the total tonnage of aggregate mined at the project site would be substantially reduced, the Alternative would only partially meet Objective #1. In addition, the operational lifespan of the Woodland Plant would be shortened relative to approval of the proposed project, as a smaller amount of mined aggregate would be available to supply the facility. Thus, Objective #2 would be partially met. The remaining project objectives would be met under the Alternative.

This alternative would not achieve reduction of significant impacts related to setbacks from existing residential development to the south and southwest. In addition, the alternative would significantly reduce the tonnage requested in Objective #1 and the alternative would still require relocation of the Moore Canal. Therefore, the significant and unavoidable impact associated with the canal would remain. Given these reasons and the fact that a Reduced Tonnage Alternative is already being evaluated in this chapter, the Mining Setback 700 feet from Creek Alternative is hereby dismissed from further review.

Alternatives Evaluated in this EIR

The following alternatives are evaluated in this section:

1. No Project Alternative;
2. Off-Site Alternative;
3. Reduced Tonnage Alternative;
4. Moore Canal Avoidance Alternative; and
5. Moore Canal Southern Alignment Alternative.

Each of the project alternatives is described in detail below, with a corresponding analysis of each alternative's consistency with the project objectives and evaluation of impacts to the existing environment in comparison to the proposed project's identified impacts. While an effort has been made to include quantitative data for certain analytical topics, where possible, qualitative comparisons of the various alternatives to the project are primarily provided. Such an approach to the analysis is appropriate as evidenced by CEQA Guidelines Section 15126.6(d), which states that the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. The analysis evaluates impacts that would occur with the alternatives relative to the significant impacts identified for the proposed project. When comparing the potential impacts resulting from implementation of the foregoing alternatives, the following terminology is used:

- "Fewer" = Less than Proposed Project;
- "Similar" = Similar to Proposed Project; and
- "Greater" = Greater than Proposed Project.

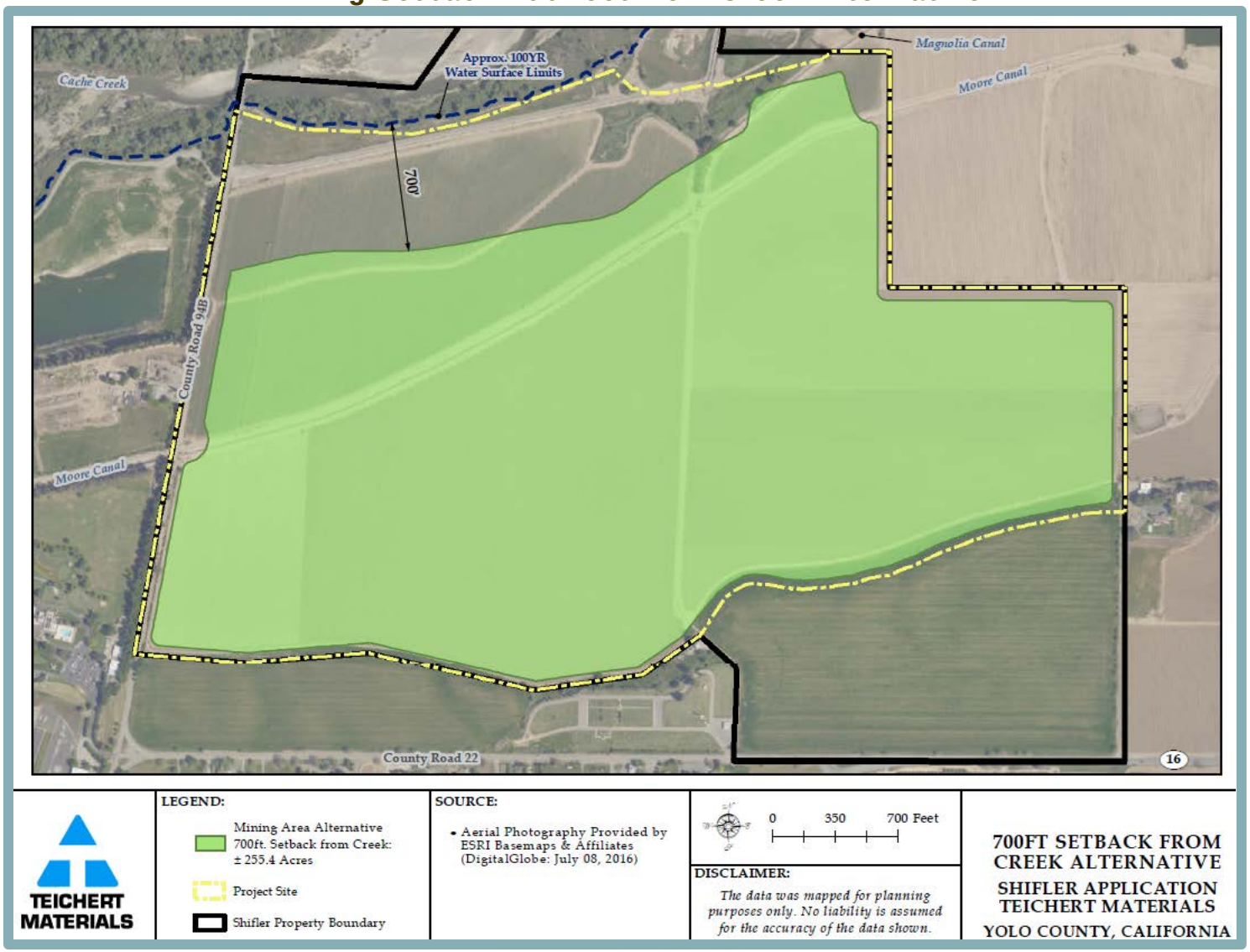
When the term "fewer" is used, the reader should not necessarily equate this to elimination of significant impacts identified for the proposed project. For example, in many cases, an alternative would reduce the relative intensity of a significant impact identified for the proposed project, but the impact would still be expected to remain significant under the alternative, thereby requiring mitigation. In other cases, the use of the term "fewer" may mean the actual elimination of an impact identified for the proposed project altogether. Similarly, use of the term "greater" does not necessarily imply that an alternative would require additional mitigation beyond what has been required for the proposed project. To the extent possible, this analysis will distinguish between the two implications of the comparative words "fewer" and "greater".

See Table 6-1 at the end of this chapter for a comparison of the environmental impacts resulting from the considered alternatives and the proposed project.

1. No Project Alternative

The following section includes an overview providing background related to this alternative, a description of this alternative, an evaluation of the alternative's consistency with project objectives, and an impact comparison analysis.

Figure 6-1
Mining Setback 700 feet from Creek Alternative



Overview

CEQA requires the evaluation of the comparative impacts of the "No Project" alternative (CEQA Guidelines Section 15126.6[e]). Analysis of the no project alternative shall:

> "… discuss […] existing conditions […] as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (*Id.*, subd. [e][2]) "If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the 'no project' alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in the property's existing state versus environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed. In certain instances, the no project alternative means 'no build,' wherein the existing environmental setting is maintained. However, where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (*Id.*, subd. [e][3][B]).

Description of Alternative

The No Project Alternative assumes the applicant will finish mining out operations at the Esparto and Schwarzgruber sites, followed by closure and reclamation of the two plant sites. The proposed excavation on the Shifler site would not occur at this time, and the site would remain in its current condition for the purposes of this analysis. As described in this EIR, the central and southern portions of the project site consist primarily of actively managed agricultural land. The northern portion of the project site consists of scattered oak trees and ruderal grassland vegetation, as well as an electric conveyor and associated gravel road formerly used to transport mined aggregate from the Teichert Storz mining site to the Woodland Plant located north of the project site. Moore Canal, a concrete-lined water conveyance structure owned and operated by the Yolo County Flood Control & Water Conservation District, bisects the central portion of the site from west to east. The assumptions for this alternative are speculative for a number of reasons:

- The applicant is not precluded from seeking subsequent approvals to excavate other planned mining (SGRO zoned) sites within the Cache Creek Area Plan (CCAP) plan area.

- The Shifler property was identified in the CCAP Update as a proposed future mining site, has known feasibly minable aggregate resources, and is within the CCAP plan area. Unless the County acted through the CCAP to explicitly preclude mining on this site, it would remain in the plan as a potential site for future mining.

- The market for sand and gravel exists with or without a local source. If demand is met with supply from outside the area there is a tradeoff in impacts that result. For example, local loss of agricultural land might not occur but regional air quality emissions and regional vehicle miles travelled would increase reflective of longer haul routes. The analysis below explores this in more detail.

Consistency with Project Objectives

The No Project Alternative would not meet the objectives of the project applicant in that the alternative would not result in the permitting of an additional 277± acres of mining area, extend the life of the existing Woodland Plant, allow a transfer of the Esparto Plant's current annual permitted volume, or reclaim mined land to agriculture and a mix of habitat uses. However, Objective #4 would be met in that the alternative would not include a change to Moore Canal thereby ensuring that irrigation water deliveries in Moore Canal are not affected.

Impacts of Alternative

The following provides a discussion evaluating the impacts of this alternative on baseline conditions as compared to the impacts of the proposed project on baseline conditions for each impact area addressed within this EIR.

Aesthetics

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Thus, the visual character of the Shifler site would remain unchanged from the current condition. The Woodland Plant would remain unchanged; however, the site would be reclaimed earlier than under the proposed project. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Agricultural Resources

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Thus, the onsite agricultural resources on the Shifler site would remain unchanged from the current condition and would eliminate the significant and unavoidable impact related to loss of farmland negating the requirement for Mitigation Measure 4.2-1. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Air Quality, Greenhouse Gas Emissions, and Energy

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Accordingly, upon closure and reclamation, emissions associated with the equipment and operation on the sties would cease. Post reclamation uses, and associated emissions, would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The Woodland Plant would remain unchanged; however, the site may be reclaimed earlier than under the proposed project unless processing continues with gravel from an alternative mining site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur, and the onsite agricultural resources on the Shifler site would remain unchanged from the current condition. Although emissions associated with the current agricultural operations would continue to occur, emissions associated with removal and construction of Moore Canal and the mining activity on the Shifler site would not occur. Specifically, emissions of diesel particulate matter (DPM) and respirable silica associated with the proposed project equipment and operations on the Shifler site would not occur; thereby eliminating the potential for related health risks. Thus,

impacts related to onsite emissions and associated health risks would be lower under the No Project Alternative compared to the proposed project.

Mining operations would not occur on the Shifler site under the No Project Alternative. Therefore, upon closure of the Esparto and Schwarzgruber sites, the Woodland Plant would be reclaimed (unless processing continued for gravel from an alternative site) and GHG emissions associated with operations at the Woodland Plant would cease, Mitigation Measure 4.3-8 (requiring an Electric Vehicle Parking Plan be prepared for the Woodland Plant upon initiation of mining activity at the Shifler site) would not be applicable.

While project emissions associated with the proposed project would not occur, regional emissions would still occur as a function of the continued demand for sand and gravel. If the Teichert Woodland Plant was no longer a source of aggregate material, the material would be purchased elsewhere in the region. Supply could be met from other planned sites within the CCAP or outside of the County. Because production of materials and the associated emissions would continue to occur within the same region as the proposed project (i.e., within the Sacramento Valley Air Basin), the regional emissions would be similar under the No Project Alternative as compared to the proposed project.

Generally, other sources of aggregate material supply outside the County and even some locations within the CCAP would result in longer trip lengths as compared to a local source such as the proposed project, thereby increasing air pollutant and GHG emissions associated with hauling. The extent to which an increase in emissions would occur is speculative as the distances would depend on the location of each individual construction job.

Based on the above, the No Project Alternative would result in overall fewer impacts related to air quality, GHG, and energy as compared to the proposed project.

Biological Resources

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Thus, the biological resources on the Shifler site would remain in their current condition, and Mitigation Measures 4.4-1(a) through 4.4-1(o), 4.4-3(a), and 4.4-3(b) would not be required. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Cultural and Tribal Cultural Resources

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Therefore, the significant and unavoidable impact to Moore Canal, which is considered to be eligible for inclusion in the CRHR and the NRHP as an historic resource, would not occur. Furthermore, disturbance of the Shifler site and any unknown cultural, archeological, or tribal cultural resource would not occur. Therefore, because this alternative would not include any disturbance of the Shifler site, Mitigation Measures 4.5-1, 4.5-

3(a), 4.5-3(b), and 4.5-4 would not be required. For these reasons this alternative would result in fewer impacts on the project site as compared to the proposed project.

Geology and Soils, Mineral Resources, and Paleontological Resources

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Because mining activities would not occur, impacts related to geology and soils (slope stability, etc.) and the potential to unearth paleontological resources would not result. This alternative would preserve mineral resources on the Shifler site. Future extraction could occur at a future date consistent with site zoning and the CCAP. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Hazards and Hazardous Materials

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Thus, the abandonment of the existing water wells and reabandonment of the onsite gas wells would not be required. Existing canal operation and maintenance would continue on Moore Canal. With no mining operations on the Shifler site and the Woodland Plant closure pursuant to current permit requirements, this alternative would result in a reduction of the potential for an accidental release of a hazardous materials as compared to the proposed project. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Hydrology and Water Quality

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Thus, no change to the existing Shifler site drainage, groundwater level and groundwater flow would occur. According to the Cache Creek Channel Stability Analysis prepared for the proposed project, the reach of Cache Creek near the project site does not display historical evidence of excessive bank erosion. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Land Use and Planning

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Therefore, this alternative would not result in land use impacts (including issues related to land use compatibility) as the current agricultural use of the Shifler site would continue.

Noise

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-



reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Thus, the existing noise environment at the Shifler site would remain unchanged. The noise associated with the existing Woodland Plant operations would continue until the Woodland Plant closure pursuant to current permit requirements, at which time noise would be reduced from plant operations as compared to the proposed project. However, because the existing noise environment at the Shifler site would remain unchanged, Mitigation Measures 4.10-1(a) and 4.10-1(b) would not be required. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Public Services, Utilities, and Service Systems

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. The proposed excavation on the Shifler site as well as the relocation of Moore Canal would not occur. Because existing conditions would remain at the Woodland Plant and Shifler site, increased demand related to police services, fire protection, water, wastewater, or electricity and gas infrastructure would not occur. Therefore, this alternative would result in fewer impacts on the project site as compared to the proposed project.

Transportation and Circulation

Under the No Project Alternative, mining operations at the Esparto and Schwarzgruber sites would continue until closure and reclamation of the mining areas and two plant sites. Post-reclamation uses would include open water lake, recreation, habitat, and agriculture based on the approved reclamation for each site. Vehicle miles travelled (VMT) resulting from existing operations would continue to occur until closure of the sites. After the closure of the plants, vehicle trips (haul trucks) would still occur in the region as a function of the continued demand for sand and gravel elsewhere in the region. Generally, other sources within the CCAP boundary and/or outside the County would result in longer trip lengths as compared to a local source such as the proposed project, thereby increasing regional VMT. The extent to which an increase in VMT would occur is dependent upon the distances to each individual construction job, the distance to the supply source, and the economic feasibility of transportation costs. Because mining activities would not occur at the Shifler site under this alternative, Mitigation Measure 4.12-2 would not be required. Therefore, this alternative would result in a greater impact as compared to the proposed project.

2. Off-Site Alternative

The following section includes an overview providing background related to this alternative, a description of this alternative, an evaluation of the alternative's consistency with project objectives, and an impact comparison analysis.

Overview

Since approval of the OCMP in 1996, the County has approved seven mining permits allowing for removal of a total of 176 million tons of material on 1,900 acres (2,464 total acres for combined mining operations). Unless extended, one of the seven permits will expire in 2027, four in 2028, one in 2029, and one in 2041. Approved mining areas are designated Sand and Gravel Overlay (SG-O) on the County Zoning Map. Future planned but not approved mining is zoned Sand and Gravel Reserve Overlay (SGRO). Within the County, a total of 1,789 acres are currently zoned

SGRO. Figure 6-2 identifies those areas where mining is approved or reasonably foreseeable over the next 50 years.

Description of Alternative

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. As analyzed in this EIR, the Off-Site Alternative is assumed to include mining and sale of a similar quantity of aggregate material as the proposed project (i.e., a transfer of tonnage allocation from the Esparto and Schwarzgruber operations), with a similar overall disturbance area.

Relocation of the existing Moore Canal alignment would not be required under this Alternative. It should be noted that because the Off-Site Alternative would not be located adjacent to the existing Teichert Woodland Plant, transfer of mined aggregate to the Woodland Plant with a conveyor system would not be feasible. Thus, this alternative assumes that mined aggregate would be hauled to the Woodland Plant, by way of local haul truck routes, for processing.

Consistency with Project Objectives

The Off-Site Alternative would generally be capable of meeting all of the project objectives.

Impacts of Alternative

The following provides a discussion evaluating the impacts of this alternative on baseline conditions as compared to the impacts of the proposed project on baseline conditions under each impact area addressed within this EIR.

Aesthetics

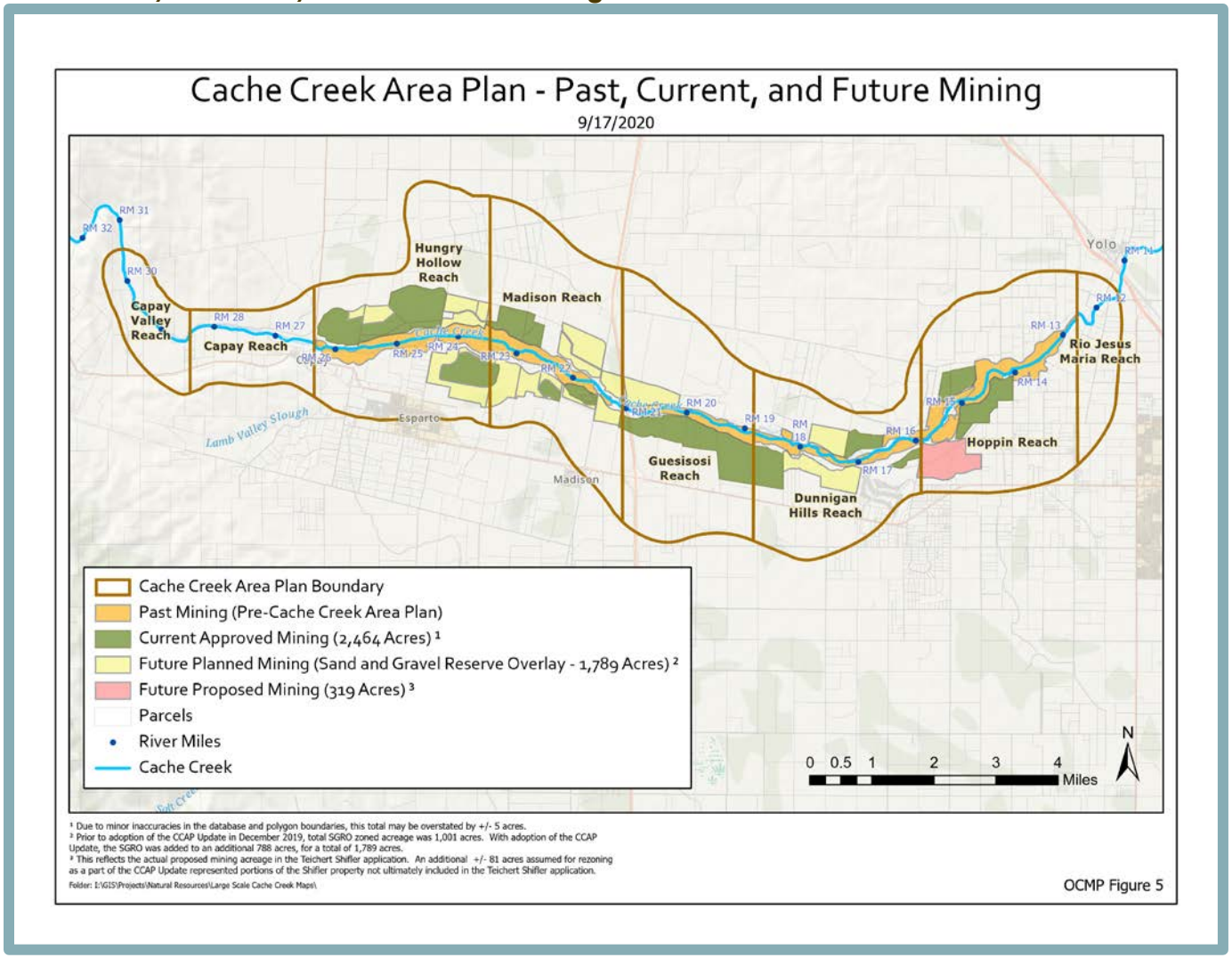
Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. Mining operations in the SGRO zoned lands in the Hungry Hollow Reach and Madison Reach would likely not be visible from major roadways; however, a portion of the southernmost lands within the Madison Reach may be visible from residents in Esparto. SGRO lands crossing over from the Madison Reach to the Guesisosi Reach would be adjacent to, and visible from, Interstate 505 (I-505).

Portions of the SGRO lands in the Dunnigan Hills Reach would be in close proximity to the Wild Wings subdivision. While the aesthetic value and visibility of other SGRO lands within the CCAP vary from site to site, each has an existing land use similar to the proposed project and would have a similar level of visibility as the proposed project. Lands near I-505 would have a greater level of visibility from a public vantage point. Thus, this alternative would likely result in similar impacts as the proposed project.

Agricultural Resources

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. The majority of the potential off-site areas within the CCAP are in agricultural use, which would be similar to the proposed project. Because this alternative would result in similar disturbance area as the proposed project, similar level of significant impact to agricultural resources would be anticipated to occur. In addition, this alternative would still be subject to County Code requirements related to agricultural mitigation, as required per Mitigation Measure 4.2-1.

Figure 6-2
Past, Current, and Future Mining within the Cache Creek Area Plan



***Source: Yolo County. Updated Final Off-Channel Mining Plan (OCMP) for Lower Cache Creek*. December 17, 2019.**

Air Quality, Greenhouse Gas Emissions, and Energy

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. This alternative would include mining and sale of a similar quantity of aggregate material as the proposed project, with a similar overall disturbance area. Therefore, emissions and energy use associated with mining operations, as well as plant operations, would remain the same as the proposed project. However, because aggregate mined under this alternative would be hauled to the Woodland Plant for processing, emissions (air quality and GHG) associated with hauling would be greater than the proposed project. Therefore, this alternative would result in greater impacts as compared to the proposed project. Similar to the project, Mitigation Measure 4.3-7 related to preparation of a GHG Reduction Plan and Mitigation Measure 4.3-8 related to preparation of an Electric Vehicle Parking Plan would be required for this alternative.

Biological Resources

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. The majority of the potential off-site areas within the CCAP are in existing agricultural uses, which are reasonably anticipated to provide similar habitat values as the proposed project. This alternative would likely result in impacts to similar species and would be subject to similar mitigation requirements as the proposed project. Potential for wetlands to occur would vary from site to site. However, because this alternative would include mining and sale of a similar quantity of aggregate material over a similar disturbance area, a similar impact to biological resources would result.

Not all the streambank locations along Cache Creek within the other SGRO zoned lands are characterized consistent with the reach adjacent to the proposed project, which does not require substantial streambank stabilization in order to achieve consistency with the CCRMP/CCIP and CFT. This alternative could likely require an equal or higher level of stream channel stabilization, which would require work within the creek. Therefore, this alternative may result in a greater impact to biological resources. Mitigation Measures 4.4-1(a) through (o) and 4.4-3(a) and (b) are specific to the biological resources identified within the project site. However, similar mitigation measures would be anticipated for this alternative.

Cultural and Tribal Cultural Resources

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. Like the proposed project, this alternative could affect previously undiscovered prehistoric and historic resources, and human remains. Similar to the proposed project, the applicant would be responsible for implementing mitigation related to discovery of unknown resources during excavation. Relocation of the existing Moore Canal alignment would not be required under this alternative, thereby avoiding a significant impact associated with the proposed project. Mitigation Measure 4.5-1 related to relocation of the canal would not be required. Therefore, this alternative would result in fewer impacts as compared to the proposed project. Mitigation Measures 4.5-3(a) and (b) related to tribal monitoring during initial ground-disturbing activities would be required for this alternative.

Geology and Soils, Mineral Resources, and Paleontological Resources

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. These areas exhibit similar geology and soils, with the Shifler site containing more sandstone, shale,

and gravel deposits. Because this alternative would result in similar levels of material extraction, area of disturbance, and general geology is similar, mineral resource considerations and the potential to unearth paleontological resources would be similar to that of the proposed project. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Hazards and Hazardous Materials

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. Because similar mining activities and operation at the Woodland Plant would occur under this alternative, similar operational impacts would result. Given the agricultural nature of the other SGRO zoned lands, the likelihood of existing water wells on these alternative sites is high. Therefore, this alternative could involve proximate water wells, similar to the proposed project. Other potential hazards associated with the ultimate location of this alternative may exist, and would require evaluation in a site-specific Phase I Environmental Site Assessment. Identified environmental conditions requiring mitigation would be addressed, similar to the proposed project. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Hydrology and Water Quality

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. The other SGRO zoned lands have a similar flood zone proximity as the proposed project.[1] Mining operations would change the drainage patterns of the alternative site. Individual site conditions could result in differing conclusions related to groundwater level and flow. Not all the streambank locations along Cache Creek within the other SGRO zoned lands are characterized consistent with the reach adjacent to the proposed project, which does not require substantial streambank stabilization in order to achieve consistency with the CCRMP/CCIP and CFT. This alternative would likely require an equal or higher level of stream channel stabilization, which would require work within the creek. Therefore, this alternative would likely result in similar or greater impacts as compared to the proposed project.

Land Use and Planning

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. Similar to the proposed project, this alternative would not divide an existing community and would not likely conflict with applicable plans, policies or regulations. Because this alternative would occur on other land zoned SGRO, the type and intensity of use has been planned for by the County. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Noise

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. Given the rural nature of the CCAP, the noise conditions at the alternative site are reasonably expected to be generally similar to that of the Shifler site. The Woodland Plant would continue to operate and result in noise consistent with existing conditions at the Plant. The other SGRO zoned lands would similarly be surrounded by farm dwellings, but may not be proximate to areas zoned residential. The alternative would be required to implement similar mitigation as the proposed

[1] Yolo County. *Cache Creek Area Plan Update Project, Final Environmental Impact Report. SCH# 2017052069* [pg. 4.9-3]. December 2019.

project, if required to mitigate for noise. Therefore, this alternative would result in similar impacts as compared to the proposed project. Mitigation Measure 4.10-1(a), or a measure of equivalent effectiveness, could be required for this alternative depending on the proximity of the alternative site to noise-sensitive receptors. Because mined aggregate would still be processed at the Woodland Plant, Mitigation Measure 4.10-1(b) related to installation of equipment noise from the plant would be required for this alternative.

Public Services, Utilities, and Service Systems

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. Because existing conditions would remain at the Woodland Plant and mining operations at the alternative site would be the same as the proposed project, demand related to police services, fire protection, water, or electricity and gas infrastructure would be the same as the proposed project. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Transportation and Circulation

Under the Off-Site Alternative, mining and reclamation activities that are currently proposed for the project site would instead occur on other SGRO zoned lands within the CCAP area. This alternative would include mining and sale of a similar quantity of aggregate material as the proposed project. Mined aggregate is assumed to be hauled to the Woodland Plant for processing. Thus, the further west the alternative site is located, the longer the haul trip distance would increase. As compared to the proposed project, the VMT associated with this alterative could be much higher. Therefore, VMT associated with hauling would likely be greater than the proposed project and the impact would be significant. Other transportation and circulation issues would remain similar to the proposed project. Mitigation Measure 4.12-2 related to preparation of a Transportation Demand Management Program would be required for this alternative.

3. Reduced Tonnage Alternative

The following section includes a description of this alternative, an evaluation of the alternative's consistency with project objectives, and an impact comparison analysis.

Description of Alternative

Under the Reduced Tonnage Alternative, the existing annual permitted tonnage allocation associated with the Teichert Esparto operation would not be transferred to the Teichert Shilfer operation. Thus, the Alternative would be limited to the tonnage associated with the Schwarzgruber approval which is base amount of 1,176,472 tons mined annually (1,000,000 tons sold) plus an additional 235,294 tons mined annually (200,000 tons sold) to serve market conditions pursuant to Section 10.4-405 of the County Mining Ordinance, for a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year, provided that production over a consecutive 10-year period does not exceed 10 million tons sold. Because the mining period for the Reduced Tonnage Alternative would be limited to 30 years under the CCAP, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit. Thus, the total lifetime tonnage of aggregate mined under Alternative would be 35.3 million tons total (30.0 million tons sold) compared to the proposed project (41.6 million tons mined; 35.25 million tons sold).

Relative to the proposed project, the Reduced Tonnage Alternative would generate fewer daily truck trips associated with the Teichert Woodland Plant, because less aggregate would be processed daily at the plant. However, the footprint of the proposed mining and reclamation areas



under the Reduced Tonnage Alternative would be identical to the proposed project. This Alternative would still require relocation of Moore Canal.

Consistency with Project Objectives

Because the total tonnage of aggregate mined at the project site would be limited, the Alternative would only partially meet Objective #1. In addition, the operational lifespan of the Woodland Plant would be shortened relative to approval of the proposed project, as a smaller amount of mined aggregate would be available to supply the facility; thus, Objective #2 would be partially met. In addition, because the Esparto Plant's current annual permitted volume of 1.0 million tons sold would not be transferred to the project site, Objective #3 would not be met. Objectives #4 and #5 would be met under the Alternative.

Impacts of Alternative

The following provides a discussion evaluating the impacts of this alternative on baseline conditions as compared to the impacts of the proposed project on baseline conditions under each impact area addressed within this EIR.

Aesthetics

The Reduced Tonnage Alternative would be limited to a maximum of total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. This alternative would still require relocation of Moore Canal similar to the proposed project. Mining activities would still occur on the Shifler site and reclamation would similarly consist of a lake, providing riparian habitat, and reclaimed agricultural land. Therefore, the aesthetic impacts associated with the Shifler site under the alternative would be generally similar to that of the proposed project.

Agricultural Resources

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. Therefore, this alternative would result in similar acreage of impacts to agricultural resources and result in a significant impact. This alternative would still be subject to County Code requirements related to agricultural mitigation, as required per Mitigation Measure 4.2-1.

Air Quality, Greenhouse Gas Emissions, and Energy

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. Because the intensity of maximum daily production would be reduced, the estimated daily emissions associated with this alternative would be less at the proposed site than that of the proposed project. With the reduced yearly tonnage, the annual GHG emissions at the proposed site would be reduced. Similarly, with the reduced tonnage over the project lifetime, the total emissions from the project and total energy consumed at the proposed site would be reduced. Related to potential health risks, operations would occur similar to the project from the same source areas, but at a



lesser intensity. The lower intensity would more closely match the existing conditions (at the Woodland Plant Site). The less intense emissions would result in less impacts related to toxic air contaminants as well as criteria pollutants basin wide. However, because it is reasonable to assume that demand for aggregate will be met elsewhere in the region, regional impacts from this alternative may be similar or potentially greater because materials extracted elsewhere in region or out-of-County to meet local demand would be transported a longer distance. Quantification of GHG emissions associated with alternative would be required to determine if Mitigation Measure 4.3-8 related to preparation of an Electric Vehicle Parking Plan would be required.

Biological Resources

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. This alternative would still require relocation of Moore Canal similar to the proposed project. Therefore, this alternative would still have the potential to impact the same species as the proposed project and would be subject to the same mitigation requirements. Therefore, this alternative would result in similar impacts as compared to the proposed project. Mitigation Measures 4.4-1(a) through (o) and 4.4-3(a) and (b) would be required for this alternative, given that the alternative would impact the same biological resources as the proposed project.

Cultural and Tribal Cultural Resources

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. This alternative would still require relocation of Moore Canal similar to the proposed project. Therefore, this alternative would result in similar impacts related to potential unknown cultural, archeological, or tribal cultural resources during mining activities. Similar impacts associated with the relocation of Moore Canal would occur (significant and unavoidable), and Mitigation Measure 4.5-1 related to documentation of the canal would be required. Therefore, this alternative would result in similar impacts as compared to the proposed project. Mitigation Measures 4.5-3(a) and (b) related to tribal monitoring during initial ground-disturbing activities would be required for this alternative.

Geology and Soils, Mineral Resources, and Paleontological Resources

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. Depending on market demand, this alternative would not likely result in as deep of excavation on the mining site, thereby reducing the pit wall heights and the associated potential slope stability issues. The same geologic and soil condition exist as with the proposed project and the potential to unearth paleontological resources would be similar to that of the proposed project. Should this alternative result in the inability to fully mine all the material from the Shifler site, the alternative would result in unused mineral resources remaining in-ground on the Shifler site likely rendering future post-



reclamation removal of these resources infeasible. Thus, this alternative could result in similar or arguably greater impacts as compared to the proposed project.

Hazards and Hazardous Materials

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. Because similar mining activities and operation at the Woodland Plant would occur under this alternative, similar operational impacts would result related to potentially hazardous conditions. Thus, the same potential for impacts would exist related to hazards and would be subject to the same mitigation requirements (e.g., water well abandonment, gas well re-abandonment, etc.). Therefore, this alternative would result in similar impacts as compared to the proposed project.

Hydrology and Water Quality

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. This alternative would still require relocation of Moore Canal similar to the proposed project. Depending on market demand, this alternative would not likely result in as deep of excavation on the mining site, which may result in less opportunity for impacts related to groundwater level and flow, and dewatering. The adjacent reach of Cache Creek would still be considered stable with implementation of the TAC-recommended streambank reinforcement measures (Mitigation Measures 4.8-4(a through c). Therefore, this alternative would result in similar impacts as compared to the proposed project.

Land Use and Planning

The Reduced Tonnage Alternative would be limited to a maximum of total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. This alternative would still require relocation of Moore Canal similar to the proposed project. The alternative would result in mining activities and continued processing at the Woodland Plant for 30 years. Therefore, the same land uses would occur with the alternative as with the proposed project, thereby resulting in similar impacts.

Noise

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. This alternative would still require relocation of Moore Canal similar to the proposed project. The maximum noise levels associated with mining and processing of material would still occur under this alternative. However, the reduced tonnage would result in less intense daily operations resulting in less impacts as compared to the proposed project albeit for a shorter duration. Given that this alternative would be located the same distance from the nearest residences as the

proposed project, Mitigation Measure 4.10-1(a) related to noise shielding would be required. Because mined aggregate would still be processed at the Woodland Plant, Mitigation Measure 4.10-1(b) related to installation of equipment noise from the plant would be required for this alternative.

Public Services, Utilities, and Service Systems

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. this alternative would still require relocation of Moore Canal similar to the proposed project. Because day-to-day operations at the project site would be the same as the proposed project for this alternative, demand related to police services, fire protection, water, wastewater, or electricity and gas infrastructure would be the same as the proposed project. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Transportation and Circulation

The Reduced Tonnage Alternative would be limited to a maximum total of 1.4 million tons mined (1.2 million tons sold) in any given year and would be limited to 30 years under the CCAP. Thus, mining of all aggregate materials within the project site may not be completed prior to expiration of the Mining Permit and the total lifetime tonnage of aggregate mined would be reduced. While the tonnage total is reduced, the overall area of disturbance would remain unchanged. Relative to the proposed project, this alternative would generate fewer daily truck trips associated with the Teichert Woodland Plant, because less aggregate would be processed daily at the plant. As it relates to VMT, the trip lengths would be the same as with the proposed project. However, the reduced trip generation would mean less VMT associated with this alternative. The production anticipated with this alternative would be a slight increase from the assumed baseline conditions used in the VMT analysis for the proposed project (approximately 1.13 million tons). Therefore, while this alternative would result in less impact as compared to the proposed project, the alternative would still increase VMT compared to the baseline conditions resulting in a similar significant and unavoidable impact. Also, because it is reasonable to assume that demand for aggregate will be met elsewhere in the region, regional impacts from this alternative may be similar or potentially greater because materials extracted elsewhere in region or out-of-County to meet local demand would be transported a longer distance. Other transportation and circulation issues would remain similar to the proposed project. Because VMT would likely result in a significant impact, Mitigation Measure 4.12-2 related to preparation of a Transportation Demand Management Program would still be required for this alternative.

4. Moore Canal Avoidance Alternative

The following section includes a description of this alternative, an evaluation of the alternative's consistency with project objectives, and an impact comparison analysis.

Description of Alternative

Under the Moore Canal Avoidance Alternative, the current alignment of the Moore Canal across the project site would be retained, as compared to the proposed project, which includes relocation of Moore Canal to an alignment along the western and northern boundary of the project site. In other words, the area of the canal would not be altered and construction activities associated with relocation of the canal would not occur. Complete mining and reclamation plans for this alternative

are provided in Appendix N. Because the canal would continue to bisect the project site, proposed mining activities under this Alternative would be conducted in excavation areas north and south of the channel (see Figure 6-3).

The portion of the site north of the Moore Canal and east of the Magnolia Canal would not be disturbed under this Alternative. Construction of a new overcrossing at the canal would be required in order to allow for transport of mined aggregate from the southern portion of the site to the conveyor near the northern site boundary. Reclamation of the site would result in a smaller lake area south of the canal (see Figure 6-4). Because the alternative would result in more gradual slopes compared to the proposed project, less potential for adverse impacts to the canal exist related to vibration from mining activity near the canal.

Consistency with Project Objectives

Because a smaller portion of the project site would be available for mining, the total amount of aggregate mined and sold under the Alternative would be reduced compared to the proposed project. Thus, the Alternative would only partially meet Objective #1. In addition, because the existing canal alignment would limit the feasibility of reclaiming a portion of the project site with a pond, Objective #5 would be partially met. The remaining project objectives would be met under the Moore Canal Avoidance Alternative.

Impacts of Alternative

The following provides a discussion evaluating the impacts of this alternative on baseline conditions as compared to the impacts of the proposed project on baseline conditions under each impact area addressed within this EIR.

Aesthetics

Because the Moore Canal Avoidance Alternative would not require relocation of Moore Canal and a smaller portion of the project site would be available for mining, the overall disturbance area associated with the alternative would be slightly smaller compared to the proposed project. Mining activities would still occur on the Shifler site. As is the case for the proposed project, while the visual character or the Shifler site would be altered from the existing agricultural setting to surface mining, such alteration would not be permanent, as long-term reclaimed uses would consist of agricultural lands and a lake. While the reclaimed lake would be smaller than the lake identified in the Reclamation Plan for the proposed project, the post-reclamation aesthetic character and quality of the Shifler site under the alternative would not be substantially different compared to the proposed project. Overall, given that the total mining area would be slightly reduced and the existing Moore Canal alignment would be retained, the aesthetic impacts on the Shifler site under the alternative would be similar or slightly reduced compared to that of the proposed project.

Agricultural Resources

The Moore Canal Avoidance Alternative would result in similar acreage of impacts to agricultural resources compared to the proposed project. Upon completion of the mining activities, the alternative would include reclamation of the site to agricultural lands and a lake. Because the approximately seven acres underlying the existing on-site canals cannot be farmed, similar amounts of agricultural land would be impacted by mining under this alternative; however, because the seven acres underlying the canals would not be reclaimed under the alternative, the total amount of agricultural land and lake reclaimed under this alternative would be slightly reduced compared to the proposed project, from 116.7 acres to approximately 109.7 acres.

Figure 6-3
Moore Canal Avoidance Alternative Conceptual Mining Plan

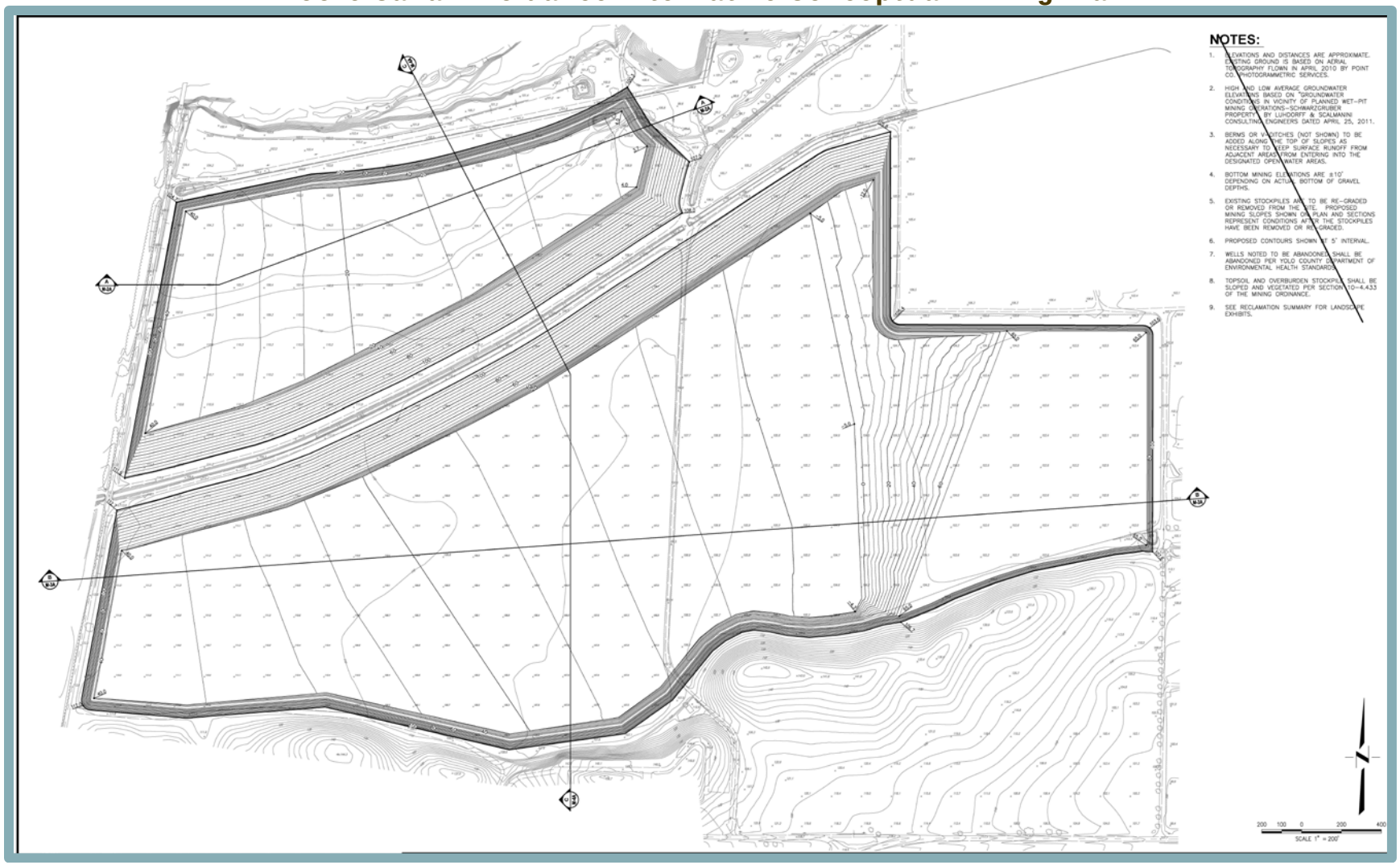
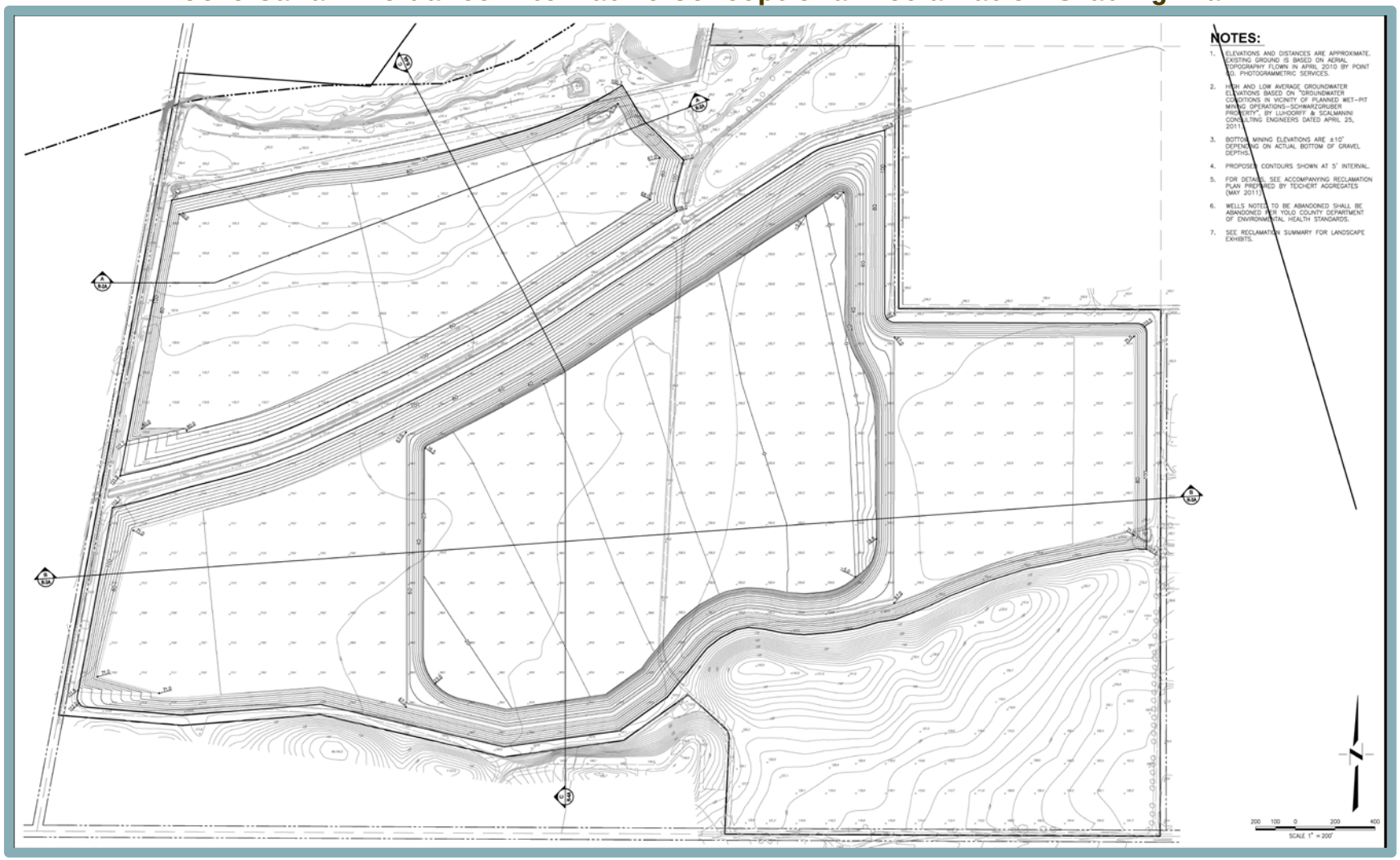


Figure 6-4
Moore Canal Avoidance Alternative Conceptional Reclamation Grading Plan



Thus, impacts to agricultural resources would be similar with slightly less reclamation back to agricultural uses. Overall for this comparative analysis this would result in a greater net impact to agriculture (total reclaimed acres would be lower) under this alternative. This alternative would result in a significant and unavoidable impact and still be subject to County Code requirements related to agricultural mitigation, as required per Mitigation Measure 4.2-1.

Air Quality, Greenhouse Gas Emissions, and Energy

Under the Moore Canal Avoidance Alternative, the intensity of maximum daily production would be similar to the proposed project. Thus, the estimated daily and yearly emissions associated with this alternative would be similar to the proposed project. However, the total lifetime tonnage of aggregate mined would be reduced and emissions associated with re-location of the canal would not occur. With the reduced tonnage over the project lifetime, the total emissions from the project and total energy consumed would be reduced. Related to potential health risks, operations would occur similar to the project from the same source areas. Thus, the alternative would result in similar impacts related to toxic air contaminants as well as criteria pollutants basin wide. Overall, this alternative would result in slightly fewer impacts as compared to the proposed project. However, because the alternative would generate similar daily and yearly emissions, Mitigation Measure 4.3-7 related to preparation of a GHG Reduction Plan and Mitigation Measure 4.3-8 related to preparation of an Electric Vehicle Parking Plan would still be required under the alternative.

Biological Resources

Under the Moore Canal Avoidance Alternative, the existing Moore Canal and Magnolia Canal alignments would be retained. Thus, the alternative would not result in impacts to 2.205 acres of potentially jurisdictional wetlands and waters of the U.S. – which would also be considered waters of the State. However, impacts to the existing on-site seasonal wetland, seasonal marsh, drainage ditch, and pond would still occur. The alternative would still have the potential to impact the same species as the proposed project and would be subject to the same mitigation requirements for such species. Overall, after accounting for the alternative's reduction in impacts to potentially jurisdictional wetlands and waters of the State, this alternative would result in slightly reduced impacts, on the whole, as compared to the proposed project. Mitigation Measures 4.4-1(a) through (o) and 4.4-3(a) and (b) would be required for this alternative.

Cultural and Tribal Cultural Resources

Under the Moore Canal Avoidance Alternative, the overall area of disturbance would be slightly reduced compared to the proposed project. Therefore, this alternative would result in reduced potential for impacts related to unknown cultural, archeological, or tribal cultural resources during mining activities. However, because relocation of Moore Canal would not occur, Mitigation Measure 4.5-1 related to documentation of the canal would not be required. Alteration of the canal would be limited to installation of a canal overcrossing for heavy equipment. Therefore, this alternative would result in reduced impacts as compared to the proposed project, likely not resulting in a significant and unavoidable impact. Mitigation Measures 4.5-3(a) and (b) related to tribal monitoring during initial ground-disturbing activities would be required for this alternative.

Geology and Soils, Mineral Resources, and Paleontological Resources

Under the Moore Canal Avoidance Alternative, the overall area of disturbance would be slightly reduced compared to the proposed project. The total depth of excavation on the mining site would be similar to the proposed project; however, the alternative would result in more gradual slopes

along the perimeter of the mining pits. The technical memo from Geocon[2] (see Appendix O) identified that because this alternative would result in more gradual slopes, the alternative would reduce the potential for adverse slope stability and seepage as compared to the proposed project. The same geologic and soil conditions exist as with the proposed project and the potential to unearth paleontological resources would be similar to that of the proposed project. Because the alternative would result in a slightly smaller overall mining area, the alternative would preclude the efficient removal of aggregate resources on the site, and tonnage associated with leaving the canal in place would become infeasible to excavate. Thus, this alternative would result in slightly reduced geology and soils impacts, generally similar potential impacts to unknown paleontological resources, and slightly increased mineral resource impacts as compared to the proposed project.

Hazards and Hazardous Materials

Under the Moore Canal Avoidance Alternative, the overall area of disturbance would be slightly reduced compared to the proposed project. However, because similar mining activities and operation at the Woodland Plant would occur under this alternative, similar operational impacts would result related to potentially hazardous conditions. Thus, the same potential for impacts would exist related to hazards and would be subject to the same mitigation requirements (e.g., water well abandonment, gas well re-abandonment, etc.). Therefore, this alternative would result in similar impacts as compared to the proposed project.

Hydrology and Water Quality

A technical memo from Luhdorff & Scalmanini[3] (see Appendix O) indicated that the alternative would not result in changes to groundwater levels or flow as compared to the proposed project. However, because a smaller portion of the project site would be available for mining, the total amount of aggregate mined and sold under the alternative would be reduced compared to the proposed project. Thus, the level of excavation and dewatering required on the project site would be reduced compared to that of the proposed project. The adjacent reach of Cache Creek would still be considered stable with implementation of the TAC-recommended streambank reinforcement measures (Mitigation Measures 4.8-4[a through c]). Therefore, the alternative would result in slightly reduced impacts to Hydrology and Water Quality as compared to the proposed project.

Land Use and Planning

Under the Moore Canal Avoidance Alternative, the intensity of maximum daily production would be similar to the proposed project. However, the total lifetime tonnage of aggregate mined would be reduced, given that a smaller overall area would be available for mining. The alternative would result in mining activities on the Shifler site and continued processing at the Woodland Plant for 30 years. Given that the same land uses would occur with this alternative as with the proposed project, impacts related to land use and planning would be similar.

Noise

Under the Moore Canal Avoidance Alternative, the intensity of maximum daily production would be similar to the proposed project. Thus, noise impacts at existing receptors and other noise-sensitive uses in the project vicinity would be similar to the proposed project. Because the alternative would result in more gradual slopes compared to the proposed project, there is less

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2 Geocon Consultants, Inc. *Technical Memorandum – Dewatering, Shifler Mining and Reclamation Project, Yolo County, California*. August 11, 2020.

3 Luhdorff & Scalmanini Consulting Engineers. *Technical Memorandum, Alternate Mining Pit Configuration Shifler Property, Woodland, Yolo County*. February 20, 2020.

potential for adverse impacts to the canal related to vibration from mining activity near the canal. The additional pit walls would not change the conclusions of the noise report.[4] Overall, impacts related to noise and vibration would be similar under this alternative compared to the proposed project.

Public Services, Utilities, and Service Systems

Under the Moore Canal Avoidance Alternative, the intensity of maximum daily production would be similar to the proposed project. However, the total lifetime tonnage of aggregate mined would be reduced, given that a smaller overall area would be available for mining. Because day-to-day operations at the project site would be the same as the proposed project for this alternative, demand related to police services, fire protection, water, wastewater, or electricity and gas infrastructure would be the same as the proposed project. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Transportation and Circulation

Under the Moore Canal Avoidance Alternative, the intensity of maximum daily production would be similar to the proposed project. Thus, the estimated daily and yearly emissions associated with this alternative would be similar to the proposed project. However, the total lifetime tonnage of aggregate mined would be reduced. Relative to the proposed project, this alternative would generate similar daily truck trips associated with the Teichert Woodland Plant, because a similar amount of aggregate would be processed daily at the plant. As it relates to VMT, the trip lengths would be the same as with the proposed project. The alternative would still increase VMT compared to the baseline conditions resulting in a similar significant impact. All other transportation and circulation issues would remain similar to the proposed project. Because VMT would likely result in a significant impact, Mitigation Measure 4.12-2 related to preparation of a Transportation Demand Management Program would still be required for this alternative.

5. Moore Canal Southern Alignment Alternative

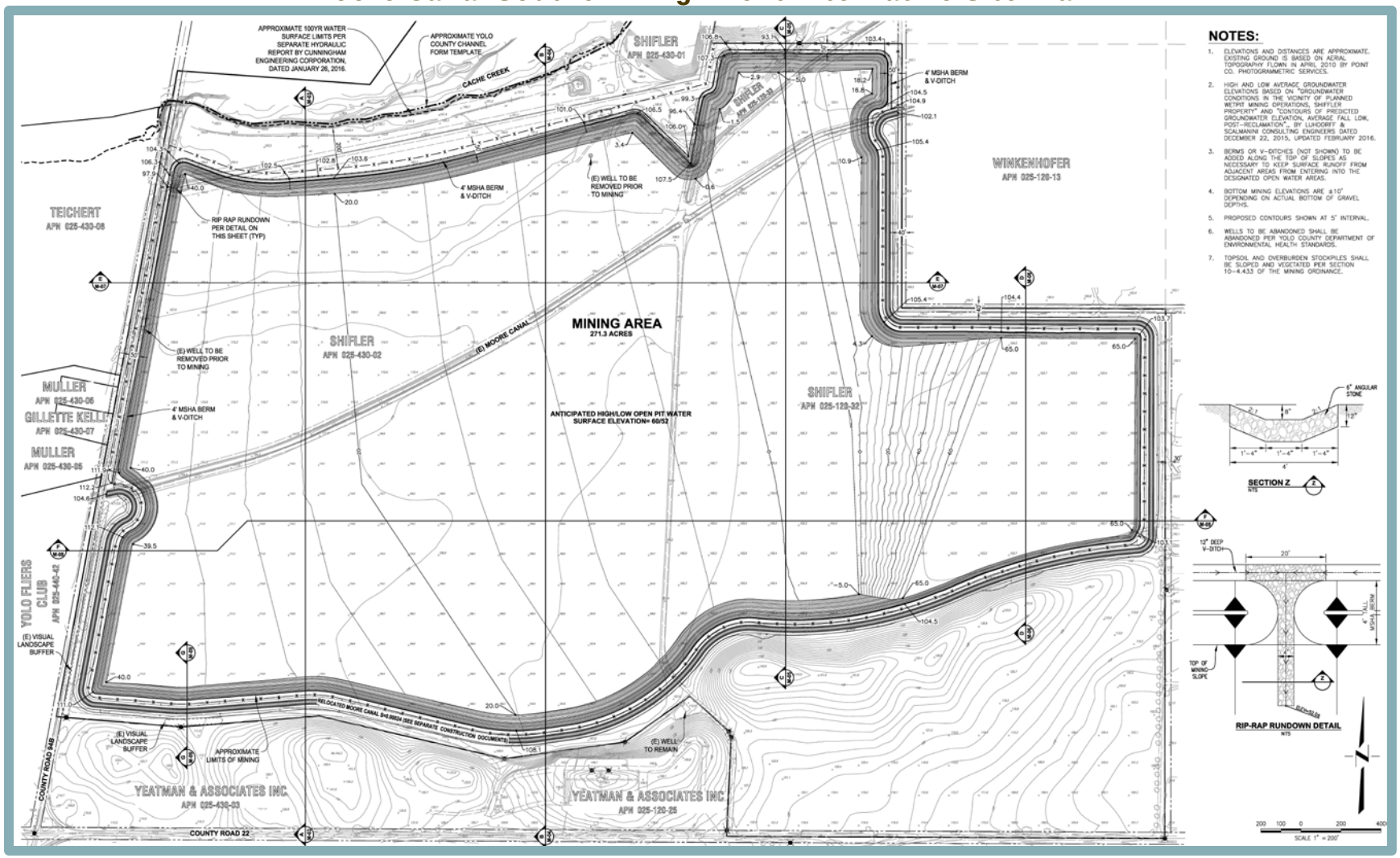
The following section includes a description of this alternative, an evaluation of the alternative's consistency with project objectives, and an impact comparison analysis.

Description of Alternative

Under the Moore Canal Southern Alignment Alternative, the current alignment of the Moore Canal across the project site would be relocated to the southern and a portion of the western perimeter of the proposed site as shown in Figure 6-5. Because the canal would follow along the border of the project site, proposed mining activities under this Alternative would be equal to the proposed project. All proposed phasing associated with mining and reclamation activities would be consistent with those of the proposed project. Construction of a new overcrossing at the canal would not be required in order to allow for transport of mined aggregate from the southern portion of the site to the conveyor near the northern site boundary. All mining activity would occur a minimum distance of 200 feet from Cache Creek top of bank. Complete mining and reclamation plans for this alternative are provided in Appendix P. Proposed reclamation of the site under this alternative would result in similar amounts of agricultural land and lake area north of the canal. Because the same amount of the project site would be available for mining, the total amount of aggregate mined and sold under the Alternative would be equal to the proposed project.

[4] Bollard, Paul, President, Bollard Acoustical Consultants, Inc. Personal Communication [Phone] with Rod Stinson, Division Manager / Air Quality Specialist, Raney Planning & Management, Inc. November 2019.

Figure 6-5
Moore Canal Southern Alignment Alternative Site Plan



Consistency with Project Objectives

Because the same amount of land within the project site would be available for mining, the total amount of aggregate mined and sold under the Alternative would be the same compared to the proposed project, and irrigation water deliveries in the Moore Canal would not be affected. Thus, the Moore Canal Southern Alignment Alternative would meet all of the project objectives.

Impacts of Alternative

The following provides a discussion evaluating the impacts of this alternative on baseline conditions as compared to the impacts of the proposed project on baseline conditions under each impact area addressed within this EIR.

Aesthetics

Because the Moore Canal Southern Alignment Alternative would still require relocation of Moore Canal and retain the same project boundaries, the overall disturbance area associated with the alternative would be similar compared to the proposed project. As is the case for the proposed project, while the visual character or the Shifler site would be altered from existing agricultural setting to surface mining, such alteration would be temporary during the mining period, as long-term reclaimed uses would consist of agricultural lands and a lake. Relocation of the Moore Canal to the southern site boundary instead of the northern site boundary would not result in substantial changes to public views of the site as compared to changes analyzed for the proposed project. However, the relocated canal would result in mining activities stopping 100 feet further north from the southerly boundary of the site, thereby creating a defacto buffer for rural residential to the south and west, and for the Monument Hills cemetery to the south. Aesthetic impacts associated with the Shifler site under the alternative would be generally similar or improved compared to the proposed project.

Agricultural Resources

The Moore Canal Southern Alignment Alternative would result in similar acreage of impacts to agricultural resources compared to the proposed project. Upon completion of the mining activities, the alternative would include reclamation of the site to agricultural lands and a lake. The total amount of agricultural land and lake reclaimed under the alternative would be comparable to the proposed project. Thus, impacts to agricultural resources would be similar under this alternative (significant and unavoidable). This alternative would still be subject to County Code requirements related to agricultural mitigation, as required per Mitigation Measure 4.2-1.

Air Quality, Greenhouse Gas Emissions, and Energy

Under the Moore Canal Southern Alignment Alternative, the intensity of maximum daily production would be similar to the proposed project. The estimated daily and yearly emissions associated with this alternative, as well as total energy consumed, would be similar to the proposed project. Related to potential health risks, operations would occur similar to the project from the same source areas. This alternative would result in similar impacts related to toxic air contaminants as well as criteria pollutants basin wide. Overall, this alternative would result in similar impacts as compared to the proposed project. Mitigation Measure 4.3-7 related to preparation of a GHG Reduction Plan and Mitigation Measure 4.3-8 related to preparation of an Electric Vehicle Parking Plan would still be required.

Biological Resources

Under the Moore Canal Southern Alignment Alternative, the overall area of disturbance would remain unchanged compared to the proposed project. This alternative would still require

relocation of Moore Canal, similar to the proposed project. Therefore, this alternative would still have the potential to impact the same species as the proposed project and would be subject to the same mitigation requirements. Therefore, this alternative would result in similar impacts as compared to the proposed project. Mitigation Measures 4.4-1(a) through (o) and 4.4-3(a) and (b) would be required for this alternative, given that the alternative would impact the same biological resources as the proposed project.

Cultural and Tribal Cultural Resources

Under the Moore Canal Southern Alignment Alternative, the overall area of disturbance would remain unchanged compared to the proposed project. This alternative would still require relocation of Moore Canal similar to the proposed project. Therefore, this alternative would result in similar impacts related to potential unknown cultural, archeological, or tribal cultural resources during mining activities. Similar impacts associated with the relocation of Moore Canal would occur resulting in a significant and unavoidable impact, and Mitigation Measure 4.5-1 related to documentation of the canal would be required. Therefore, this alternative would result in similar impacts as compared to the proposed project. Mitigation Measures 4.5-3(a) and (b) related to tribal monitoring during initial ground-disturbing activities would be required for this alternative.

Geology and Soils, Mineral Resources, and Paleontological Resources

Because the Moore Canal Southern Alignment Alternative would require the relocation of the Moore Canal and would retain the same project boundaries, the same geologic and soil conditions would exist as with the proposed project; thus, the potential to unearth paleontological resources would be similar to that of the proposed project. The overall mining area would remain the same; thus, similar amounts of mineral resources would be disturbed as compared to the proposed project.

A technical memorandum prepared by Geocon determined that slope inclinations and overall mining depth of the alternative would be the same as those of the proposed project (see Appendix Q).[5] The seepage front would not intercept the proposed northern mining slope at an elevation higher than the average seasonal high groundwater condition, even when sustained indefinitely. Therefore, Geocon concluded that the Southern Alignment Alternative would not result in more adverse slope stability and seepage conditions as compared to the proposed project, and the applicant would still be required to comply with Mitigation Measure 4.6-5 under the alternative.

Hazards and Hazardous Materials

Under the Moore Canal Southern Alignment Alternative, the overall area of disturbance would remain unchanged compared to the proposed project. Because similar mining activities and operation at the Woodland Plant would occur under this alternative, similar operational impacts would result related to potentially hazardous conditions. Thus, the same potential for impacts would exist related to hazards and would be subject to the same mitigation requirements (e.g., water well abandonment, gas well re-abandonment, etc.). Therefore, this alternative would result in similar impacts as compared to the proposed project.

Hydrology and Water Quality

The Moore Canal Southern Alignment Alternative would require the relocation of Moore Canal similar to the proposed project. However, under this alternative, the northern area reserved for

[5] Geocon Consultants. *Geotechnical Addendum – South Canal Alternative, Shifler Mining and Reclamation Project, Yolo County, California.* October 23, 2020.

the Moore Canal realignment under the proposed project would be mined. This alternative would assume the minimum allowed mining setback of 200 feet from the top of bank of Cache Creek. This compares to the proposed proximity of the relocated canal under the proposed project, of 200 feet from the top of bank, with mining no closer than 300 feet. Therefore, this alternative would still require compliance with Mitigation Measures 4.8-4(a through c) related to setbacks from Cache Creek.

The total tonnage of aggregate mined and sold would remain the same as the proposed project. Thus, the level of excavation and dewatering required on the project site would be similar to that of the proposed project. The technical memorandum from Luhdorff & Scalmanini[6] (see Appendix Q) indicated that the Southern Alignment Alternative would not result in changes to groundwater levels or flow as compared to the proposed project; therefore, the Southern Alignment Alternative would result in similar impacts to Hydrology and Water Quality as compared to the proposed project.

Land Use and Planning

The Moore Canal Southern Alignment Alternative mining activities would be limited to 30 years under the CCAP, similar to the proposed project. The alternative would involve similar tonnages of material mined compared to the proposed project, and the overall area of disturbance would remain unchanged. This alternative would still require relocation of Moore Canal similar to the proposed project. The alternative would result in mining activities and continued processing at the Woodland Plant for 30 years. Therefore, the same land uses would occur with the alternative as with the proposed project, thereby resulting in similar impacts.

Noise

Under the Moore Canal Southern Alignment Alternative, the intensity of maximum daily production would be similar to the proposed project. However, because the Moore Canal would be relocated along the southern site boundary instead of the northern site boundary, thereby providing a minimum of 100 feet of increased separation between the proposed mining activities and the rural residential and cemetery uses to the south and east of the site, noise level increases occurring at existing sensitive receptors and other noise-sensitive uses in the project vicinity could be reduced slightly compared to the proposed project. The Woodland Plant would continue to operate and process similar to the proposed project and Mitigation Measure 4.10-1(b) would be required. Thus, noise impacts under this Alternative would be reduced compared to the proposed project.

Public Services, Utilities, and Service Systems

Under the Moore Canal Southern Alignment Alternative, the intensity of maximum daily production would be similar to the proposed project. In addition, the total lifetime tonnage of aggregate mined would be similar. Because day-to-day operations at the project site would be the same as the proposed project for this alternative, demand related to police services, fire protection, water, wastewater, or electricity and gas infrastructure would be the same as the proposed project. Therefore, this alternative would result in similar impacts as compared to the proposed project.

Transportation and Circulation

Under the Moore Canal Southern Alignment Alternative, the intensity of maximum daily production would be similar to the proposed project. Thus, the estimated daily and yearly emissions

[6] Luhdorff & Scalmanini Consulting Engineers. *Technical Memorandum, Alternate Mining Pit Configuration Shifler Property, Woodland, Yolo County*. October 22, 2020.

associated with this alternative would be similar to the proposed project. Relative to the proposed project, this alternative would generate similar daily truck trips associated with the Teichert Woodland Plant, because a similar amount of aggregate would be processed daily at the plant. As it relates to VMT, the trip lengths would be the same as with the proposed project. The alternative would still increase VMT compared to the baseline conditions resulting in a similar significant impact. All other transportation and circulation issues would remain similar to the proposed project. Because VMT would likely result in a significant impact, Mitigation Measure 4.12-2 related to preparation of a Transportation Demand Management Program would still be required for this alternative.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(2) requires consideration of an environmentally superior alternative. If the environmental superior alternative is the No Project Alternative, the EIR must identify the environmental superior alternative among the other alternatives. The environmentally superior alternative is the alternative that would result in the fewest or least significant environmental impacts.

Table 6-1 provides a summary comparison of significance levels for identified impacts under each alternative and is summarized below.

Alternative 1 (No Project Alternative) would reduce impacts to all issue areas except for Transportation and Circulation; however, the Alternative 1, the No Project Alternative, would not meet any of the project objectives except for Objective #4 related to water deliveries to Moore Canal.

Alternative 2 (Off-site Alternative) would eliminate the significant and unavoidable impact associated with the relocation of Moore Canal. In addition, this alternative would result in similar or fewer impacts as compared to the proposed project for all issue areas except for Air Quality, GHG, and Energy; Biological Resources; and Transportation and Circulation, for which Alternative 2 would result in greater impacts. However, Alternative 2 would meet all of the project objectives.

Alternative 3 (Reduced Tonnage Alternative) would result in similar or reduced impacts as compared to the proposed project for all issue areas except for Air Quality, GHG, and Energy; Geology and Soils, Mineral Resources, and Paleontological Resources; and Transportation and Circulation, for which Alternative 3 would result in similar or greater impacts. Alternative 3 would meet Objectives #4 and #5, partially meet Objectives #1 and #2, and not meet Objective #3.

Alternative 4 (Moore Canal Avoidance Alternative) would eliminate the significant and unavoidable impact associated with the relocation of Moore Canal. In addition, this alternative would result in similar or fewer impacts as compared to the proposed project for all issue areas except for Agricultural Resources and Geology and Soils, Mineral Resources, and Paleontological Resources; which would result in greater impacts. Alternative 4 would meet all the project objectives except for only partially meeting Objectives #1 and #5.

Alternative 5 (Moore Canal Southern Alignment Alternative) would result in similar or fewer impacts as compared to the proposed project for all issue areas. In addition, Alternative 5 would meet all of the project objectives.

Based on the analysis presented in this Draft EIR and the summary provided in Table 6-1, although Alternative 5 (Moore Canal Southern Alignment Alternative) would not eliminate any of the significant and unavoidable impacts associated with the proposed project, this alternative would result in similar or fewer impacts and meet all the project objectives. Therefore, Alternative 5 would be the Environmentally Superior Alternative.

Table 6-1
Comparison of Environmental Impacts for Project Alternatives

Resource Area	Proposed Project level of significance after mitigation	1. No Project Alternative	2.Off-Site Alternative	3. Reduced Tonnage Alternative	4. Moore Canal Avoidance Alternative	5. Moore Canal Southern Alignment Alternative
Aesthetics	LS	<	=	=	≤	≤
Agricultural Resources	SU	<	=*	=*	>*	=*
Air Quality, Greenhouse Gas Emissions, and Energy	LS	<	>	≥	<	=
Biological Resources	LS	<	>	=	<	=
Cultural and Tribal Cultural Resources	SU	<	<	=*	<	=*
Geology and Soils, Mineral Resources, and Paleontological Resources	LS	<	=	≥	>	=
Hazards and Hazardous Materials	LS	<	=	=	=	=
Hydrology and Water Quality	LS	<	=	=	<	=
Land Use and Planning	LS	<	=	=	=	=
Noise	LS	<	=	<	=	<
Public Services, Utilities, and Service Systems	LS	<	=	=	=	=
Transportation and Circulation	SU	>*	>*	≥*	=*	=*

Note: Less than Proposed Project = "<;" Similar to Proposed Project = "=", Greater than Proposed Project = ">", Similar or Less than Proposed Project = "≤", and Similar or Greater than Proposed Project = "≥"

* Significant and Unavoidable impact(s) determined for the proposed project would also occur under the Alternative.

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