DRAFT ENVIRONMENTAL IMPACT REPORT

O'DONNELL ESTATES PROJECT



Control Number: PLNP2020-00101
State Clearinghouse Number: 2022100236
Date: June 28, 2023

COUNTY OF SACRAMENTO
PLANNING AND ENVIRONMENTAL REVIEW
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814

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County Executive

Ann Edwards, County Executive

Prepared By

County of Sacramento
Planning and Environmental Review

DRAFT ENVIRONMENTAL IMPACT REPORT

O'DONNELL ESTATES PROJECT

Control Number: PLNP2020-00101
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This Environmental Impact Report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An Environmental Impact Report is an informational document which, when this Office requires its preparation shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an Environmental Impact Report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
COUNTY OF SACRAMENTO
PLANNING AND ENVIRONMENTAL REVIEW
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814
www.PER.saccounty.net

Planning and Environmental Review
Todd Smith, Director

County Executive
Ann Edwards

June 27, 2023

TO: All Interested Parties

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE O'DONNELL ESTATES PROJECT (CONTROL NUMBER: PLNP2020-00101)

The subject Draft Environmental Impact Report (DEIR) is attached for your review and comment. The DEIR can also be reviewed at:

https://planningdocuments.saccounty.net/ViewProjectDetails.aspx?ControlNum=PLER2020-00101

Reviewers should focus on the sufficiency of the DEIR in discussing possible impacts upon the environment, ways in which adverse effects might be minimized, and alternatives to the proposed project. Reviewers who wish to comment on the adequacy of this DEIR are urged to submit written or emailed comments to the Sacramento County Department of Community Development, Planning and Environmental Review by close of business on 07/26/23 at the address below:

Julie Newton, Environmental Coordinator
Planning and Environmental Review
827 7th Street, Room 225, Sacramento, CA 95814
or via e-mail at: CEQA@saccounty.gov.

A public hearing on the O'Donnell Estates Project will be held by the Sacramento County Planning Commission at the Board of Supervisors Chambers, at 700 H Street in Sacramento. A notice of the date and time of the public hearing will be provided by the hearing body authorized to conduct the public hearing for the proposed project. Interested individuals may check the materials for upcoming hearings on the website of the Planning Commission at:

https://sccob.saccounty.net/Pages/BOSPublicMeetings.aspx

For questions about the project, please contact Julie Newton of this office at (916) 876-8502 or newtonj@sacccounty.gov.

Sincerely,

[Original Signature on File]

Julie Newton
Environmental Coordinator

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1 EXECUTIVE SUMMARY AND OTHER CEQA CONSIDERATIONS

The subject of this Environmental Impact Report (EIR) is a project known as O'Donnell Estates Tentative Subdivision Map, Special Development Permit and Design Review. The project site is located on the north side of Mapel Lane, south of the intersection of Rappahannock Way and Woodfair Way and west of O'Donnell Heritage Park in the Carmichael/Old Foothill Farms community of unincorporated Sacramento County.

EIR Scope and Impacts Evaluated

During the Notice of Preparation (NOP) scoping process comments were received from the following agencies (Appendix PD-1):

- Carmichael Recreation and Park District (CRPD)
- Sacramento Municipal Utility District (SMUD)
- Central Valley Regional Water Quality Control Board
- United Auburn Indian Community of the Auburn Rancheria (UAIC)

This report identifies significant and unavoidable cumulative impacts for biological resources (native oak tree impacts).

This report identifies potentially significant cumulative impacts to tribal cultural resources. The removal of mature, heritage native trees represents a potentially significant cumulative impact within the context of a greater cultural landscape.

This report identifies impacts that are less than significant with mitigation for impacts associated with biological resources. These impacts are identified as significant or potentially significant, which could be reduced to a less than significant level through inclusion of recommended mitigation measures.

Impacts associated with agriculture and forestry, aesthetics, air quality, climate change, cultural resources, energy, hazardous materials, hydrology and water quality, land use, noise, population and housing, public services and utilities, transportation and circulation, and tribal cultural resources **are considered less than significant**.

The following environmental impact and mitigation summary table (*Table ES-1: Executive Summary of Impacts and Mitigation*) briefly describes the project impacts evaluated in the EIR and the mitigation measures recommended to eliminate or reduce the impacts. The residual impact after mitigation is also identified. Detailed discussions of each of the identified impacts and mitigation measures, including pertinent supporting data, can be found in the specific topical sections in the remainder of this report.

Table ES-1: Executive Summary of Impacts and Mitigation

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
AESTHETICS			
Substantially Degrade The Existing Visual Character Or Quality Of The Project Site, or Would The Project Conflict With Applicable Zoning And Other Regulations Governing Scenic Quality The project would introduce new residential homes in an existing residential neighborhood. The project was found to be consistent with the Countywide Design Guidelines and zoning standards. Additionally, existing vegetation along the perimeter serves as a natural screen from public views at the neighboring O'Donnell Heritage Park.	LS	None Recommended.	LS
Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area The project would introduce minimal sources of new light and glare to an already established, urban area. New construction would be subject to Title 24 regulations to ensure there would not be excessive or inefficient use of light.	LS	None Recommended.	LS
LAND USE			
Physically Divide An Established Community	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
The project site is located within a suburban neighborhood surrounded by developed single-family properties and a public park. Under existing conditions the project site is a private, fenced, property that contains a single family home. Development of the site and associated infrastructure will not result in physical division of the surrounding community neighborhood.			
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 The project is consistent with the land use designations and applicable environmental land use policies of the Sacramento County General Plan, Carmichael Community Plan and Action Plan, and the Sacramento County Zoning Code.	LS	None Recommended.	LS
AGRICULTURE AND FORESTRY			
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 The proposed project site and surrounding vicinity is located on Urban & Built-Up Land according to the Sacramento County Important Farmland Map	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
published by the California Department of Conservation.			
Result In The Loss Of Forest Land Or Conversion Of Forest Land To Non-Forest Use The project site and general vicinity is mapped as an Urban landcover type that does not contain forestry resources that are important to the State of California in California Department of Forestry and Fire Protection's Fire and Resource Assessment Program. While the site does contain mature tree resources, it does not constitute a protected forestry resource. The tree resources are evaluated for their habitat value in the Biological Resources Chapter and for their value as a Tribal Cultural Resource (TCR) in the TCR Chapter. The project will not result in the conversion or loss of forest land.	LS	None Recommended.	LS
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 The project site and vicinity are not classified as having protected farmland soils nor are they actively farmed; and, they are not considered forest land; therefore, the development of the project site and associated infrastructure would not directly or indirectly induce conversion or loss of these resources. Nothing about the proposed	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
project, or any associated changes, would impact agriculture and forestry resources that are located more than a mile from the project site.			
POPULATION AND HOUSING			
<u>Induce Substantial Unplanned Population Growth In An Area, Either Directly (For Example, By Proposing New Homes And Businesses) Or Indirectly (For Example, Though Extension Of Roads Or Other Infrastructure)</u> The project site is an underutilized parcel that has been planned for RD-2 densities since at least 1975 when the Carmichael Community Plan was adopted. The addition of eight new residences, with one existing residence on the site, is consistent with planned densities and policies of various land use plans including the General Plan, Community Plan and Action Plan, and the Zoning Code. The project site is also located adjacent to parcels that are entirely built-out to the planned zoned densities and are served by public infrastructure. Given the surrounding development, this infill site will be served by minor extensions of existing infrastructure and will not require any major upgrades to these systems that would add additional capacity that could serve substantial unplanned growth. Therefore, the project does not directly or indirectly induce unplanned population growth.	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Displace Substantial Numbers Of Existing People Or Housing, Necessitating The Construction Of Replacement Housing The Project site contains one single-family home that will remain on the project site and will add eight new single-family homes. The project will not displace any existing people or housing and does not necessitate the construction of replacement housing.	LS	None Recommended.	LS
PUBLIC SERVICES			
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 • Other public facilities The project would incrementally increase demand for emergency services, schools parks	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
and recreation and transit services, but would not cause substantial adverse physical impacts as a result of providing adequate service. A less than significant impact will result.			
PUBLIC UTILITIES			
Require the construction of new or the expansion of existing wastewater facilities that could potentially cause significant construction-related environmental effects, or result in a service demand that cannot be met by existing or reasonably foreseeable future service capacity. The project is served by the Sacramento Area Sewer District and regionally by the Sacramento Regional County Sanitation District. Both service providers have adequate capacity to serve the project. Minor extension of infrastructure would be necessary to serve the proposed project. Existing facilities are located within the public right-of-way and would extend into the proposed development area. No significant new impacts would result from service line extension.	LS	None Recommended.	LS
Require the construction of new or the expansion of existing water facilities that could potentially cause significant construction-related environmental effects, or result in a service demand that cannot be met by existing or reasonably foreseeable future service capacity.	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
The project is within the Carmichael Water District service area. The District has sufficient capacity to serve the proposed project. Minor extension of infrastructure would be necessary to serve the proposed project. Existing service lines are located within existing roadways and would extend into the proposed development area. No significant new impacts would result from service line extension.			
Have Sufficient Water Supplies Available To Serve The Project And Reasonably Foreseeable Future Development During Normal, Dry, And Multiple Dry Years The water service provider (Carmichael Water District) has adequate capacity to serve the water needs of the proposed project. A less than significant impact will result.	LS	None Recommended.	LS
Require the construction of new or the expansion of existing capacity of energy facilities (electrical and natural gas) that could potentially cause significant construction-related environmental effects, or result in a service demand that cannot be met by existing or reasonably foreseeable future service capacity. The project is served by the Sacramento Metropolitan Municipal Utility District (electricity) and Pacific Gas and Electric (natural gas). Both service providers have adequate capacity to serve the project. The proposed project would	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
require minor extension of service lines to connect into the existing infrastructure. No significant new impacts would result from service line extension			
Comply with federal, state, and local management and reduction statues and regulations related to solid waste or result in the need for additional landfill capacity for solid waste disposal. The project is served by Sacramento County Department of Waste Management and Recycling. Existing and planned solid waste facilities will be sufficient to serve the proposed project. A less than significant impact will result.	LS	None Recommended.	LS
ENERGY			
Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. The proposed project will result in eight new single-family residences. All new building construction must meet the California Green Building Code (Title 24) in effect at the time of building permit submittal. Compliance with Title 24 and Tier 1 Best Management Practices for Greenhouse Gas	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Reduction will ensure operational impacts are less than significant.			
Conflict with or obstruct a state or local plan for renewable energy efficiencies. All new building construction associated with the proposed project would be required to meet Title 24 which contains renewable and energy efficiency regulations. The project will not conflict with or obstruct state or local plans for renewable or energy efficiencies; impacts are less than significant.	LS	None Recommended.	LS
TRANSPORTATION AND CIRCULATION			
Result in an increase in Vehicle Miles Traveled (VMT). The proposed project would result in eight new single-family residences which would not result in more than 237 daily trips and screens out from further VMT analysis. The project would not result in a substantial increase in VMT and impacts are less than significant.	LS	None Recommended.	LS
Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. The proposed project will not increase daily or peak hour trips and therefore would not adversely impact local roadways level of service. The	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
project will not conflict with existing or planned bicycle, pedestrian or transit facilities. Impacts are less than significant.			
Substantially increase roadway hazards. The proposed project will include a new private drive off of Woodfair Way to access eight of the lots. The existing driveway off Mapel Lane will remain to serve the ninth lot. The project will not alter the existing circulation system and will not increase roadway hazards. There are no impacts associated with roadway hazards.	LS	None Recommended.	LS
Result in inadequate emergency access. The proposed project will include a new private drive off of Woodfair Way to access eight of the lots. The ninth lot will be accessed off of Mapel Lane via the existing driveway. Any gates would need to have specific apparatus to ensure access by emergency personnel. Impacts associated with emergency access are less than significant.	LS	None Recommended.	LS
AIR QUALITY			
Conflict with or obstruct the implementation of applicable air quality plan The project's emissions do not exceed Sacramento Metropolitan Air Quality Management District emission thresholds. In addition, the project will be required to comply	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
with applicable Sacramento Metropolitan Air Quality Management District rules and regulation including basic emission control practices. The project will not conflict with or obstruct the County General Plan and applicable Sacramento Metropolitan Air Quality Management District plans, rules, and regulations. This impact is less than significant.			
<u>Construction Emissions– Increase of Any Criteria Pollutant for which the Project Region is Non-Attainment</u> The project will involve the construction of eight new single-family dwelling units; however, the project does not exceed the screening thresholds established by the Sacramento Metropolitan Air Quality Management District and will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment. Mitigation is recommended to ensure best management practices are implemented to control construction fugitive dust. A less than significant impact will result.	LS	**AQ-1.** The following Basic Construction Emissions Control Practices are considered feasible for controlling fugitive dust from a construction site. The practices also serve as best management practices (BMPs), allowing the use of the non-zero particulate matter significance thresholds. Control of fugitive dust is required by District Rule 403 and enforced by District staff. • Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		adjacent public roads at least once a day. Use of dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1]. For more information contact CARB	

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert1.html. • Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic.	
Operational Emissions– Increase of Any Criteria Pollutant for which the Project Region is Non-Attainment. The project will involve the operation of eight new single-family dwelling units; however, the project does not exceed the screening thresholds established by the Sacramento Metropolitan Air Quality Management District and will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment. A less than significant impact will result.	LS	None Recommended.	LS
Expose sensitive receptors to substantial pollutant concentrations Potential health effects were screened using the latest guidance. Based on the results of the tool, the percent of background health indices would be less than one percent. Due to a lack of adopted thresholds this information is presented for informational purposes and does not come to a significance conclusion.	N/A	None Recommended.	N/A

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people The completed project would not generate objectionable odors and impacts are less than significant.	LS	None Recommended.	LS
NOISE			
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 Construction activities that occur within the hours prescribed by the County Noise ordinance are exempt from the County noise standards, and as a result would not violate County standards. The distance of separation between the proposed subdivision and existing park site is sufficient such that noise generated by the playground would not result in excessive noise in sensitive	LS	None Recommended.	LS
Generation of excessive ground borne vibration of ground borne noise levels Construction of the project would utilize typical construction equipment that could result in temporary ground born vibration. Vibration levels	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
would not be of a level of significance to cause impacts or damage to surrounding uses.			
HYDROLOGY AND WATER QUALITY			
Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality The Project will be required to provide source control measures by installing storm drain markings and signage. The Project is not expected to result in significant operational stormwater runoff, and compliance with existing County Ordinances will ensure that there will be no substantial net-increase in pollutants of concern; impacts are less than significant.	LS	None Recommended.	LS
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 The project includes the construction of O'Donnell Park Court and street frontage improvements, construction of a new detention basin on the open space lot, and trenching and grading for the installation of public utilities. Project compliance with the County's Stormwater Ordinance will ensure that water quality impacts are less than significant.	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
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 Development of the project site will not result in significant alteration to the existing drainage sheds and patterns; nor will it necessitate extension or improvements of the existing 15" storm drain system and drainage ditch (Mapel Ditch) currently serving the site. Development of the project will increase the amount of impervious surfaces on the site; however, the hydrology report concluded that the project would not result in significant change to the overall run off and drainage of the site. The project includes creation of a new on-site Bio-Retention Basin "A," on-site LID features, creation of a new swale off-site on parcel (APN 245-0123-013) at the northwest corner of Lot 1, and a new 12" drain under the driveway from Mapel. The new on and offsite features will ensure that the project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Therefore, impacts are less than significant.	LS	None Recommended.	LS
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	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
which would result in the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff Building footprints and driveways will be graded on the proposed lots; however, the overall natural drainage pattern of the site will be maintained. The hydrology study concluded that any additional run-off resulting from development of the site will be addressed through the new Bio Retention Basin "A" located on site and through the on and off-site LID features proposed. The drainage features will meet Sacramento County standards, therefore, impacts are less than significant.			
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 impeding or redirecting flood flows The project will not result in physical improvements or stormwater runoff discharge that would obstruct, impede, or otherwise redirect designated flood zones or naturally occurring floodplains; nor will these actions place buildings or new construction in high-risk flood areas. Impacts are less than significant.	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES			
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 California Department of Fish and Game or U.S. Fish and Wildlife Service?			
Nesting Raptors Large trees on-site and within the project vicinity have the potential to serve as nesting habitat for raptors. Construction activities could disturb nesting birds. Mitigation has been included to incorporate pre-construction surveys and subsequent protocols in the event nesting raptors are present. With mitigation, impacts are less than significant.	PS	**BR-1**: If construction activity (which includes clearing, grubbing, or grading) is to commence within 500 feet of suitable nesting habitat between March 1 and September 15, a survey for raptor nests shall be conducted by a qualified biologist. The survey shall cover all potential tree and ground nesting habitat on-site and off-site up to a distance of 500 feet from the project boundary. The survey shall occur within 30 days of the date that construction will encroach within 500 feet of suitable habitat. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. If no active nests are found during the survey, no further mitigation will be required. If any active nests are found, the Environmental Coordinator and California Fish and Wildlife shall be contacted to determine appropriate avoidance/protective measures. The avoidance/protective measures shall be implemented prior to the commencement of construction within 500 feet of an identified nest.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
<u>Swainson's hawk</u> Large trees on-site and within the project vicinity have the potential to serve as nesting habitat for Swainson's hawk. Construction activities could disturb nesting birds. Mitigation has been included to incorporate pre-construction surveys and subsequent protocols in the event nesting Swainsons hawk are present. With mitigation impacts are less than significant.	PS	**BR-2:** If construction, grading, or project-related improvements are to commence between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and within ¼ mile of the site shall be conducted by a qualified biologist no later than 30 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Fish and Wildlife shall be contacted to determine appropriate protective measures, and these measures shall be implemented prior to the start of any ground-disturbing activities. If no active nests are found during the focused survey, no further mitigation will be required.	LS
<u>Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plan, policies, regulations, or by the CDFW or USFWS</u> The project site does not represent an oak woodland natural community. Construction impacts will result in the loss of 68 native and non-native trees in the project site; impacts to individual native and non-native trees are addressed below in the impact discussion regarding tree preservation policies. Because the project site no longer represents a natural oak woodland habitat, impacts to sensitive natural communities are less than significant.	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
<u>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</u> Trees in the project vicinity provide potential nesting habitat for migratory birds. To avoid impacts to nesting birds, mitigation has been included either to require that activities occur outside of the nesting season, or to require that nests be buffered from construction activities until the nesting season is concluded. With mitigation measure BR-1, impacts to migratory birds are less than significant.	PS	**BR-3**: To avoid impacts to nesting migratory birds the following shall apply: 1. If construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist. 2. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.	LS
<u>Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance</u> A total of 36 native trees (686.1 aggregate diameter inches) would be removed for	PS	**BR-4**: The project will result in the removal of 370.9 inches dbh of native trees, and 30.9 inches dbh of encroachment. The loss of this dbh shall be compensated for by planting in-kind native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
implementation of the proposed project. Development of the retention basin and some of the buildable lots within the proposed tentative subdivision map will also result in encroachment upon the dripline of native trees. Mitigation Measure BR-4 has been included to address the loss of 370.9 inches dbh through on-site replacement plantings, or payment to the Sacramento Tree Foundation if is demonstrated that on-site plantings are infeasible. Mitigation measure BR-5 is included to address potential temporary impacts associated with construction that may occur within the dripline of healthy trees. Mitigation measure BR-6 has been included to address the loss of tree canopy through payment to the Sacramento Tree Foundation or planting equivalent trees on-site. Impacts are less than significant.		by the Environmental Coordinator. Native trees include: valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*, which is also a List 1B plant), Oregon ash (*Fraxinus latifolia*), western redbud (*Cercis occidentalis),* gray pine (*Pinus sabiniana*), California white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), California buckeye (*Aesculus californica*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*), Pacific willow (*Salix lasiandra*), and dusky willow (*Salix melanopsis*). Replacement tree planting shall be completed prior to completion of the project Equivalent compensation based on the following ratio is required: • one D-pot seedling (40 cubic inches or larger) = 1 inch dbh • one 15-gallon tree = 1 inch dbh • one 24-inch box tree = 2 inches dbh • one 36-inch box tree = 3 inches dbh	

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		Prior to ground disturbance, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the SASD for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements: 1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved 2. Method of irrigation 3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage 4. Planting, irrigation, and maintenance schedules; 5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period. 6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site. No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark	

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single-family lots (including front yards), and roadway medians. If tree replacement plantings are demonstrated to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made. **BR-5**: For the purpose of this mitigation measure, a native tree is defined as a valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), having a diameter at breast height (dbh) of at least 6 inches, or if it has multiple trunks of less than 6 inches each, a combined dbh of at least 10 inches. With the exception of the trees removed and compensated for through Mitigation Measure BR-4, above, all native trees and portions of adjacent	

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		off-site native trees which have driplines that extend onto the project site, and all off-site native trees which may be impacted by utility installation and/or improvements associated with this project, shall be depicted on construction plans, and preserved and protected as follows: 1. A circle with a radius measurement from the trunk of the tree to the tip of its longest limb shall constitute the dripline protection area of the tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of the tree. Removing limbs which make up the dripline does not change the protected area. 2. Chain link fencing or a similar protective barrier shall be installed one foot outside the driplines of the native trees prior to initiating project construction, in order to avoid damage to the trees and their root system. 3. No signs, ropes, cables (except cables which may be installed by a certified arborist to provide limb support) or any other items shall be attached to the native trees. 4. No vehicles, construction equipment, mobile home/office, supplies, materials or facilities shall be driven, parked, stockpiled or located within the driplines of the native trees.	

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		5. Any soil disturbance (scraping, grading, trenching, and excavation) is to be avoided within the driplines of the native trees. Where this is necessary, an ISA Certified Arborist will provide specifications for this work, including methods for root pruning, backfill specifications and irrigation management guidelines. 6. All underground utilities and drain or irrigation lines shall be routed outside the driplines of native trees. Trenching within protected tree driplines is not permitted. If utility or irrigation lines must encroach upon the dripline, they should be tunneled or bored under the tree under the supervision of an ISA Certified Arborist. 7. If temporary haul or access roads must pass within the driplines of oak trees, a roadbed of six inches of mulch or gravel shall be created to protect the root zone. The roadbed shall be installed from outside of the dripline and while the soil is in a dry condition, if possible. The roadbed material shall be replenished as necessary to maintain a six-inch depth. 8. Tree pruning that may be required for clearance during construction must be performed by an ISA Certified Arborist or Tree Worker and in accordance with the American National Standards Institute (ANSI) A300 pruning standards and the International Society of Arboriculture (ISA) “Tree Pruning Guidelines”.	

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		BR-6: Removal of non-native tree canopy for development shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento County Tree Foundation).	
CULTURAL RESOURCES			
Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 The historical evaluation performed by Helix concluded that the Shelterwood homestead does not retain sufficient integrity to qualify as a historical resource under CEQA; nor is the property eligible as a rural landscape. The property does not qualify as Historical Resource under CEQA or a Historic Property under the National Historic Preservation Act (NHPA); therefore, alteration of the undeveloped portions	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
of the parcel would be a less than significant impact.			
<u>Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5</u> The Archaeological Resources Assessment prepared for the project site did not identify any archaeological resources. State and Federal law require a Lead Agency to address unanticipated cultural resource discoveries during project construction. If a discovery is made, earthmoving activities must halt until a qualified archaeologist may evaluate the resource encountered. With implementation of Mitigation Measure CR-1, environmental impacts to potentially undiscovered, sensitive historical resources are considered less than significant.	LS	**CR-1**: In the event of an inadvertent discovery of cultural resources (historical, archaeological or tribal resources, excluding human remains) during construction, all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense. a. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist and/or tribal monitor conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. b. If a potentially-eligible resource is encountered, then the archaeologist and/or	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		tribal monitor, Planning and Environmental Review Division staff, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the County Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met.	
<u>Disturb any human remains, including those interred outside of dedicated cemeteries</u> There are no known human remains on the project site. As a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made. California PRC Section 5097.98, as amended by Assembly Bill 2641, protects cultural resources on public lands and provides procedures in the event human remains of Native American origin are discovered during project implementation and are required to address the Project's potential impacts to human remains. With the implementation of Mitigation Measure CR-2, environmental impacts to potential human remains are considered less than significant.	LS	**CR-2**: Pursuant to Sections 5097.5 and 5097.98 of the State Public Resources Code, and Section 7050.5 of the State Health and Safety Code, if a human bone or bone of unknown origin is found during construction, all work is to stop and the County Coroner and Planning and Environmental Review Division (PER) shall be immediately notified. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission within 24 hours, and the Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the deceased Native American. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposition of, with appropriate dignity, the human remains and any associated grave goods. Additional mitigations are to be followed should the remains be identified as Native	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		American (See Chapter 11: Tribal Cultural Resources, MM TCR-1).	
TRIBAL CULTURAL RESOURCES			
Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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: i) 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 ii) 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency	LS	**TCR-1**: If any suspected TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a TCR (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment as necessary. When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs under CEQA and UAIC protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by UAIC or by the California Native American Tribe that is traditionally and culturally affiliated with the project area. The contractor shall implement any	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
shall consider the significance of the resource to a California Native American tribe. No indigenous sites or TCRs have been recorded within the Project site or half-mile radius. The NAHC indicated that the Project Site and vicinity are considered sensitive for potential TCRs; however, the UAIC indicated in a response to a request for consultation that specific TCRs were not known on the project site. The UAIC requested inclusion of an unanticipated discovery mitigation measure in the event that TCRs are uncovered during construction. With measure TCR-1, impacts are less than significant.		measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil. Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB-52, have been satisfied.	
CLIMATE CHANGE			
<u>Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment</u> The project would add eight new single-family dwelling units which is below the operational screening threshold for greenhouse gas emissions. If a project is below the screening threshold for operation emissions, it can be assumed that construction-related emission would also be below adopted thresholds of 1,100 $MTCO_{2e}$. The project will be required to meet Tier 1 Best Management Practices for greenhouse gas emissions. These Best Management Practices are included as mitigation. The project	LS	**CC-1** The project is required to incorporate the Tier 1 Best Management Practices or propose Alternatives that demonstrate the same level of GHG reductions as BMPs 1 and 2, listed below. At a minimum, the project must mitigate natural gas emissions and provide necessary wiring for an all-electric retrofit to accommodate future installation of electric space heating, water heating, drying, and cooking appliances. *Tier 1: Best Management Practices (BMP) Required for all Projects*	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
will result in less than significant impacts from greenhouse gas emissions.		• BMP 1: No natural gas: Projects shall be designed and constructed without natural gas infrastructure. • BMP 2: Electric vehicle ready: Projects shall meet the current CalGreen Tier 2 standards, except all EV Capable spaces shall instead be EV Ready. o EV Capable requires the installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s) o EV Ready requires all EV Capable improvements plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations	
<u>Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases</u> The project would not exceed the adopted threshold for greenhouse gas emissions and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
The project is consistent with County policies adopted for the purpose of reducing the emission of greenhouse gases. A less than significant impact will result.			
HAZARDOUS MATERIALS			
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials The project will not result in operational impacts to hazardous materials; potential impacts would occur during the construction phase. Pursuant to 40 CFR 112, the Project would be required to prepare a spill prevention and treatment plan for rapidly, effectively, and safely cleaning up and disposing of any spills or releases that may occur during construction. As required under state and federal law, notification and evacuation procedures for site workers and local residents would be included as part of the plan in the event of a hazardous materials release during on-site construction. In addition to 40 CFR 112, SWRCB Construction General Permit (2009-0009 DWQ) requires spill prevention and containment plans to avoid spills and releases of hazardous materials and wastes into the environment. Impacts are less than significant with compliance to existing state and federal regulations.	LS	None Recommended.	LS
Create a significant hazard to the public or the environment though reasonably foreseeable upset and accident conditions involving the	LS	None Recommended.	LS

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
release of hazardous materials into the environment The project will not result in operational impacts to hazardous materials; potential impacts would occur during the construction phase. Compliance with existing state and federal regulations ensure that impacts associated with the impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment are less than significant.			
Result in hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school The project will not result in operational impacts to hazardous materials; potential impacts would occur during the construction phase. Compliance with existing state and federal regulations ensure that impacts associated with hazardous emissions, hazardous, or acutely, hazardous materials, substances, or waste within one-quarter mile of an existing school are less than significant.	LS	None Recommended.	LS

MITIGATION MONITORING AND REPORTING PROGRAM

It shall be the responsibility of the Project Applicant to provide written notification to the Environmental Coordinator, in a timely manner, of the completion of each Mitigation Measure. The Environmental Coordinator will verify that the project is in compliance with the adopted Mitigation Monitoring and Reporting Program (MMRP). It shall be the responsibility of the Project Applicant to reimburse Planning and Environmental Review for all expenses incurred in the implementation of the MMRP, including any necessary enforcement actions. Any non-compliance will be reported to the project applicant/owner, and it shall be the project applicant's/owner's responsibility to rectify the situation by bringing the project into compliance and re-notifying the Environmental Coordinator. Any indication that the project is proceeding without good-faith compliance could result in the imposition of administrative, civil and/or criminal penalties upon the project applicant/owner in accordance with Chapter 20.02 of the Sacramento County Code.

TERMINOLOGY USED IN THIS EIR

This EIR uses the following terminology to describe environmental effects of the project.

Significance Criteria. A set of criteria used by the lead agency to determine at what level, or "threshold," an impact would be considered significant. Significance criteria used in this EIR include those that are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the Sacramento County General Plan.

Less than Significant Impact. A project impact is considered less than significant when it does not reach the standard of significance and would therefore cause no substantial change in the environment. No mitigation is required for less than significant impacts.

Potentially Significant Impact. A potentially significant impact is a substantial, or potentially substantial, adverse change in the environment. Physical conditions which exist within the area will be directly or indirectly affected by the proposed project. Impacts may also be short-term or long-term. A project impact is considered significant if it reaches the threshold of significance identified in the EIR. Mitigation measures may reduce a potentially significant impact to less than significant.

Significant Unavoidable Impact. A project impact is considered significant and unavoidable if it is significant and cannot be avoided or mitigated to a less-than-significant level once the project is implemented.

Cumulative Significant Impact. A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other related past, present or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.

Mitigation. Mitigation measures are revisions to the project that would minimize, avoid, or reduce a significant effect on the environment. CEQA Guidelines §15370 identifies 5 types of mitigation:

a) Avoiding the impact altogether by not taking a certain action or parts of an action.

b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

e) Compensating for the impact by replacing or providing substitute resources or environments.

OTHER CEQA CONSIDERATIONS

IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines Section 15126.2 requires the evaluation of significant irreversible environmental changes, stating, “uses of nonrenewable resources during the initial and continued phases of a proposed project may be irreversible since a large commitment of these resources makes removal or nonuse thereafter unlikely.” This section of the EIR evaluates whether the project would result in the irretrievable commitment of resources, or would cause irreversible changes in the environment.

Construction of various project elements will require irretrievable commitments of a variety of finite resources, including aggregate, petrochemicals, and metals. These commitments will occur both as direct and indirect impacts of the project. Direct impacts include the consumption of fuel by the construction fleet and equipment, the consumption of fuel as part of the vehicle and equipment usage during project operation, and the use of metals and aggregates in the construction of the buildings. Indirect impacts include the consumption of fuel and other resources to produce the materials used in construction.

CUMULATIVE IMPACTS

The CEQA Guidelines Section 15355 defines a cumulative impact as “two or more individual effects which, when considered together, are considerable”. An individual effect need not itself be significant to result in significant cumulative effects; the impact is the result of the incremental effects of the Project combined with the effects of “other closely related past, present, and reasonably foreseeable probable future projects.” CEQA does not define “closely related”, but the Code of Federal Regulations (40 CFR 1508.25) indicates that a “closely related” project is one which is automatically triggered

by the Project; one which cannot proceed without the Project first proceeding (mutual dependency); one which requires the Project for justification or is an interdependent part of the same action; or one which is a similar action with common timing, geography, and other features.

The requirements for a cumulative analysis are described in CEQA Guidelines Section 15130. A cumulative analysis "need not provide as great detail as is provided for the effects attributable to the project alone." The analysis should focus on analyzing the effects of the project to which other projects contribute, to the extent practical and reasonable. These other projects may be identified either through the provision of a list of cumulative projects, or via a summary of projections contained in an adopted General Plan or an adopted EIR. This EIR uses the summary of projections contained in the adopted General Plans of jurisdictions covered by the Project area. A statement of cumulative impacts is contained at the end of each topical chapter.

The significance criteria used for analysis are the same as those used throughout the topical chapters of the EIR. Section 15130(a)(3) states that a Project's contribution to an impact is "less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures".

GROWTH INDUCING IMPACTS

The CEQA Guidelines identify several ways in which a project could have growth-inducing impacts. In addition to the characteristics described above, projects that remove obstacles to population growth and projects that encourage and facilitate other activities that are beyond those proposed as part of the project and that could affect the environment are considered growth-inducing (CEQA Guidelines Section 15126.2[d]). Potential inducements to population growth include the availability of adequate water supplies, the availability of sewage treatment facilities, the availability of developable land and local government growth policies contained in general plans and zoning ordinances.

Growth inducement may not be considered necessarily detrimental, beneficial, or of significance under CEQA. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth, in some other way, significantly affects the environment, e.g., that it requires constructing facilities that would adversely affect the environment. A detailed analysis addressing growth inducement as it relates to the proposed project can be found in the Land Use chapter of this document (Chapter 4).

2 PROJECT DESCRIPTION

INTRODUCTION

The O'Donnell Estates project (proposed project) proposes to develop single-family housing on an underutilized infill site in the unincorporated Carmichael community of Sacramento County. This chapter defines existing conditions and environmental setting at the project site and the surrounding areas. The chapter also identifies a statement of project objectives and provides a detailed description of the proposed project. Lastly, the chapter identifies intended uses of this environmental impact report (EIR).

Figures are provided to facilitate a thorough understanding of the project's regional location, site characteristics, and components. The description of the project included in this chapter sets forth the characteristics upon which the evaluation of potential impacts in this draft EIR is based. All of the project application materials are also available at the County of Sacramento website:

https://planningdocuments.saccounty.net/projectdetails.aspx?projectID=6952&communityID=6

PROJECT BACKGROUND

The project was first submitted to the County as the Mapel Lane Tentative Subdivision Map (County Control No. PLNP2019-00217). The entitlement request was to divide approximately 5 acres into ten single-family residential lots in the RD-2 zone. The project included an adjacent one acre open space lot. The project was presented at the Carmichael Community Planning Advisory Council (CPAC) as an early workshop item on August 21, 2019. In response to comments received from the Mapel Lane project, the applicant team revised the project and submitted the O'Donnell Tentative Subdivision Map (PLNP2020-00101). The revised project retains the existing single family residence on the project site, and reduces the total number of lots from 10 to 9.

The County released a Notice of Preparation (NOP) for this EIR on October 12, 2022. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

ENVIRONMENTAL SETTING

The Project is located in the northeastern portion of unincorporated Sacramento County, in the Carmichael community (Plate PD-1) at 4434 Mapel Lane, south of Rappahannock Way and Woodfair Way and north of Mapel Lane, and is located in Township 9 North, Range 6 East on the Citrus Heights, California USGS 7.5' Quadrangle Map.

The proposed project is located on a 6.13-acre site. The two parcels are a 5.04± acre parcel located at 4434 Mapel Lane (APN 247-0010-001), and a 1.09± acre parcel immediately adjacent to the east (APN 247-0010-001). The parcels are designated for

residential and recreation uses (refer to Plate PD-2 and Plate PD-3), including an one-acre lot on the east side of the property designated as private open space. The property is sparsely developed with a single family residence, detached garage/carport, tennis court, basketball court and various other outbuildings and sheds (Plate PD-4). The western portion of the project site maintains access onto Mapel Lane for one lot, which is a two lane road and lacks frontage improvements.

With the exception of areas developed with structures and the existing driveway (off Mapel Lane), the project site is vegetated throughout with native and non-native trees. The site contains the following native oak trees: interior live oak, blue oak and valley oaks. A variety of non-native trees are located on the subject property, including: olive, almond, blue gum, pear, chinese pistache and sweetgum. Overall, the project site contains 131 native trees and 92 non-native trees, 223 trees total. Refer to the aerial photograph below, Plate PD-4, for visual reference.

Land Use

The surrounding land uses are all single-family residential and public park uses with Residential (RD-2) located to the south and west, Recreation (O) to the east and Residential (RD-5) to the north (across Rappahannock Way). Properties located to the north, west and south are developed with single family residential uses, while the property to the east is O'Donnell Heritage Park.

Topography and Physical Setting

Overall site topography is generally flat and ranges from 146 feet at the northern end of the property and gradually rises in elevation moving south. The elevation of where the existing single-family home is located is approximately 162 feet. The elevation gradually declines and is approximately 152 feet at the southern portion of the property.

Plate PD-1: Regional Location

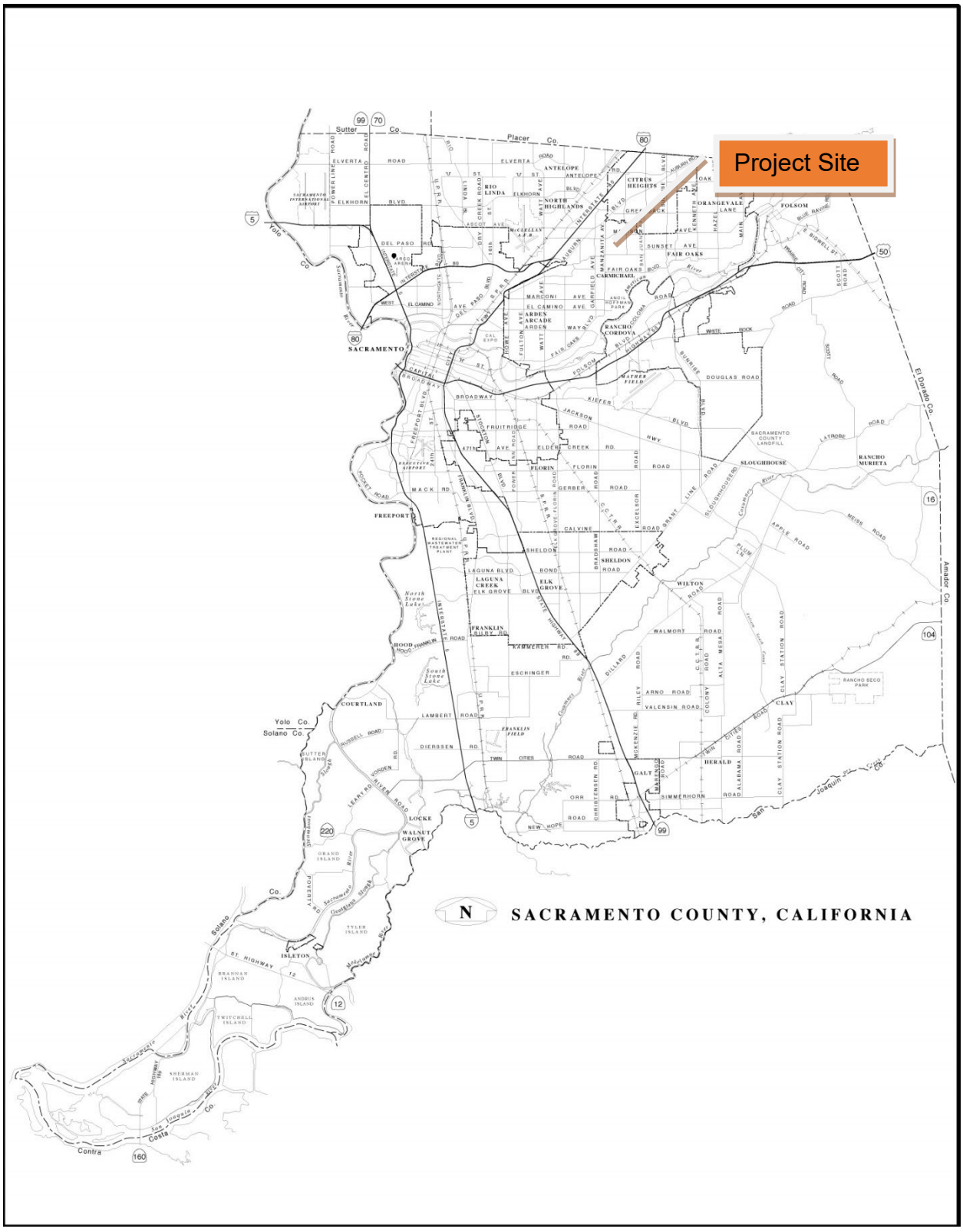


Plate PD-2: General Plan Designations of Site and Vicinity

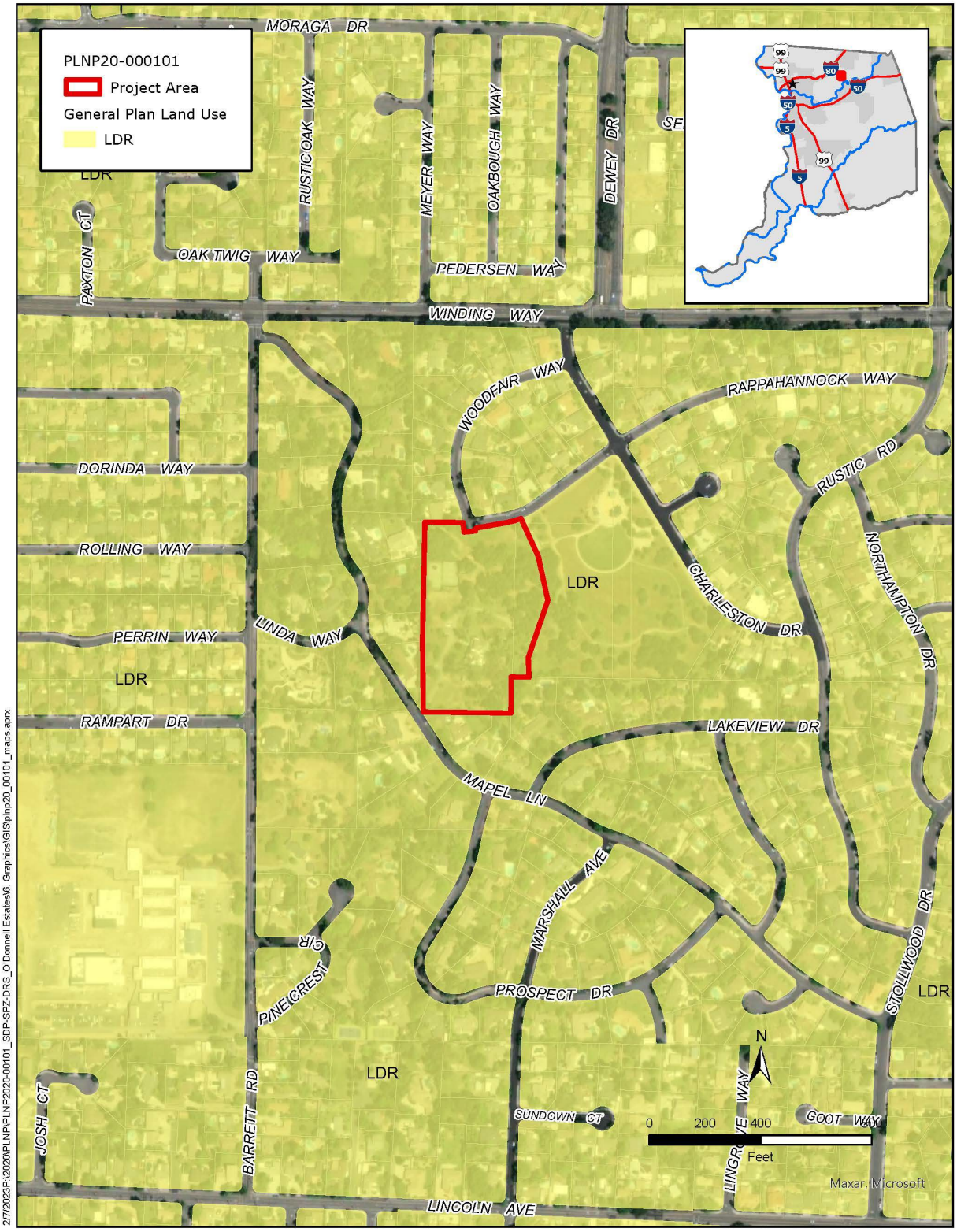


Plate PD-3: Zoning and Location

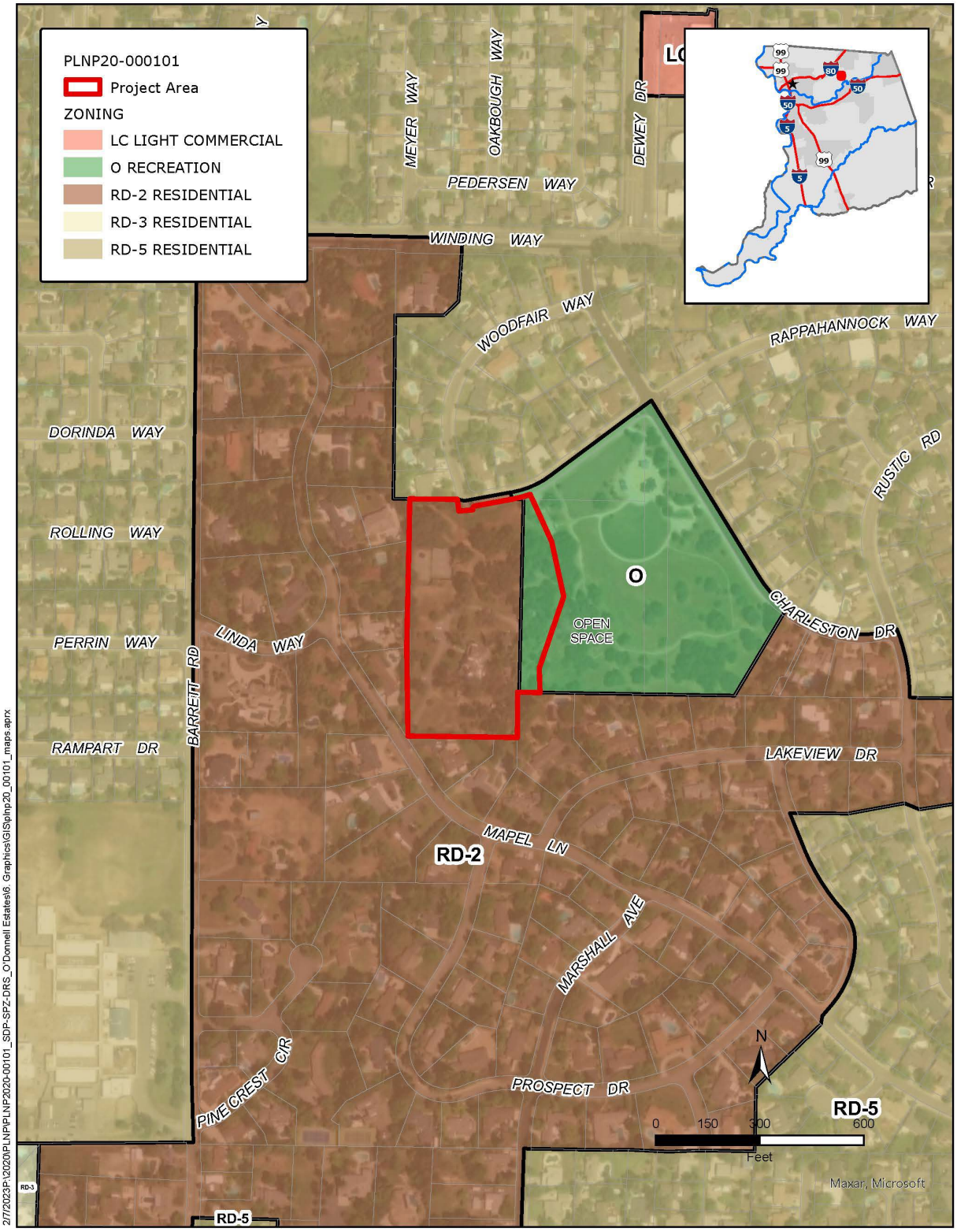


Plate PD-4: Aerial Photograph of Site



PROJECT OBJECTIVES

Per Section 15124(b) of the CEQA Guidelines, the project description shall include:

> A statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits.

The project is intended to achieve basic project objectives consistent with CEQA Guidelines Section 15124 (b). The project should accomplish the following:

1. Develop housing on an infill site that is consistent with the Sacramento County General Plan, Carmichael Community Plan, Carmichael Action Plan and the Residential (RD-2) zoning designation. The project also implements the Sacramento Metropolitan Transportation Plan/Sustainable Community Strategy within an urbanized area of Sacramento County.
2. Develop housing on an underutilized site, utilizing existing infrastructure and utilities.
3. Utilize an infill site to contribute additional housing units to the County's constrained housing stock and help address the State's current housing crisis.
4. Develop lots consistent with the surrounding community's character.
5. Preserve the open space parcel to provide for natural habitat and limited recreational activities for residents.
6. Design the project in a manner that limits the impacts on trees.
7. Maintain the same level of access from Mapel Lane as it exists today.
8. Develop a feasible Subdivision Map.

PROJECT DESCRIPTION AND CHARACTERISTICS

REQUESTED ENTITLEMENTS

The Project requires approval of the following entitlement requests from the County of Sacramento:

1. A **Tentative Subdivision Map** to divide three parcels, totaling approximately six acres, into nine lots in the Residential 2 (RD-2) zoning district, and maintain one lot in the Recreation (O) zoning district.
2. A **Special Development Permit** to allow a deviation from the following:

- Public Street Frontage (Section 5.4.2.B, Table 5.7.A, Footnote 8): Up to two lots may be served by a private drive without meeting the public street frontage requirement. The project is proposing eight lots be served by a private drive.

3. A **Design Review** to comply with the Countywide Design Guidelines.

PROJECT FEATURES

TENTATIVE SUBDIVISION MAP FEATURES

As planned, the proposed project will divide the 5.04± acre parcel located at 4434 Mapel Lane into nine (9) single-family residential lots. The existing single-family residence along with the garage and carport will remain on proposed Parcel 6. The 1.09± acre parcel to the east will remain private open space for the residents and includes a detention basin "A" along the northern portion of the project. The open space parcel will be utilized by the future residents. A 10-foot trail easement is proposed between lots 7 and 8 to provide pedestrian access to the private open space parcel. The private open space parcel will include a detention basin for drainage purposes and will be maintained through the private homeowners association (HOA).

GRADING AND DEMOLITION

The proposed project will result in the removal of the tennis court, basketball court and accessory structures. The single-family residence will remain on the property along with the garage and carport. Existing septic tank(s) onsite would be abandoned with project implementation and the existing single family home would be connected to sewer. Preliminary grading plans indicate the movement of 1,670 cubic yards of soil, consisting of 1,265 cubic yards of cut and 405 cubic yards of fill. Approximately 860 cubic yards of soil will be exported from the project site.

The proposed project includes potential building areas (see project exhibits, included below as Plate PD-5 thru Plate PD-8), the construction of O'Donnell Park Court, and trenching and grading for the installation of public utilities and drainage improvements (see below). Construction of proposed access and single family residences, would result in impacts to tree resources on the project site. The project would result in the removal of 68 trees as a result of grading and installation of improvements.

DRAINAGE IMPROVEMENTS

The 1.09± acre parcel on the east side of the property would include drainage basin "A" (low impact development (LID) bio-retention and to attenuate runoff) for drainage purposes, and would be maintained through the private homeowners association (HOA). Additional hydrology and water quality improvements also consist of on-site private roadside ditches, driveway culverts and roadway cross culverts; and onsite residential lot LID features.

ACCESS AND FRONTAGE IMPROVEMENTS

Access to the project site will be provided from Mapel Lane for proposed Lot 5 and is currently gated. The remainder of the lots will be accessed via O'Donnell Park Court,

which is a proposed private cul-de-sac connecting Woodfair Way and Rappahannock Way. O'Donnell Park Court will not be gated and parking will be permitted on one side of the road.

The project would construct "Class A" public street and private road improvements pursuant to the County Improvement Standards, including sidewalk, curb and gutter on portions of Woodfair Way and Rappahannock Way.

Utility Connections

New residences constructed as a result of the project would be serviced by public utilities, including SacSewer and Regional San for wastewater treatment, the Carmichael Water District for public water, and Sacramento Metropolitan Utilities District (SMUD) for electricity.

Because the project is located in an urbanized community, all of the above service providers have existing infrastructure in the immediate vicinity of the project site. Minor extension of utilities would be required but no significant impacts associated with offsite connections are anticipated.

New utility lines will be routed within the existing and proposed right-of-way and public utility easements required for each parcel. These construction activities will take place within the site as part of overall site improvements. At the time the project proponent requests service, specific design requirements will be required related to connection and extension of the utility system.

Plate PD-5: Tentative Subdivision Map

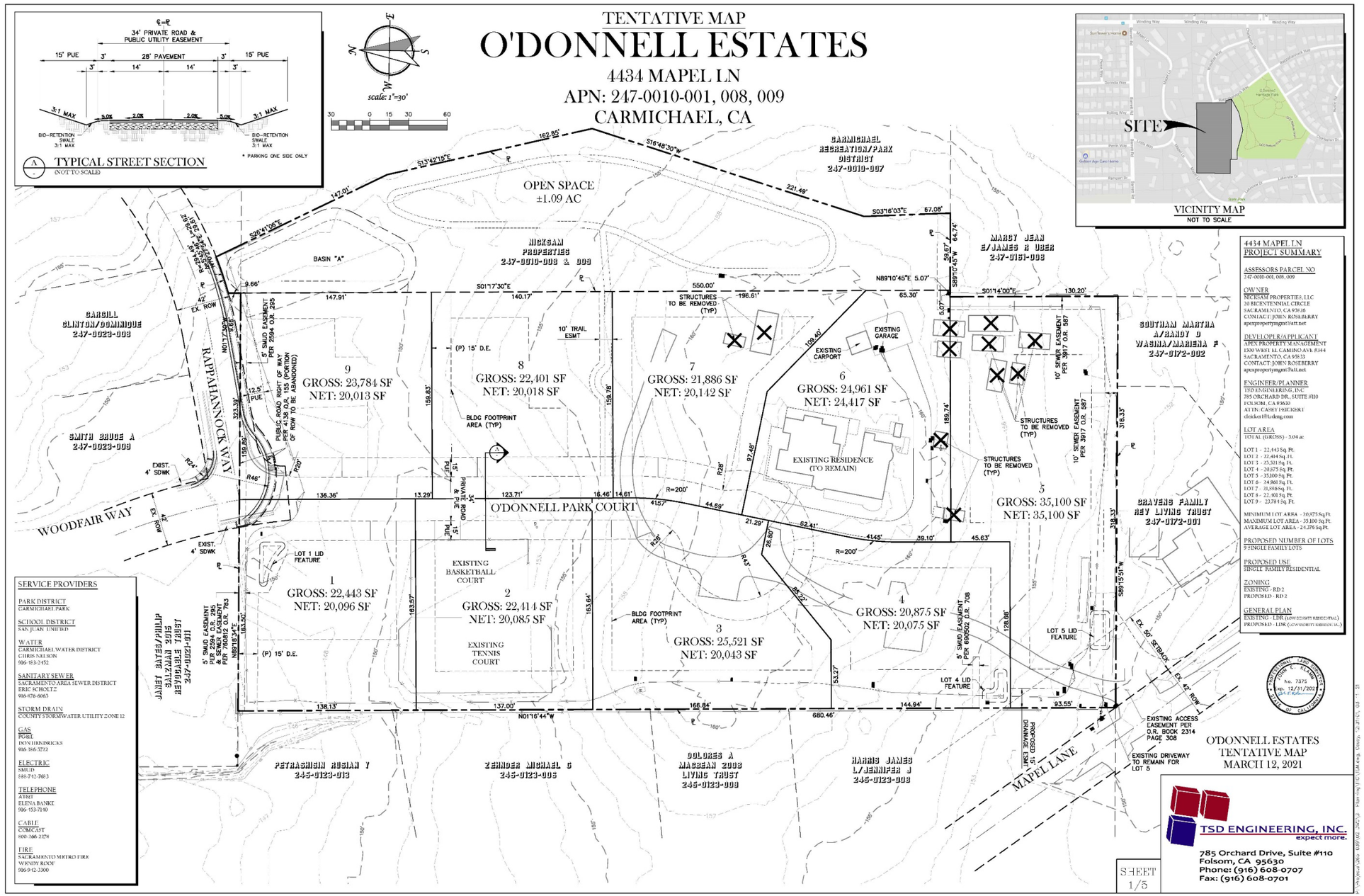


Plate PD-6: Tree Exhibit

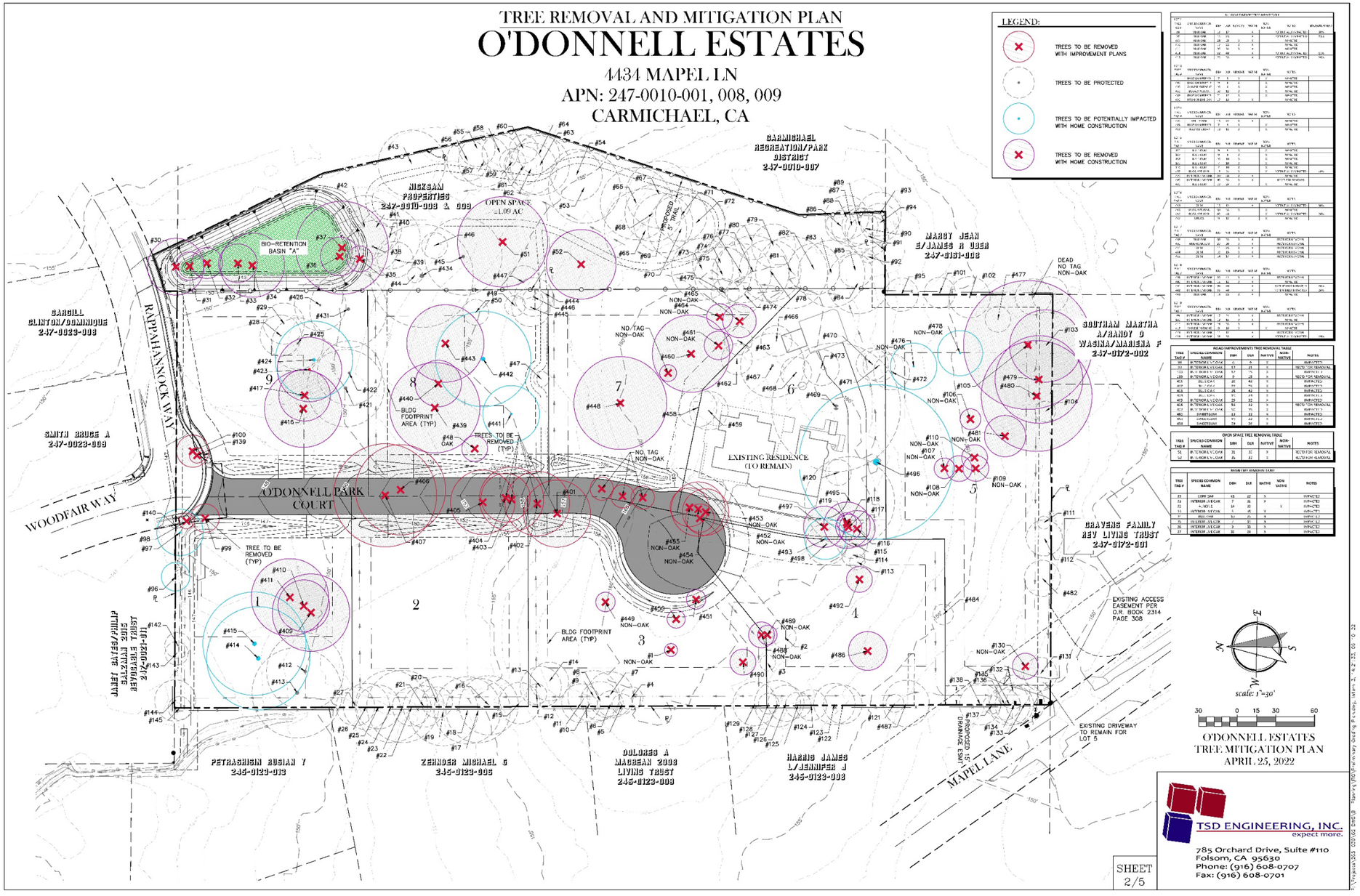


Plate PD-7: Proposed Grading Plan

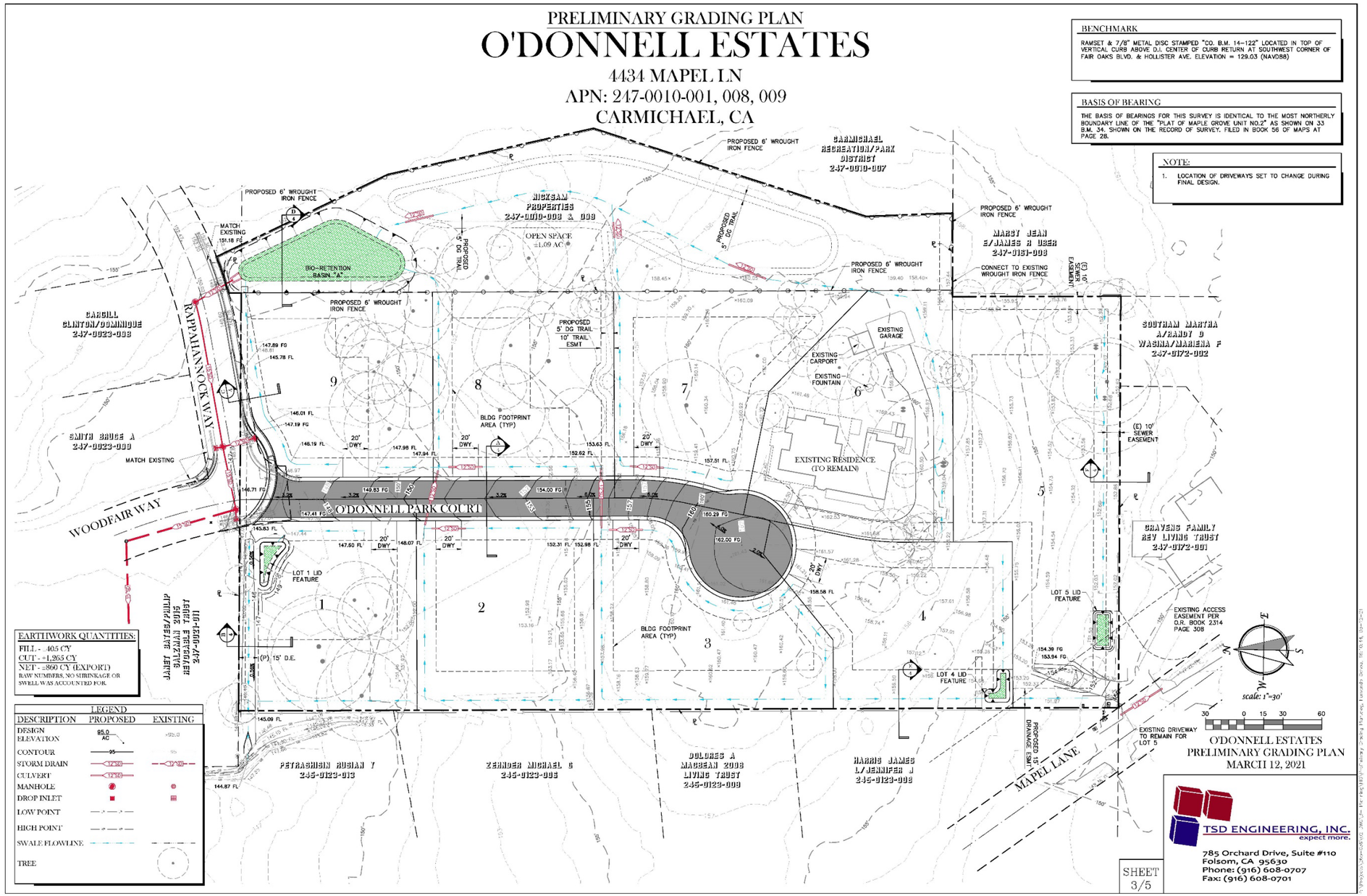
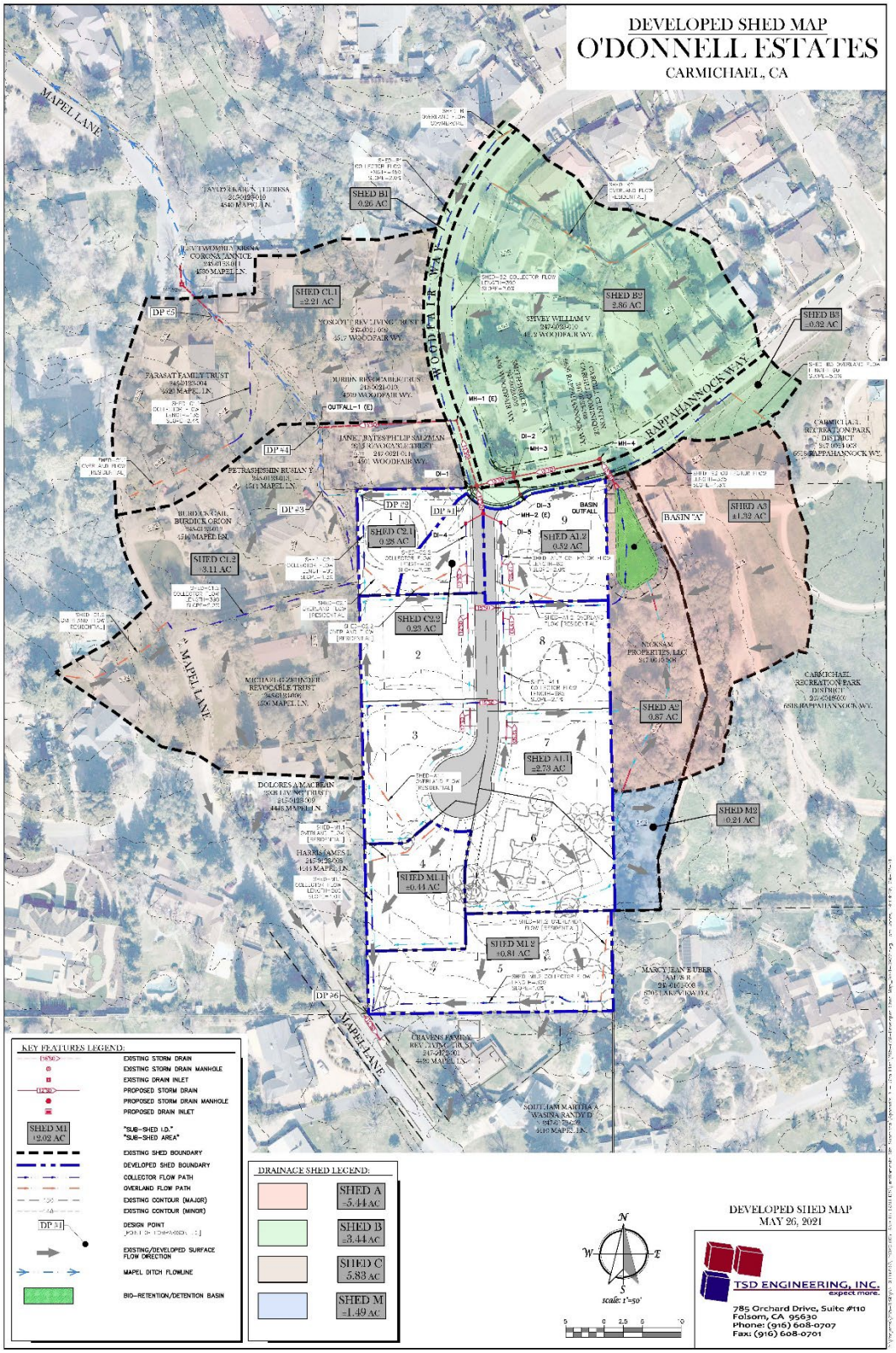


Plate PD-8: Proposed Drainage Exhibit



INTENDED USE OF THE EIR

CEQA requires that all state and local agencies consider the environmental consequences of projects over which they have discretionary approval authority. Sacramento County is the lead agency responsible for certifying this EIR.

This EIR represents a site-specific environmental document prepared in response to details that have developed regarding the proposed project. The focus areas of this EIR are land use, aesthetics, public services, traffic and circulation, air quality, noise, hydrology and water quality, biological resources, cultural resources and energy.

The Sacramento County Planning Commission will use the information contained in the EIR in evaluating the proposed project and rendering a decision to approve or deny the requested entitlements. The EIR will serve as an information document for the general public as well. Responsible agencies may also use the EIR as needed for subsequent discretionary actions.

Table PD-1: Subsequent Permits, Approvals, Review, and Consultation Requirements

Agency	Approval
Sacramento County Board of Supervisors	Final Environmental Impact Report Certification
Sacramento County Board of Supervisors	Tentative Subdivision Map, Special Development Permit and Design Review approval; review of Planning Commission decisions
Sacramento County Planning Commission	Recommendation to the Board of Supervisors regarding Tentative Subdivision Map, Special Development Permit and Design Review
Sacramento Municipal Utility District (SMUD)	Electrical utilities
County of Sacramento Site Improvement Section	Grading Permit or Improvement Plans
Sacramento Metropolitan Air Quality Management District	Fugitive Dust Prevention and Control Plan
Sacramento County EMD	Septic tank abandonment permits
Sacramento County DOT	Encroachment permit

3 ALTERNATIVES

INTRODUCTION

This chapter describes alternative versions of the proposed project which may lessen impacts or that provide meaningful information to foster informed decisions. Impact discussions are presented in a qualitative rather than quantitative manner and are briefer than those found in the project chapters, consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15126.6(d). This chapter does not repeat background discussions or other subject matter, which has already been described in the topical chapters of this EIR but focuses on those Alternative impacts which are substantively different than the impacts described for the project. Reviewers are encouraged to read the topical chapters describing project impacts prior to reading the Alternatives chapter.

RANGE OF ALTERNATIVES

According to Section 15126.6 of CEQA Guidelines:

An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibility 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.

The purpose of this section is to identify alternative project designs that would mitigate, lessen, or avoid the significant effects of the project. The project would result in significant unavoidable impacts biological resources – native tree removal, and less than significant impacts with mitigation to biological resources – special status species and non-native tree canopy removal, cultural resources, and hydrology and water quality. To foster meaningful public discussion and informed decision-making, a range of reasonable alternatives to the project is provided. This range includes the "No Project" alternative, the purpose of which is to allow the hearing body to compare the impacts of approving the project to the impacts of not approving the project. The "No Project" alternative describes what would happen if the existing land remained in its current state.

ALTERNATIVES CONSIDERED BUT REJECTED

The following alternatives were considered, but ultimately rejected due to infeasibility and/or little benefit to the environment:

- Alternative Location
- Reduced lots

ALTERNATIVE LOCATION

In order for an alternative location to the considered the site must be approximately five acres to support nine, Residential Density-2 lots, and is available to purchase. There is one parcel which meets the size and zoning requirement but is not readily available for purchase. Other larger, under-utilized parcels are different densities, within special planning areas, or contain creeks and dense vegetation.

Pursuant to CEQA Guidelines Section 15126.6(f)(2)(A), only alternative locations that would avoid or substantially lessen any other significant effects of the project need to be considered. Further, the Court held in *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App. 4th 477, that an EIR for a development consistent with applicable land use policies does not need to examine alternate sites for the project because a development proposal that implements existing planning policies should not prompt reconsideration of those policies which themselves have already undergone environmental review. An alternative site may not avoid or substantially lessen biological impacts. Further, the project is consistent with existing planning policies; therefore, an alternative project location is unnecessary and not considered further.

REDUCED NUMBER OF LOTS

A reduced lot alternative would reduce the number of lots to four, with one of the new lots containing the existing single-family residence. By decreasing the number of lots, new development could be placed such that tree preservation could be maximized; however, tree removal may still be required. The lots would be approximately 1.25 acres and well below allowed zoning densities. This conflicts with Sacramento County General Plan Land Use and Housing Elements which state:

> LU-4 The County shall give priority to residential development on vacant or underutilized sites within existing urban areas that have infrastructure capacity available.
>
> HE1.2.1 The County will promote and facilitate the build-out of vacant and underutilized urban land through infill and reuse activities, as appropriate, for housing.

Further, this alternative does not meet the applicant's objectives to provide housing consistent with the Sacramento County General Plan, Zoning density, and Carmichael Community Plan; to use the site to contribute additional housing units to the County's housing stock and help address the State's current housing crisis; and develop lots consistent with the surrounding community.

This alternative is not consistent with County goals and policies to maximize residential development in underutilized properties and does not meet the primary objectives of the applicant. Therefore, this alternative is not considered in this analysis.

Description of Alternatives

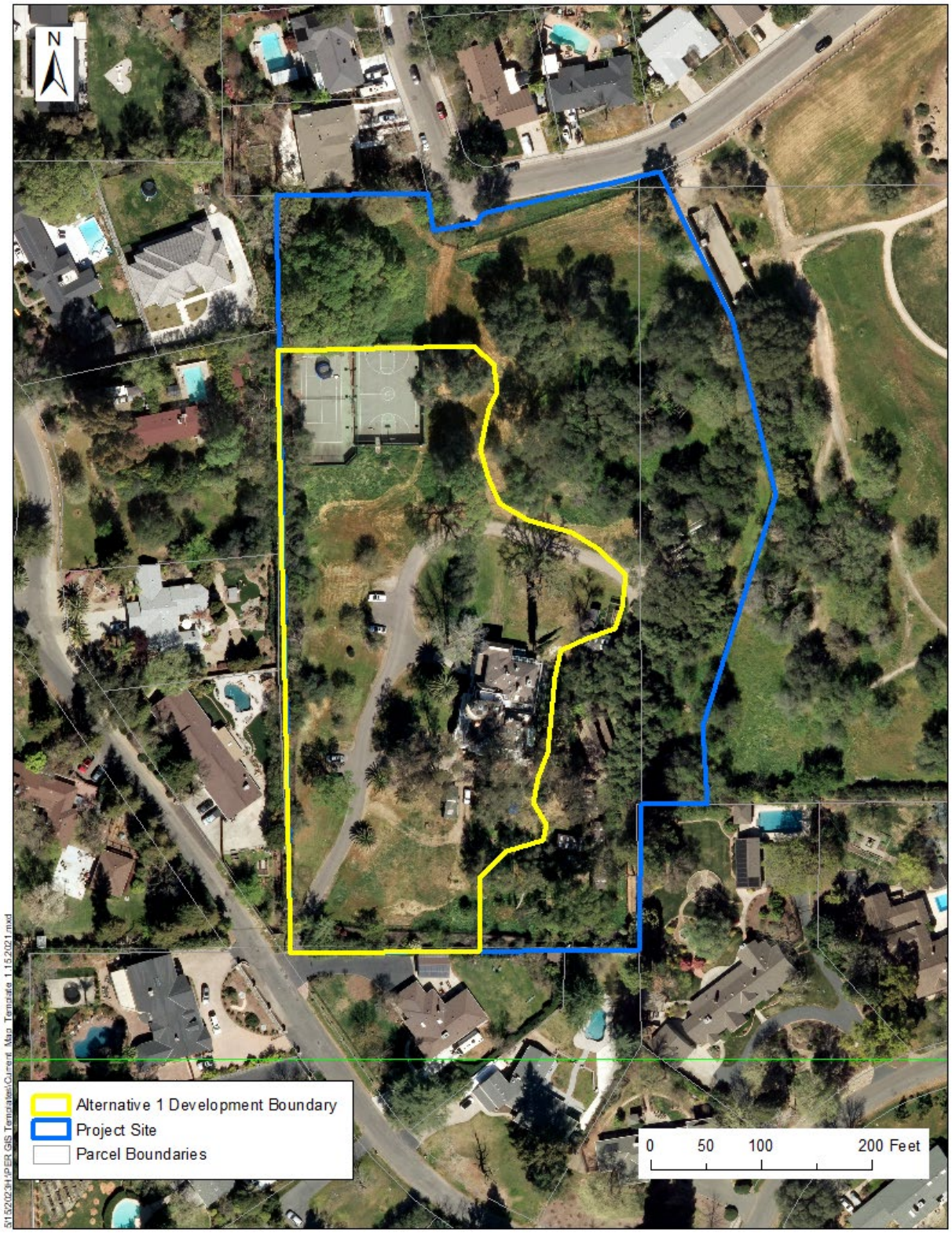
Alternative 1: Clustered Site Development

This alternative would cluster the development of the site pursuant to Sacramento Zoning Code Section 6.4.6.F, to preserve more native trees. The proposed new lots would be clustered to the west and south area of the project site where there are existing improvements and fewer native trees (Plate ALT-1). The development area would be limited to approximately three (3) acres (or half of the proposed project's size). The density of this clustered group of parcels is more similar to Residential Density – 3 (RD-3), and deviations to minimum lot area and widths would be needed to accommodate all nine lots and necessary improvements (private street and drainage facilities).

No Project Alternative

The no project alternative would assume the approximately six acre project site would remain in its current state – one parcel of approximately five (5) acres and one parcel of approximately one (1) acre. The single-family residence would remain; however, pursuant to Senate Bill 9 (SB 9), an urban lot split and/or second dwelling unit would be allowed if it meets specific criteria. Therefore, up to four new residences could be built on what was once a single parcel. Action under SB 9 would likely only apply to the five acre parcel due to biological and site constraints of the one acre parcel.

Plate ALT-1: Alternative 1 Development Boundary (2022 Photo)



IMPACTS AND ANALYSIS

AESTHETICS

The proposed project's impacts to aesthetics are already less than significant. All alternatives would further reduce these impacts.

ALTERNATIVE 1

This alternative would reduce the footprint of the developed area and preserve more trees along the eastern portion of the project site. New, single-family homes would be concentrated along the western portions of the parcel. This clustering of development may have a greater negative aesthetic perception to existing properties to the west. However, the viewpoint from the public park would be screened further since new development would be placed further away from the park and intervening natural vegetation would be retained. The perceived aesthetic impact would be reduced as compared to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would leave the project site in its current state. However, development of up to four new single-family residences could be built pursuant to current state law. This would be less dense than proposed and provide a more open feel, similar to the current state. The perceived aesthetic impact would be reduced as compared to the proposed project.

AIR QUALITY AND CLIMATE CHANGE

The proposed project's impacts to air quality and greenhouse gas emissions are already less than significant. Only the No Project Alternative would further reduce these impacts.

ALTERNATIVE 1

This alternative would involve the construction of the same number of new single-family residences and a private road. This alternative would not result in a change to air quality or greenhouse gas emissions. Impacts are similar to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would leave the project site in its current state. However, development of up to four new single-family residences could be built pursuant to current state law. The worst case scenario of four new homes would generate air quality and greenhouse gas emissions associated with construction and operation of these new homes, but approximately half as much as the proposed project. This alternative would reduce air quality and greenhouse gas emissions as compared to the proposed project.

BIOLOGICAL RESOURCES

The project's impacts on biological resources (special status species and non-native trees) are less than significant with mitigation. Impacts to native trees is significant and

unavoidable. All alternatives would reduce impacts associated with the loss of biological resources.

ALTERNATIVE 1

This alternative would reduce the footprint of the developed area and concentrate it to the portion of the land with existing development; thereby, preserving more trees within the more heavily wooded eastern portion of the project site. While the exact number of trees that may be preserved by this alternative is unknown without a detailed site plan, reviewing the proposed project tree exhibit (Chapter 11, Plate BR-1), approximately eight (8) native oak trees totaling 107 inches and 13 non-native trees could potentially be preserved. This is approximately one third of the total number of native trees proposed by the project to be removed and approximately one quarter of the inches. In addition, by retaining more trees on the project site, habitat for resident and migratory species is increased. This alternative would reduce impacts to biological resources as compared to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would substantially reduce the footprint of the developed area. Pursuant to the criteria requirements of SB 9, a parcel cannot be split if native tree removal is required. Thus impacts to native trees would be eliminated; however, removal of non-native tree canopy may still occur. This alternative would substantially reduce impacts to biological resources as compared to the proposed project.

CULTURAL RESOURCES

The proposed project's impacts to cultural resources are already less than significant with mitigation. All alternatives would further reduce these impacts.

ALTERNATIVE 1

This alternative would reduce the development footprint of the project site. The larger open space area to be set aside would not involve any ground disturbance or potential to uncover buried cultural resources. Impacts would be reduced as compared to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would substantially reduce the area of ground disturbance associated with any new building construction that may occur on the parcel which leaves more ground undisturbed. Impacts would be substantially reduced as compared to the proposed project.

HAZARDOUS MATERIALS

The proposed project's impacts to hazardous materials are already less than significant. Only the No Project Alternative would further reduce these impacts.

ALTERNATIVE 1

This alternative reduces the footprint of the development; however, there may still be removal of structures built prior to 1978 (lead based paint) and 1989 (asbestos). Construction activities would be similar to the proposed project and subject to the same regulations to prevent spills and release of hazardous materials. Each new lot would need to connect to the public sewer system either through an on-site private sewer connection or a separate connection to the public system. Impacts are similar to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would reduce hazardous materials impacts associated with construction since the amount of construction would be substantially less. Regardless, of the amount of construction, all work must comply with regulations to prevent spills and release of hazardous materials. Any new dwelling would need to connect to the public sewer system either through an on-site private sewer connection or a separate connection to the public system. The existing house would not be required to connect into the public sewer system and could remain on septic. Impacts would be reduced as compared to the proposed project.

HYDROLOGY AND WATER QUALITY

The proposed project's impacts to hydrology and water quality are already less than significant with mitigation. Only the No Project Alternative would further reduce these impacts.

ALTERNATIVE 1

This alternative would reduce the development footprint and concentrate development to the western side of the parcel. Even though this alternative would reduce the overall project footprint; the same drainage and surface hydrology concerns are present. Low Impact Development measures along with any retention or detention facilities would need to be located within this reduced footprint area. This alternative has similar drainage and surface hydrology impacts as compared to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would substantially reduce the drainage and surface hydrology impacts since there would be less impervious surfaces. Impacts would be substantially reduced as compared to the proposed project.

LAND USE

The proposed project's impacts to land use are already less than significant. Neither alternative would further reduce these impacts.

ALTERNATIVE 1

This alternative would reduce the development footprint and concentrate development to the western side of the parcel, commonly referred to as cluster development. Per the Sacramento County Zoning Code, Cluster Development is defined as, "A development in which dwelling units are arranged in one or more dwelling groups, separated by each

other by intervening open space giving visual definition to each group. Dwelling groups shall consist of two or more buildings, each containing one or more dwelling units arranged around a court." Pursuant to Zoning Code Section 6.4.6.F, clustering to preserve environmentally sensitive resources may permit residential lots to reduce minimum lot area and lot width requirements. Development rights for the preserved area shall be dedicated via conservation easement and management plans by public agency or appropriate entity. Alternative 1, generally meets the definition of a cluster development. One of the proposed project's objectives is to create a development consistent with the various land use planning documents. By clustering the development, lots may not be able to meet the development standards of the County Zoning Code and a new entitlement (Special Development Permit) would be required to deviate pursuant to the Code. County policy supports deviations in the event that issuance of a Special Development Permit would lessen impacts from the project, such as reduced tree impacts from clustering development. In addition, the slight increase in density, from RD-2 to approximately RD-3, to cluster this development is largely compatible with the surrounding community, which consists of RD-2 to the south and west and RD-5 to the north. However, clustering development on the project property would place new development on the west side of the property, closer to the existing RD-2 development. While not a policy conflict, this could be perceived as less compatible with immediately adjacent properties compared to the proposed project. This alternative would not conflict with local land use regulations with the possible addition of a new entitlement request for a Special Development Permit. Land use impacts would be similar to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would provide fewer single-family residences; however, development placement and densities would need to conform to the same land use regulations. Land use impacts would be similar to the proposed project.

NOISE

The proposed project's impacts to noise are already less than significant. Only the No Project Alternative would further reduce these impacts.

ALTERNATIVE 1

This alternative would reduce the development footprint and concentrate development to the western side of the parcel. Project construction noise would be similar since the number of new lots and site improvements would be the same as the proposed project. This alternative has similar construction noise impacts as compared to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would reduce construction noise, since there would be fewer single-family residences constructed. Impacts would be reduced as compared to the proposed project.

Public Services, Utilities, and Energy

The proposed project's impacts to public services, utilities and energy are already less than significant. Only the No Project Alternative would further reduce these impacts.

Alternative 1

This alternative would reduce the development footprint and concentrate development to the western side of the parcel. Even though this alternative would reduce the overall project footprint; the subdivision would require the same level of public services, utilities and consume a similar amount of energy. This alternative has similar public service, utility and energy impacts as compared to the proposed project.

No Project Alternative

This alternative would substantially reduce the public service, utility and energy impacts, since there would be fewer single-family residences. Impacts would be reduced as compared to the proposed project.

Transportation and Circulation

The proposed project's impacts to transportation and circulation are already less than significant. Only the No Project Alternative would further reduce these impacts

Alternative 1

This alternative would reduce the development footprint and concentrate development to the western side of the parcel. Even though this alternative would reduce the overall project footprint; the subdivision would require a private or public access off of Woodfair Way or Mapel Lane. The same number of single-family residences would be created; therefore, the trip generation would be the same. This alternative has similar transportation and circulation impacts as compared to the proposed project.

No Project Alternative

This alternative would substantially reduce the transportation and circulation impacts, since there would be fewer single-family residences and fewer trip generated. Access for future allowed-by-right single-family residences would still require similar access from the public streets. Impacts would be substantially reduced as compared to the proposed project.

Tribal Cultural Resources

The proposed project's impacts to tribal cultural resources are significant and unavoidable due to the removal of heritage oak trees. All alternatives would further reduce these impacts.

Alternative 1

This alternative would reduce the development footprint of the project site. The larger open space area to be set aside would not involve any ground disturbance or potential to uncover buried tribal cultural resources. With the larger preservation area, eight additional

oak trees would be preserved, including one heritage size - #37, 33 inches diameter at breast height. Impacts would be reduced as compared to the proposed project.

NO PROJECT ALTERNATIVE

This alternative would substantially reduce the area of ground disturbance associated with any new building construction that may occur on the parcel which leaves more ground undisturbed and fewer trees removed. Impacts would be substantially reduced as compared to the proposed project.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that an environmentally superior alternative be identified. The above analysis includes the No Project Alternative along with another alternative in order to develop a reasoned choice. However, for several reasons the No Project Alternative cannot be considered the environmentally superior alternative. First, because it does not satisfy the applicant's primary project objective – create a new, nine (9) lot subdivision map; and second, CEQA requires that if the environmentally superior alternative is the no project alternative, the EIR must identify another environmentally superior alternative. As show in Table ALT-1 below, Alternative 1 would further reduce (but not eliminate) impacts to biological, cultural and tribal cultural resources. Alternative 1 meets most of the applicant's objectives; however, the project could need an additional entitlement to meet County Development Standards. Therefore, Alternative 1 can be considered the environmentally superior alternative.

Table ALT-1: Alternatives Summary Matrix

Environmental Impact	Alternative 1	No Project Alternative
Aesthetics	Similar	Reduced++
Air Quality & Climate Change	Similar	Reduced++
Biological Resources	Reduced++	Reduced++
Cultural Resources	Reduced+	Reduced++
Tribal Resources	Reduced+	Reduced++
Hazardous Materials	Similar	Reduced++
Hydrology and Water Quality	Similar	Reduced++
Land Use	Similar	Similar
Noise	Similar	Reduced++
Public Services, Utilities and Energy	Similar	Reduced+
Transportation	Similar	Reduced++

Impact level in comparison to the proposed project:

Similar = environmental impacts are similar to those identified for the proposed project

Reduced+ = environmental impacts are slightly reduced as compared to the proposed project

Reduced++ = environmental impacts are moderately reduced as compared to the proposed project

Reduced+++ = no environmental impact

4 LAND USE, AGRICULTURE AND FORESTRY RESOURCES, POPULATION AND HOUSING

INTRODUCTION

This chapter addresses potential California Environmental Quality Act (CEQA) impacts associated with land use, agriculture, forestry, and population and housing that may result from the proposed O'Donnell Estates Project, which includes a nine lot residential subdivision and an open space lot within the unincorporated Sacramento County Carmichael Community.

For analysis of land use impacts, this chapter considers the potential impacts of the project related to the compatibility of the proposed project with adjacent land uses, consistency of the project with applicable policies, zoning requirements, and other relevant planning and policy documents, specifically, in regards to policies and standards the County of Sacramento has adopted for the intent of reducing physical environmental effects. With respect to potential impacts to agriculture and forestry resources, this chapter includes a review of relevant resources that document whether these specific resources are present on the project site. Finally, this chapter reviews CEQA impacts associated with population and housing.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. There were no responses to the NOP that directly addressed impacts related to land use, agriculture, forestry, or population and housing; however, comments received from community members prior to the release of the NOP, involved general concerns regarding land use compatibility. Further, one comment received prior to the NOP, indicated that the Proposed Project would not address regional housing needs. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

ENVIRONMENTAL SETTING

LAND USE, POPULATION AND HOUSING

The Proposed Project is located in the unincorporated area of Sacramento County within the Carmichael Community. The project vicinity includes parcels developed with residential and public park uses. The greater project vicinity is made up of a mix of land uses and features, including the American River (approximately 1.5 miles south of the project site) and associated American River Parkway, schools, apartments, commercial uses, and various residential uses (ranging from detached single family residences on large lots to medium density apartments and condominiums).

The project site is made up of two parcels designated Low Density Residential (LDR) on the Sacramento County General Plan (General Plan) Land Use Map and zoned RD-2

(low density residential 2 lots per acre) for the subdivision parcel and O (Recreation) for the open space lot. All surrounding properties are designated LDR by the General Plan and are located within the RD-2 (properties to the southeast, south, and west), RD-5 (properties to the north), or O (Recreation) (property to the east) zones. See Plate LU-1 for project site and vicinity General Plan designations and Plate LU-2 for project site and vicinity Zoning.

The adjacent parcels to the north, south and west are all developed with single-family homes. The surrounding lots are typical in size or slightly larger for the corresponding zone they are located in but generally range in size from ~12,000 square feet up to ~1 acre. The surrounding parcels make-up an established suburban neighborhood within the Carmichael Community. The project site is one of the last large lots (5 acres), zoned for residential uses, within the project vicinity. The low density neighborhood surrounding much of the project site contrasts with the slightly higher density RD-5 neighborhood located to the west of Barrett Road. In addition to be situated adjacent to a residential neighborhood, the project site borders the O'Donnell Heritage Park to the east, which is a developed public park within the Carmichael Recreation and Park District.

The closest major arterials and thoroughfares are Winding Way (~720 feet to the north), Manzanita Avenue (~ 0.9 miles to the west), and Fair Oaks Boulevard (~0.6 miles to the south). Transit service is available along major roadways in the general vicinity (such as Fair Oaks Boulevard) but there is no service in the immediate vicinity of the site.

AGRICULTURE AND FORESTRY

As indicated above, the project site and vicinity are predominately a developed suburban neighborhood with a neighborhood servicing public park. The project site is not actively farmed and review of available aerial imagery, dating back to 1937, shows no evidence that the site or general vicinity has been utilized for farming or grazing purposes in the recent past. Prior to 1937, the project site was a part of a local farmstead; however, the project site contained the homestead site and very little active farming appears to have occurred on the project site. By 1937 (per historical aerial photographs), the closet historical agricultural uses within the vicinity were orchard uses located along Winding Way to the northeast. These former orchard uses were developed with large residential tract subdivisions in the early 1970s. Today, the closest agricultural uses occur along the American River, within the Parkway, and within the unincorporated Communities of Orangevale and Rio Linda/Elverta. Additionally, while the site and general vicinity is characterized by having mature native and non-native tree resources, there are no forest lands within the project site or vicinity.

The project site is designated as Urban & Built-Up Land on the Sacramento County Important Farmland Map published by the California Department of Conservation (See Plate LU-3). The project site is also designated as urban land by the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP) (See Plate LU-4).

Plate LU-1: General Plan Land Use Designations

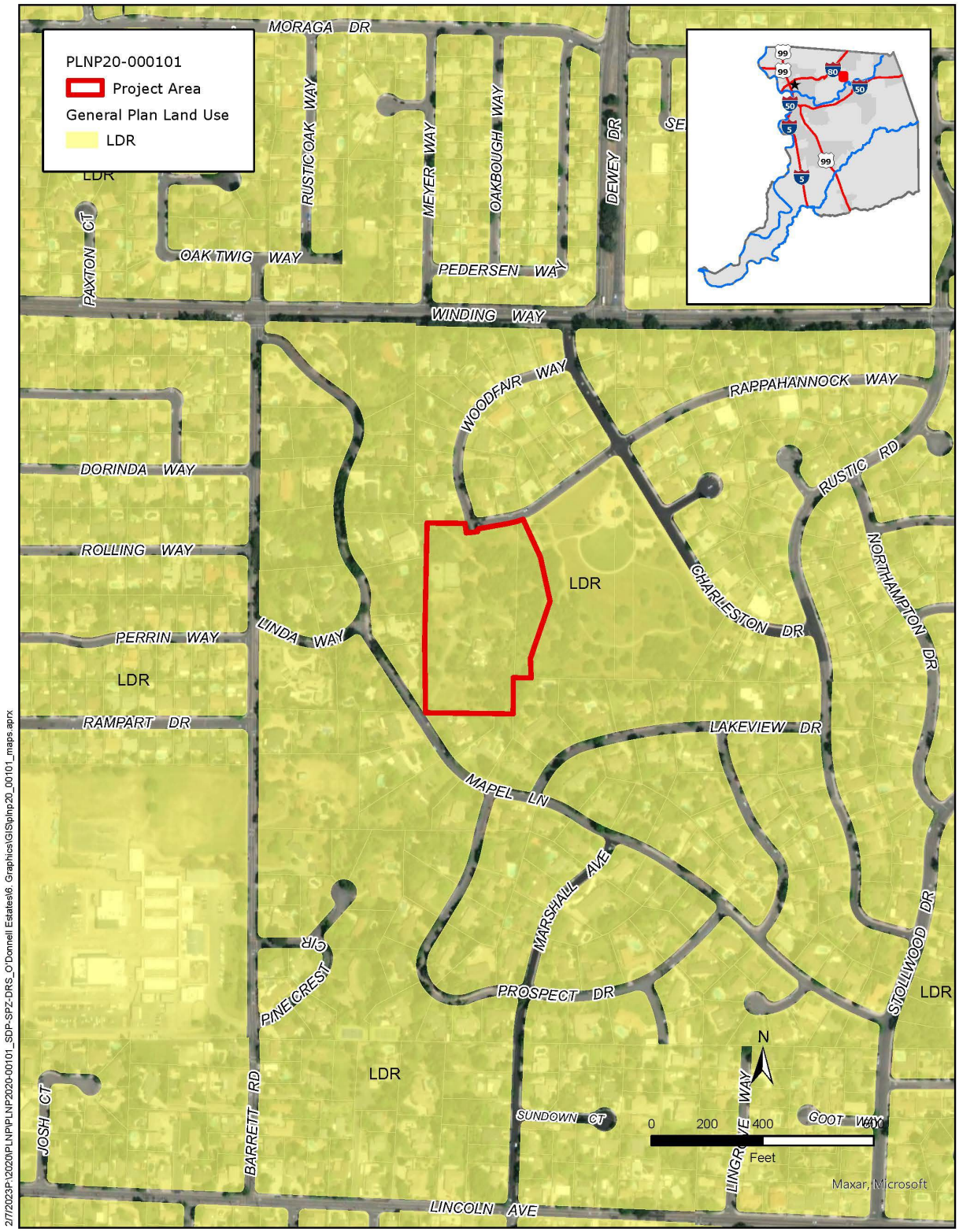


Plate LU-2: Sacramento County Zoning

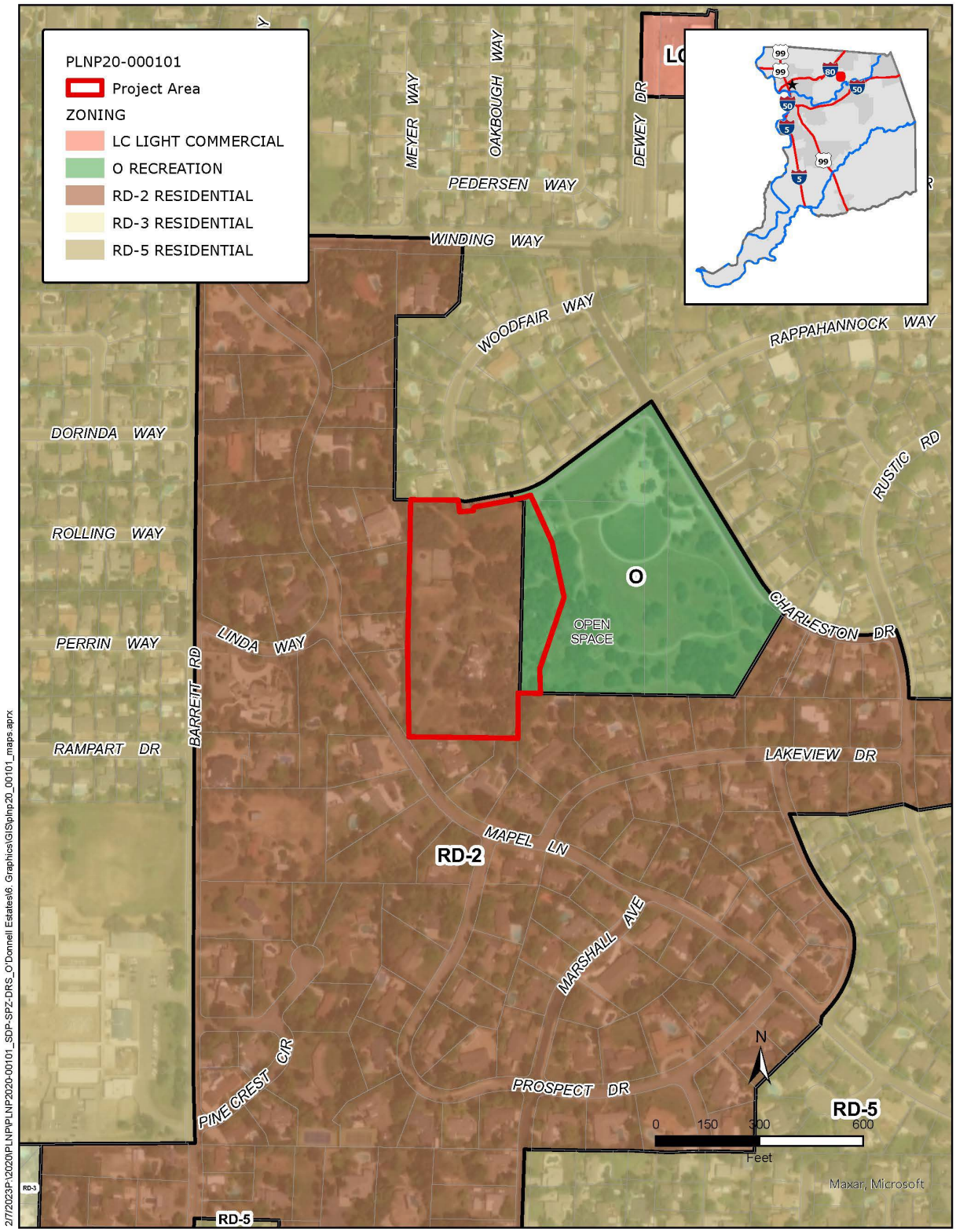


Plate LU-3: Sacramento County Important Farmland Map

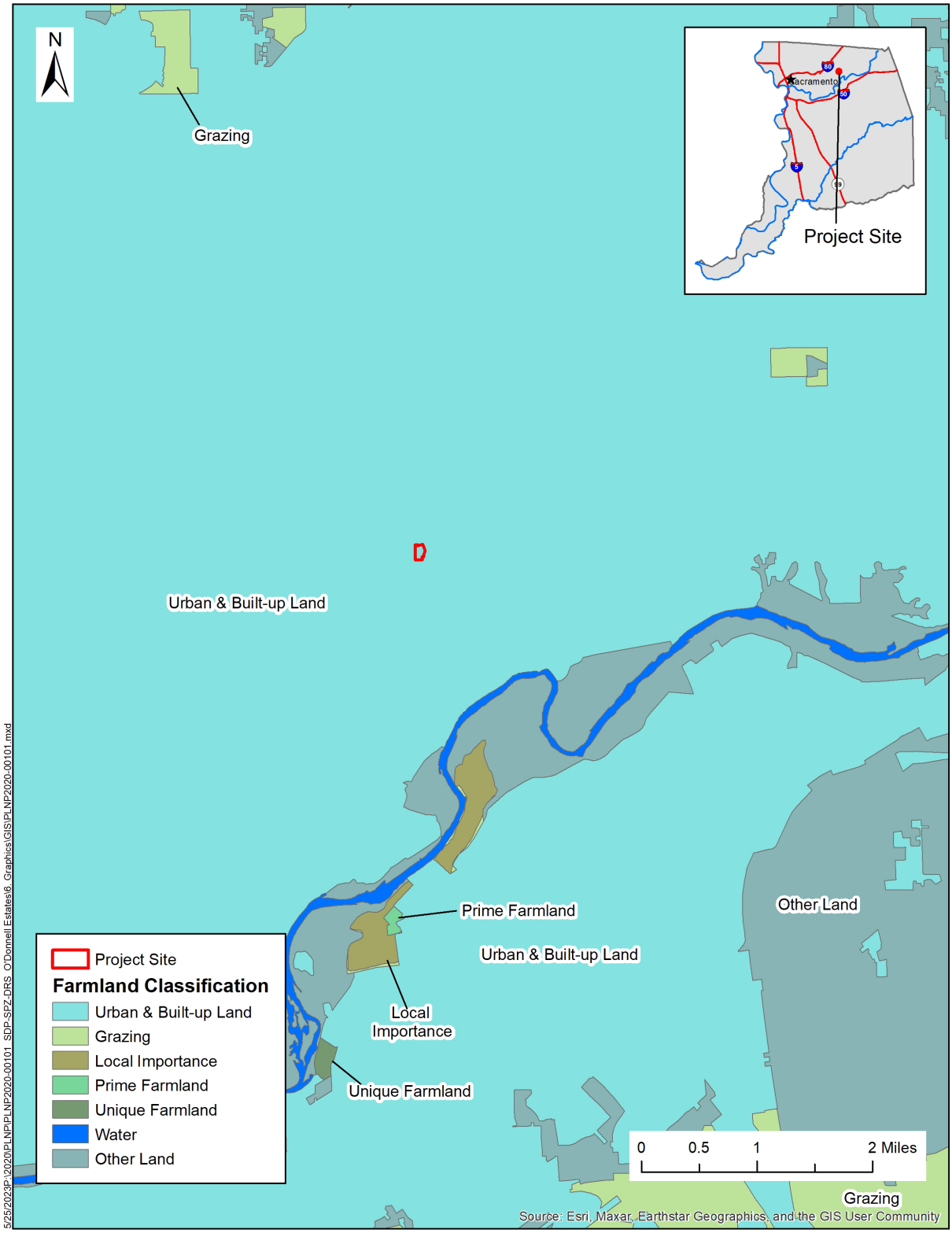
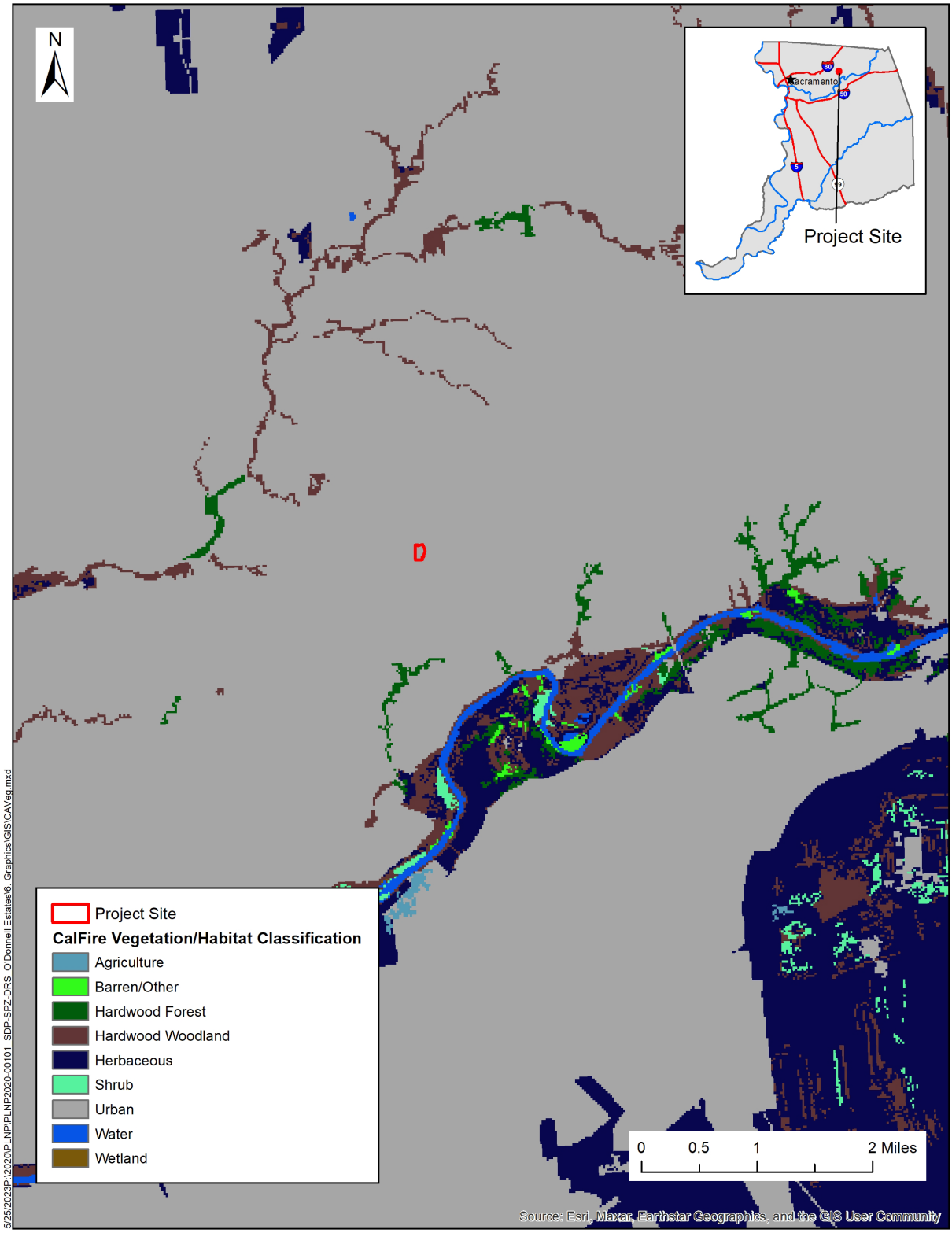


Plate LU-4: California Fire and Resource Assessment Program (FRAP)



REGULATORY SETTING

SACRAMENTO COUNTY 2030 GENERAL PLAN

The General Plan provides an inventory of land supply within the County, and projects the amount and location of land and development that will be required to accommodate future populations and economic growth through 2030 (Sacramento County 2011).

GROWTH MANAGEMENT POLICIES: URBAN POLICY AREA AND URBAN SERVICE BOUNDARY

The General Plan designates an Urban Policy Area (UPA) and an Urban Services Boundary (USB) for growth management purposes. The Urban Service Boundary (USB) indicates the ultimate boundary of the urban area in the unincorporated County, and also serves as the ultimate boundary for urban service provision. This boundary, which is based upon natural and environmental constraints to urban growth, is intended to be a permanent boundary not subject to modification except under extraordinary circumstances. The USB should be used by urban infrastructure providers for developing very long-range master plans, which can be implemented over time as the urbanized area expands.

The Urban Policy Area (UPA) defines the area expected to receive urban levels of public infrastructure and services within the 20-year planning period of the General Plan. Defining the Urban Policy Area is of key importance in the provision of urban services and infrastructure to the unincorporated County, as it provides the geographic basis for infrastructure master plans, particularly for public water and sewerage, which require large capital investment and relatively long lead time for the installation of capital improvements.

The Project site is located within the USB and UPA.

LAND USE ELEMENT

The General Plan Land Use Element's "primary role is to ensure that the County's land resources are utilized in the most efficient, equitable and productive manner possible to provide a high quality of life for both current and future residents" (2030 General Plan).

The General Plan designates each property within the County with a land use designation. The project site and vicinity is designated for LDR land uses within the General Plan. According to the General Plan the LDR designation is defined as follows:

> This designation provides for area of predominately single family housing with some attached housing units. It allows urban densities between one and twelve dwelling units per acre, resulting in population densities ranging from approximately 2.5 to 30 persons per acre. Typical low density development includes detached single family homes, duplexes, triplexes, fourplexes,

townhouses, lower density condominiums, cluster housing, and mobile home parks.

The General Plan Land Use Element identifies several different strategies to accommodate growth in a logical manner. Within the USB and UPA, the General Plan provides an urban growth strategy for build-out of infill sites. The objective of this strategy is as follows:

> On average, achieve buildout of vacant and underutilized infill parcels at existing zoned densities, while recognizing that individual projects may be approved or denied at higher or lower densities based on their community and site suitability.

This portion of the Land Use Element provides additional intent information by recognizing that within our established urban communities, there exists substantial acreage that is vacant or underutilized that have essential infrastructure available that should be targeted for development opportunity. This section also includes the following relevant policy that pertains to the proposed Project:

> LU-4: The County shall give priority to residential development on vacant or underutilized sites within existing urban areas which have infrastructure capacity available.

Agricultural Element

The General Plan Agricultural Element's primary goals are to:

- Protect/maintain the County's agricultural lands, their agricultural productivity and natural resource benefits they provide; and,
- Promote/support farming and related industries as a strong and viable sector of the economy of a rapidly urbanizing County.

To that end, most of the Agricultural Element is focused on agricultural operations located outside of the USB and UPA; however, urban farming and mapped farmland that occurs within the USB and UPA is also addressed. Specifically the Agricultural Element addresses conversion of agriculture (either naturally – e.g. wind erosion or flooding – or from direct or indirect development pressures), encroachment, agricultural zoning, Williamson Act, and economic viability of agriculture (pest and fire hazard control, farm housing, agri-tourism, etc).

For projects that are located within the USB and UPA and also subject to development, the following policy may apply:

> AG-5. Projects resulting in the conversion of more than fifty (50) acres of farmland shall be mitigated within Sacramento County, except as specified in the paragraph below, based on a 1:1 ratio, for the loss of the following farmland categories through the specific planning process or individual project entitlement requests to provide in-kind or similar resource value protection (such as easements for agricultural purposes):

- prime, statewide importance, unique, local importance, and grazing farmlands located outside the USB;
- prime, statewide importance, unique, and local importance farmlands located inside the USB.

The Board of Supervisors retains the authority to override impacts to Unique, Local, and Grazing farmlands, but not with respect to Prime and Statewide farmlands.

However, if that land is also required to provide mitigation pursuant to a Sacramento County endorsed or approved Habitat Conservation Plan (HCP), then the Board of Supervisors may consider the mitigation land provided in accordance with the HCP as meeting the requirements of this section including land outside of Sacramento County.

Note: This policy is not tied to any maps contained in the Agricultural Element. Instead, the most current Important Farmland map from the Department of Conservation should be used to calculate mitigation.

SACRAMENTO COUNTY ZONING CODE

The purposes of the Sacramento County Zoning Code (Zoning Code) are diverse; however, in general, the Zoning Code regulates the use of structures, buildings and land to encourage the most appropriate uses within the unincorporated Sacramento County. The Project site is zoned RD-2. Chapter 2 of the Zoning Code defines the basics purpose and summary of the RD-2 zone as:

> Low Density Single-Family Residential Zoning District. Same as RD-1, except a minimum lot size of 20,000 square feet, with minimum lot width of 75 feet is permitted if a public sewer facility is in use or if a public sewage facility and public water facility are both in use.

Chapter 3 of the Zoning Code defines the use regulations within each zone. According to Table 3.2 of the Zoning Code, single family homes (detached) are a permitted use within the RD-2 zone.

Chapter 5 of the Zoning Code stipulates the residential development standards including but not limited to lot area, width, public street frontage standards, density, setbacks, and building height and landscaping. Further, Table 5.7.B provides subdivisions standards for single-family subdivision development.

CARMICHAEL COMMUNITY PLAN AND ACTION PLAN

The Carmichael Community Plan (Community Plan), adopted in 1975, was prepared as a guide for the physical development of Carmichael. The Community Plan includes goals, recommendations, and policies regarding land use, transportation and circulation, recreation and open space, and public facilities and utilities. The Community Plan has an implementation guide to review projects against the recommended actions and policies

of the Community Plan and to determine zoning consistency with the Community Plan land use designation.

In 2006, the Carmichael Community Action Plan (Action Plan) was adopted as an appendix to the Community Plan. Supplementing the Community Plan, the Action Plan identifies on-going, short-term, and long-term actions related to neighborhood services, transportation, community identity, land use, public safety, county/non-county services, and financing options.

SIGNIFICANCE CRITERIA AND METHODOLOGY

SIGNIFICANCE CRITERIA

LAND USE AND PLANNING

Based on the CEQA Guidelines, a land use and planning impact is significant if Project implementation results in any of the following:

1. Physically divide an established community; or
2. 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.

AGRICULTURE AND FORESTRY RESOURCES

Based on the CEQA Guidelines, an agriculture and forestry resource impact is significant if the Project implementation results in any of the following:

1. 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;
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract;
3. 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));
4. Result in the loss of forest land or conversion of forest land to non-forest use; or,
5. 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.

The General Plan supplements the significance criteria listed above for the conversion of Farmland. Policy AG-5 (listed above), indicates that conversion of 50 acres or more of the following farmland types/location constitutes a significant impact:

- prime, statewide importance, unique, local importance, and grazing farmlands located outside the USB;
- prime, statewide importance, unique, and local importance farmlands located inside the USB.

Population and Housing

Based on the CEQA Guidelines, a population and housing impact is significant if Project implementation results in any of the following:

1. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, though extension of roads or other infrastructure); or
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing.

Issues not discussed further

The project does not occur within agricultural zoning, Williamson Act contract, and it does include a rezone; therefore, the project would have no impact associated with:

1. Conflict with existing zoning for agricultural use, or a Williamson Act contract;
2. 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));

Methodology

An evaluation of the potential land use, agriculture, forestry and population and housing impacts associated with implementation of the Project was based on a review of planning documents, including the various components and policies of the Sacramento County General Plan and Zoning Code, other County regulations affecting planning and implementation of the General Plan, California Department of Conservation Important Farmland Map, and consultation with appropriate agencies.

Impacts And Analysis

Land Use (LU) Impacts and Analysis

Impact LU-1: Physically Divide An Established Community

The Project site is located within a suburban neighborhood surrounded by developed single-family properties and a public park. The project site is currently developed with a single-family home and associated improvements. The project site is fenced off and there is no general-public access to or through the project site to the O'Donnell Heritage Park or to adjacent bordering roads (i.e. Maple Lane to the south). The project proposal would

result in the development of eight additional single-family homes (the existing single family home will remain on the site). Each lot will be privately owned and general public access will not occur on the private property. The open space lot on the project site will remain in open space and will be utilized by the property owners of the subdivision; there will be no general public access, consistent with the existing condition. Given that the existing site is fenced and utilized as a private residence, the development of the project site will not result in a division of the surrounding established community. The project will result in a ***less than significant impact*** related to the physical division of an established community.

IMPACT LU-2: CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO A CONFLICT WITH ANY LAND USE PLAN, POLICY, OR REGULATION OF AN AGENCY ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

GENERAL PLAN CONSISTENCY

The project is located within the USB and UPA in the unincorporated Carmichael Community. Areas within the USB and UPA have vital public infrastructure available and the General Plan supports revitalization of underutilized parcels within the urban areas. The portion of the project site that will be developed with additional single-family homes is approximately five acres in size and one of the largest underutilized residential parcels within the community. The project site has existing urban infrastructure serving the existing residence and only minor infrastructure modifications and upgrades will be required to serve the proposed project.

The project site is designated for LDR uses within the General Plan and the proposed project will be consistent with the land uses anticipated within the LDR designation. The proposed project is consistent with and supports the following growth management policies of the Land Use Element of the General Plan:

> LU-3. It is the intent of the County to focus investment of public resources on revitalization efforts within existing communities, especially within commercial corridors, while also allowing planning and development to occur within strategic new growth areas.
>
> LU-4: The County shall give priority to residential development on vacant or underutilized sites within existing urban areas which have infrastructure capacity available.

The location of the project development within the USB and UPA is consistent with these policies intended to help target growth in the unincorporated County. Further, developments, such as the O'Donnell Estates Subdivision, reduce growth pressures on the "greenfield" areas of the County located outside of the USB and UPA, which reduces overall environmental impacts. This is a fundamental goal and overarching theme of policies throughout the General Plan.

ZONING CODE CONSISTENCY

The project site is zoned RD-2 and O and consists of a residential subdivision and associated open space. The Zoning Code stipulates specific requirements for development within each land use zone. All residential zones include specific standards that include but are not limited to minimum lot size, minimum public street frontage, and setbacks. The proposed subdivision meets all of the minimum standards for lots within the RD-2 zone, with the exception of minimum public street frontage. Per the Zoning Code (Section 5.4.2.B, Table 5.7.A, Footnote 8), up to two lots may be served by a private drive without meeting the public street frontage requirement. The project is proposing eight lots be served by a private drive; therefore, the application includes a request for a special development permit to deviate from the public street frontage development standard. The Zoning Code reviews this standard to ensure proper mechanisms are in place for maintenance and operation of a private drive within subdivisions. This standard was not adopted for the purpose of avoiding or reducing an environmental effect; therefore, the project's deviation from the Zoning Code for a private drive does not result in an impact under CEQA.

The proposed project is consistent with the requirements of the RD-2 zone and the special development permit from minimum public street frontage does not constitute an environmental impact.

The portion of the project site that is zoned O will be utilized for passive recreation by homeowners of the subdivision. Additionally, this area will provide detention of stormwater during certain events (See the Hydrology Chapter for details). Per the Zoning Code, the O zone should be utilized as recreation areas for parks and wildlife preserves, or similar. Given the extensive tree coverage in this area, recreational uses will be more passive in nature to reduce impacts to mature oak trees. The proposed use is consistent with the intent of the O zone.

CARMICHAEL COMMUNITY PLAN AND ACTION PLAN CONSISTENCY

The Carmichael Community Plan land use designation for the project site is RD-2, which is consistent with the zoning for the site. The Community Plan also indicates that the project area is a "semi-rural" area that should be developed at lower residential densities to maintain private open space and associated natural resources. The Action Plan builds upon the Community Plan and adds the following policy regarding the designated semi-rural areas within the Community Plan area:

> L1: Projects within semi-rural neighborhoods should be built using the existing zoning of 1 or 2 homes per acre. Discourage rezones to preserve the semirural character and encourage retention of larger lot sizes and setbacks consistent with the neighborhood.

The proposed project is consistent with RD-2 land use designation and policies as it will result in development at existing zoning of 2 homes per acre.

IMPACT LU-2 CONCLUSION

As demonstrated by the above analysis, the Proposed Project does not conflict with the land use policies of the General Plan, Zoning Code or Carmichael Community Plan that were adopted for the purpose of avoiding or reducing an environmental effect. Impacts are ***less than significant***.

AGRICULTURE AND FORESTRY (AG) IMPACTS AND ANALYSIS

IMPACT AG-1: 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

Though agricultural production occurred within the Carmichael Community historically, there is no evidence that agricultural production has occurred on the project site or general vicinity since before 1937. According to the Sacramento County Important Farmland Map published by the California Department of Conservation the project site is located on “Urban & Built-up Land” and is not considered a sensitive farmland resource. Therefore, the proposed project will not result in conversion of agricultural land to a non-agricultural use. Impacts related to conversion of farmland are ***less than significant***.

IMPACT AG-2: RESULT IN THE LOSS OF FOREST LAND OR CONVERSION OF FOREST LAND TO NON-FOREST USE

According to the California Department of Forestry and Fire Protection’s Fire and Resource Assessment Program (FRAP), the project site is not located within important forest land. The FRAP Landcover map designates the project site as urban area. Although the project site contains mature trees, some of which will be impacted by development, the trees on the project site do not represent forest land. Therefore, the project will not result in conversion or loss of forest land. (See the Biological Resources Chapter for additional information and assessment of impacts related to the loss of mature trees on the project site.) Impacts related to loss or conversion of forest land are ***less than significant***.

IMPACT AG-3: 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

The parcel is surrounded by predominantly residential uses to the north, west, and south and is located adjacent to the O’Donnell Heritage Park to the east. None of the surrounding parcels or general vicinity is in agricultural use or mapped as important farmland. Thus, buildout of the proposed project will not result in pressures on adjacent property that would result in conversion of agricultural lands or important farmland. Additionally, although surrounding properties contain mature trees, they do not contain forest lands; therefore, development of the site will not result in conversion of forest lands onsite or offsite. Impacts are ***less than significant***.

Population and Housing (PH) Impacts and Analysis

Impact PH-1: Induce Substantial Unplanned Population Growth In An Area, Either Directly (For Example, By Proposing New Homes And Businesses) Or Indirectly (For Example, Though Extension Of Roads Or Other Infrastructure)

The project site is zoned for residential uses at a density of 2 units per acre (RD-2) and has been designated as an RD-2 property in the Community Plan that dates back to 1975. The project site contains one existing single-family home on a parcel of ~5 acres and is considered an underutilized property that could support additional growth. The General Plan, Community Plan, and Zoning Code designate properties within the unincorporated County with a land use designation as a way to plan for growth and support orderly development. Additionally, public utilities and service providers utilize these land use designations to plan the infrastructure and services needed to support the planned growth. Development of underutilized parcels consistent with zoning is prioritized and supported by General Plan policies such as LU-4 (listed above). Further, Housing Element policies such as General Plan Policy HE-1.2.1 supports residential growth in areas of underutilized urban land.

The proposed project will add eight new dwellings and will retain the existing single-family home and will result in a development that is consistent with the RD-2 zone. Given that the project will develop at planned densities, it will not induce direct unplanned population growth. Surrounding properties are developed with single-family homes on parcels that are consistent with the associated zones and are served by existing roadways and infrastructure. The project will require minor extension to existing infrastructure and will not expand the overall capacity of the infrastructure such that substantial unplanned growth may be served; therefore, the project will not result in indirect unplanned population growth.

The project results in ***less than significant impacts*** associated with unplanned population growth.

Impact PH-2: Displace Substantial Numbers Of Existing People Or Housing, Necessitating The Construction Of Replacement Housing

The Project site contains one single-family home that will remain on the project site. The proposed project will not displace existing people or housing; impacts are ***less than significant***.

Mitigation Measures

None recommended.

Cumulative Impacts

Land Use

The project will occur on an underutilized residential property that is surrounded by existing development and associated existing roadways and infrastructure. The project site is a private property with an existing single family home and will remain a private subdivision. The project will not result in singular impacts associated with division of an established community and would have no cumulative impact. Additionally, the project is consistent with all applicable land use plans and policies and would not result in cumulative impacts as it relates to land use plan consistency. Cumulative land use impacts are ***less than significant***.

Agriculture and Forestry

The proposed project will not directly or indirectly impact agricultural or forestry resources; therefore, the project will have no cumulative impact on these resources. Cumulative impacts to agriculture and forestry are ***less than significant***.

Population and Housing

The proposed project will result in the build-out of an existing underutilized site at planned densities. The surrounding area is entirely developed with single-family homes or a public park served by existing public roadways and associated infrastructure. The project will not result in direct or indirect unplanned growth. The projects will also not result in any displacement of existing people or housing as the existing home will remain on the project site. No cumulative population and housing impacts will occur and cumulative impacts are ***less than significant***.

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5 AESTHETICS

INTRODUCTION

This chapter examines existing viewsheds, existing visual character, and the visual quality of the site and surrounding area. It also examines if new sources of light and glare would affect day or nighttime views in the area. Finally, this chapter evaluates potential aesthetics impacts of the proposed project on the surrounding area.

The quality of the visual experience associated with a project is dependent on the character of the project site, as well as the individual perspective and values of the viewer. Typically, residents and recreational viewer groups are especially concerned about the appearance of their visual environment, because their viewing experience is more than merely transitory. Perceived adverse visual impacts associated with a project can be the source of concerned opposition, even to projects that may otherwise be well-received.

It should be emphasized that when a viewer group perceives a negative change in the viewshed, this is not necessarily because the new development is unattractive. If a viewer had never seen pre-project conditions, their perception of the visual quality of a given project might be quite high. Thus, the impact typically occurs not because of the quality of the project in question, but rather because of the substantial change in the nature of the view. Many viewers value undisturbed open space views much more highly than views of urbanized or developed property, regardless if a project is well designed and balanced.

Aesthetic impacts are subjective, and therefore often treated as an impact topic in which thorough objective analysis is not possible. Although visual impacts are subjective and may be viewed differently by various individuals, it is also true that residents of the United States agree on the high visual quality of many landscapes. These areas are often designated as national parks and scenic spots. These agreed-upon factors and concepts of natural beauty can be used to assess the visual impacts of a project.

ENVIRONMENTAL SETTING

VISUAL RESOURCE EVALUATION CONCEPTS AND TERMINOLOGY

Both natural and created features in a landscape contribute to its visual character. Landscape characteristics that influence the visual character include geologic, hydrologic, botanical, wildlife, recreation, and urban features. The basic elements that comprise the visual character of landscape features are form, line, color, and texture. The appearance of the landscape is described in terms of the dominance of each of these elements.

Several sets of criteria have been developed for defining and evaluating visual quality. The criteria developed by the Federal Highway Administration (FHA) (FHA 1988) and the

U.S. Forest Service (USFS) (USFS 1995), which are used in this analysis, include the concepts of vividness, intactness, and unity. According to these criteria, none of these is itself equivalent to visual quality; all three must be considered high to indicate high quality visual resources. These terms are defined as follows:

- "Vividness" is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- "Intactness" is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements.
- "Unity" is the visual coherence and compositional harmony of the landscape considered as a whole.

Viewer sensitivity, also considered in relation to visual quality, depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also affected by viewer activity, awareness, and expectations in combination with the number of viewers and the duration of the view. The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer. Generally, the closer a resource is to the viewer, the more dominant, and therefore visually important, it is to the viewer.

EXISTING VISUAL RESOURCES

With the exception of areas developed with structures and the existing driveway (off Mapel Lane), the project site is vegetated throughout with native and non-native trees. The site contains the following native oak trees: interior live oak, blue oak and valley oaks. A variety of non-native trees are located on the subject property, including: olive, almond, blue gum, pear, chinese pistache and sweetgum.

VISUAL CHARACTER AND QUALITY

OBSERVATION POINTS

The description of the visual character at the project site is illustrated in the plates that follow, with visual descriptions from key observation points (KOP) as outlined below.

KEY OBSERVATION POINT 1

KOP-1 is taken from the public viewpoint from Rappahannock Way, near the intersection of Rappahannack Way and Woodfair Way, looking south onto the project site.

KEY OBSERVATION POINT 2

KOP-2 illustrates the project site as viewed from O'Donnell Park. The image is taken from the playground of the park, south of the project site, looking north to the project site.

KEY OBSERVATION POINT 3

KOP-3 is taken from the dirt pedestrian path located on O'Donnell Park, looking north and west to the perimeter of the project site, adjacent the proposed open space lot.

LIGHT AND GLARE

Nighttime lighting and glare can create issues for motorists when driving. In addition, nighttime lighting can create "skyglow," which results in an artificially bright nighttime sky from man-made lighting, which obscures views of the stars. Daytime glare can result in hazards for nearby motorists and for airplane pilots following low-level flight paths to nearby airports. Information related to existing nearby airports is provided below for context related to the glare analysis.

DESIGNATED SCENIC ROADWAYS

The Department of Transportation (Caltrans) manages the State Scenic Highway Program and assists local communities seeking to officially designate state scenic highways (Caltrans 2023). In addition, Sacramento County has designated certain roadway segments as scenic highways or scenic corridors as part of its General Plan (Sacramento County 2022).

There are no designated or eligible state scenic highway adjacent to or in the vicinity of the project site. The nearest State-designated highway is SR 160 (River Road), is approximately 17 miles to the west. SR 160 is also designated as a County Scenic Highway.

Plate AE-1: Key Viewpoint Overview



Plate AE-2: View From Rappahanack Way (KOP-1)



Plate AE-3: View From O'Donnell Park (KOP-2)



Plate AE-4: View From O'Donnell Park Pedestrian Path (Key Observation Point 3)



REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

TITLE 24 OUTDOOR LIGHTING

The 2016 Building Efficiency Standards of Title 24 include regulations for outdoor lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone, which are zones LZ1 through LZ4. The ambient illumination for LZ1 is "dark", for LZ2 is "low", for LZ3 is "medium", and for LZ4 is "high" (see Table 10-114-A of the 2022 Building Efficiency Standards). Lighting regulations for areas of lower ambient lighting are more strict – providing lower wattage allowances – in order to protect those areas from new sources of light pollution and light trespass. According to the 2020 US Census map for the Sacramento region, the project site is located within the area designated as Urban; therefore, the Project site is located within lighting zone LZ3.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

SACRAMENTO COUNTY GENERAL PLAN

The *Sacramento County General Plan of 2005–2030* (Sacramento County 2020) includes the following policies related to aesthetics that apply to the proposed project.

LAND USE ELEMENT

LU-18. Encourage development that complements the aesthetic style and character of existing development nearby to help build a cohesive identity for the area.

LU-31. Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

SACRAMENTO COUNTYWIDE DESIGN GUIDELINES

The *Sacramento Countywide Design Guidelines* (Sacramento County 2022) were adopted to promote high quality, sustainable, and healthy community design. The objectives of the Guidelines, in conjunction with the County's Design Review Program, are to: achieve high standards for the quality of the built environment, advance sustainable development, and provide business and user-friendly practices. The guidelines also incorporate sustainability practices that include green building and construction which can facilitate sustainability by generating jobs; and increasing energy efficiency, water conservation, and air quality and waste reduction. Chapter 2 of the Guidelines presents single family dwelling design guidelines that apply to the proposed project.

SACRAMENTO COUNTY ZONING CODE SECTIONS 3.5 AND 6.3

Sacramento County Zoning Code Section

Sacramento County Zoning Code Section 6.3, Design and Site Plan Review, sets forth the provisions of the County's Design Review Program, in which discretionary and non-discretionary projects are reviewed to determine a project's compliance with the Countywide Design Guidelines (Sacramento County 2022). As stated in Section 6.3 of the Zoning Code Section, the purpose of the Design Review Program is to:

1. Create a sense of place in Sacramento County's new growth areas, mixed-use, commercial, business, multifamily, and single-family residential districts;
2. Create a mix of uses and activities that create a healthy, social, livable, sustainable and economic environment for the diverse communities and commercial corridors in Sacramento County;
3. Create mixed-use, commercial, business, multifamily, and single-family residential districts that are designed to promote the health, safety and convenience of the pedestrian and provide active design and transportation choices that include multiple modes (walking, bicycling and transit);
4. Support the goals of the General Plan;

5. Preserve and enhance environmental quality;
6. Promote high quality design and active communities; and
7. Promote compatibility and increased connectivity between new development and surrounding development.

For discretionary projects, the Design Review Advisory Committee (DRAC) conducts design reviews and makes findings and recommendations to the approving authority regarding compliance with the County-wide Design Guidelines. The DRAC does not have final authority over projects and serves in an advisory and technical guidance capacity to the approving authority (Zoning Code Section 6.3.2.E.2).

The appropriate approving authority is required to make one of the following findings (Zoning Code Section 6.3.2.F):

1. The project substantially complies with the County-wide Design Guidelines;
2. The project would substantially comply with the County-wide Design Guidelines if modified with recommended modifications; or
3. The project does not comply with the County-wide Design Guidelines and should, as consequence, not be approved.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to aesthetics if it would:

1. have a substantial adverse effect on a scenic vista;
2. substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway;
3. except as provided in Public Resources Code Section 21099, 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). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or
4. create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Issues Not Discussed Further

The project does not contain, nor is it in vicinity of, designated scenic vistas. A scenic vista is a public viewpoint that provides expansive views of highly valued scenery or landscapes. Sacramento County (2022) has not designated any scenic vistas at the project site or the surrounding lands. The project site is an urban infill parcel within the Carmichael community of the unincorporated County. The surrounding community is fully

urbanized with residential and recreational uses. The project site does not contain or include any scenic vistas. Thus, there would be no impact, and this issue is not evaluated further in this EIR.

There are no designated or eligible state scenic highways adjacent to or in the vicinity of the project site. The nearest State- and County-designated highway is SR 160 (River Road), approximately 17 miles to the west, and the nearest eligible state scenic highway is SR 49, approximately 27 miles to the east. The project site is not visible from either of these roadways. Therefore, development of the project site would not affect scenic resources within a State- or County-designated scenic highway. Thus, there would be no impact, and this issue is not evaluated further in this EIR.

IMPACTS AND ANALYSIS

IMPACT AE-1: EXCEPT AS PROVIDED IN PUBLIC RESOURCES CODE SECTION 21099, 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). IF THE PROJECT IS IN AN URBANIZED AREA, WOULD THE PROJECT CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY

SUBSTANTIALLY DEGRADE THE EXISTING VISUAL CHARACTER OR QUALITY OF THE PROJECT SITE

This impact analysis focuses on the potential of the project to visually degrade the visual quality of the site from surrounding public viewpoints. The public viewpoints that are the focus of this analysis are those illustrated in Plate AE-1 through Plate AE-4, which are the public viewpoints (KOPs) by which the project would be visible upon completion. Under CEQA, an evaluation of a project's potential visual change as viewed from private property is not required (*Mira Mar Mobile Community v. City of Oceanside*, 119 Cal.App.4th 477 [Cal. Ct. App. 2004]).

The project site is currently heavily vegetated with mature trees, thus the viewshed is dominated with the existing tree canopy. Upon buildout of the project, single family dwellings would be visible from Rappahannock Way and the corner of Rappahannock Way and Woodfair Way. Two homes adjacent to Rappahannock Way would be most visible from the public street. The public viewers from this viewpoint are those that are traveling on public roadways, so the viewshed is one in which the viewer is in transit; therefore, viewers tend to be less impacted than those that would be in a stationary position. Additionally, while new houses on the property would introduce a change to the viewshed it would not be in conflict with local policies governing scenic quality (see applicable zoning and other regulations governing scenic quality below).

O'Donnell park to the south is a public park with daily and year around visitors to the playground and walking paths. The project property is within the viewshed, but implementation of the project is unlikely to significantly impact the viewshed of attendees at the park. As is visible in Plate AE-1 through Plate AE-4 above, there is significant screening from mature trees along the eastern border of the property line. While the project would result in removal of mature trees, trees located on the park property at the border would continue to screen future development on the project site. Future houses would also be set back from the property line between the development and the park site due to the open space lot and drainage features on the eastern side of the property. As currently proposed, a total of ten trees would be removed to accommodate the drainage facilities. All trees currently along the fence line would remain. Therefore, between mature trees located on the park site and mature trees that will remain on the project site, a vegetative barrier will remain between visitors of the public park and the proposed development.

Would The Project Conflict With Applicable Zoning And Other Regulations Governing Scenic Quality

The project is required to incorporate appropriate design elements from the *Countywide Design Guidelines* (Sacramento County 2022). Furthermore, the proposed project is also required to undergo the County's design review process as set forth in County Zoning Code Section 6.3. The design review process is intended to promote high-quality design along with compatibility and increased connectivity between new development and surrounding development. The design review process also considers policy consistency such as compliance with General Plan Policy LU-18, which encourages development that complements the aesthetic style and character of existing development nearby to help build a cohesive identity for the area. After the Design Review Process is completed, the final hearing body is required to make one of the following findings (Zoning Code Section 6.3.2.F):

- the project substantially complies with the Countywide Design Guidelines;
- the project would substantially comply with the Countywide Design Guidelines if modified with recommended modifications; or
- the project does not comply with the Countywide Design Guidelines and should, as consequence, not be approved.

The proposed project is required to comply with the *Countywide Design Guidelines* and would complete the County's Design Review Process to ensure compatibility with County regulations governing visual quality. The Project was heard by the DRAC on February 25, 2021 and was found to be substantially compliant with the County Design Guidelines.

Scenic Quality Conclusion

The project would introduce new residential uses to the neighborhood (eight new single family dwellings). While the new homes would be visible and alter the existing viewpoint from the public right of way, the development would be consistent with the existing development of the neighborhood. Existing vegetation on the property and adjacent park

site would provide visual screening and minimal visual disruption to the visitors to the park. The proposed project would not conflict with adopted plans or policies related to visual quality, and the project has been found to be consistent with the Countywide Design Guidelines. Impacts related to scenic quality would be ***less than significant***.

IMPACT AE-2: CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE THAT WOULD ADVERSELY AFFECT DAY OR NIGHTTIME VIEWS IN THE AREA

The Project would introduce sources of daytime glare that include direct beam sunlight and reflections from windows, architectural coatings, glass and other shiny reflective surfaces. Such glare impacts the immediate environment, except in cases where buildings are high-rise and can be seen from greater distances. The Project does not include high rise buildings, and therefore the glare introduced to the immediate vicinity is not considered a significant impact.

The proposed Project would involve eight new residential dwellings that would include lighting sources such residential lighting. Title 24 standards regulate lighting power for some applications based on the designated lighting zone. The Project site is located within LZ3 zone (moderately high levels of ambient nighttime light). Each light zone has different lighting standards, with standards in more rural (i.e., areas with lower levels of ambient illumination) being more strict than for areas that have higher existing lighting levels. Detailed calculation of lighting requirements for each zone, as well as a list of exempted applications, can be found in Section 110.9, 130.0 and 150.0 (k) of the 2022 Building Energy Efficiency Standards (Title 24).

The project will result in additional light sources to the subject property in the form of eight new residential dwellings. The significance criteria for this analysis is whether or not the new source of light or glare would result in a substantial new source of light or glare that would adversely affect the views of the area. The source of light from eight new single family dwellings would not result in new, substantial light and glare impacts to the neighborhood. The neighborhood is an established suburban community that already exhibits light and glare impacts associated with typical residential developments (residential lights, private security lighting, public street lighting), so the addition of eight houses would be consistent with the lighting environment of the existing community. Additionally, the project will be subject to Title 24 standards that regulates lightings for residential uses and ensures lighting would not be excessive or inefficient. Impacts associated with new sources of lighting or glare would be ***less than significant.***

MITIGATION MEASURES

None recommended.

CUMULATIVE IMPACTS

Aesthetic impacts associated with the project consist of visual intrusion, light and glare that would result from the construction of eight new residential dwellings. Impacts to the visual quality of the existing landscape were found to be less than significant. The project would introduce minimal sources of new light and glare to an already established, urban area. New construction would be subject to Title 24 regulations to ensure there would not be excessive or inefficient use of light. The project is consistent with the nature of the surrounding neighborhood and would not introduce scenic or lighting impacts that are not already existing in the area. The project itself will have less than significant impacts. Cumulative impacts associated with scenic quality and aesthetics are also ***less than significant.***

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6 PUBLIC SERVICES, UTILITIES AND ENERGY

INTRODUCTION

This chapter provides background information on public services and utilities which serve the proposed project. The analysis in this chapter considers the potential impacts of the project related to the ability of public service and utility providers to provide service and the potential physical impacts of providing that service. In addition, energy impacts associated with the proposed project are evaluated in this chapter.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. Responses were received from the local park district regarding public utilities and services. Responses received on the NOP are included as Appendix PD-1.

ENVIRONMENTAL SETTING

The project is located within the Carmichael Community of unincorporated Sacramento County within the Urban Services Boundary. The Urban Services Boundary indicates the ultimate boundary of the urban area, and thus urban services, within unincorporated Sacramento County.

The project site is a large, underdeveloped piece of land that currently contains one single-family residence served by public water and private septic system. There are existing overhead 12kV electrical lines along the west, south, southeast parcel lines and existing underground 12kV facilities extending from the southwest corner of the parcel.

The project is located within the following public service providers and utilities districts:

Public Service Providers

Fire Protection Service: Sacramento Metropolitan Fire District (Sac Metro Fire)

Public Safety Service: Sacramento County Sherriff

Local School District: San Juan Unified School District

Local Park District: Carmichael Recreation and Park District

Public Transit: Sacramento Regional Transit District (SacRT)

Public Utility Provider

Local Sewer Service: Sacramento Area Sewer District (SACSEWER)

Regional Sewer Service: Sacramento Regional County Sanitation District (Regional San)

Potable Water Service: Carmichael Water District

Electrical Power Service: Sacramento Municipal Utility District (SMUD)

Natural Gas Service: Pacific Gas and Electric (PG&E)

Solid Waste: Sacramento County Waste Management and Recycling

Public Services and Utilities Regulatory Setting

Fire Protection

California Occupational Safety and Health Administration

In accordance with CCR Title 8 Sections 1270, "Fire Prevention" and Section 6773 "Fire Protection and Fire Equipment", the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose sizing requirements; restrictions on the use of compressed air; access roads; and the testing, maintenance, and use of all fire-fighting and emergency medical equipment.

Fire Codes and Guidelines

The availability of sufficient water flows and pressure are a basic requirement of the fire districts. Fire District requirements are determined for specific development projects at the design stage and are based on the Uniform Building Code (UBC). In addition to meeting minimum fire flow requirements, all development projects within the unincorporated area are required to meet other various fire protection requirements identified in the plan check and review process. The Fire District specifications require that fire sprinklers be installed in all new residential construction. For structures not exceeding 3,600 square feet, the district requires a fire flow of 1,000 gallons per minute at 20 pounds per square inch residual pressure. For structures over 3,600 square feet, a Fire District certificate of release is required.

Fire District Master Plans

The Fire District Master Plans provide policy guidance, objectives, and activities in an effort to improve emergency response to the districts' citizens, use existing resources more efficiently, and improve district facilities. These plans address deficiencies with existing fire stations, including age and condition issues; noncompliance with building codes, such as the ability to respond to emergencies following an earthquake; and lack of apparatus rooms of sufficient size to store present-day emergency-response equipment. These plans are available for review from the individual fire districts.

SACRAMENTO COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

The Sacramento County General Plan policies that are pertinent to fire protection and emergency services are policies PF-54 through PF-64. These policies are intended to support the stated goal of the Fire Protection and Emergency Services Section of the General Plan which is to have "efficient and effective fire protection and emergency response serving existing and new development."

LAW ENFORCEMENT

SACRAMENTO COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

The Sacramento County General Plan policies that are pertinent to Law Enforcement services are policies PF-50 through PF-53. These policies are intended to support the stated goal of the Sheriff Section of the General Plan which is to have "adequate Sheriff Services and Facilities for the Unincorporated Areas of Sacramento County."

The policies in the Public Facilities Element that support the County's emergency services strategies and are relevant to the project are as follows:

- PF-53. Design neighborhoods and buildings in a manner that prevents crime and provides security and safety for people and property; when feasible.

SCHOOLS

LEROY F. GREENE SCHOOL FACILITIES ACT OF 1998 (SB 50)

The "Leroy F. Greene School Facilities Act of 1998", also known as Senate Bill No. 50 (SB 50) established a State program to provide per-pupil funding for new construction and modernization of existing school facilities. (Office of Public School Construction, 2008). The passage of Proposition 1A in 1998 allowed SB50 to be fully implemented.

SB 50 limited the power of cities and counties to require mitigation of school facilities as a condition of approving new development and authorized school districts to assess fees (at various levels) to directly offset the costs associated with increased capacity as a result of new development.

SACRAMENTO COUNTY OFFICE OF EDUCATION

The Sacramento County Office of Education (SCOE) is responsible for delivering quality education to more than 238,000 K – 12 public school students in Sacramento County. The SCOE provides technical assistance, curriculum and instructional support, staff development, legal and financial advice and oversight to 13 school districts. SCOE also directly educates more than 30,000 children and adults.

SACRAMENTO COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

The Sacramento County General Plan policies that are pertinent to public school facilities are policies PF-27 through PF-39. These policies are intended to support the stated goal of the Public School Facilities Section of the General Plan which is to have "new public schools which serve as a neighborhood focus and maintain a quality

learning environment for Sacramento County's residents as the County Population increases."

The General Plan policies related to public schools generally pertain to developing schools that are functionally and physically integrated within their surrounding neighborhoods; that are developed through a coordinated planning effort between school districts; and that are at levels equal to state standards for school enrolment and school site size for all Sacramento schools. School related policies in the General Plan focus on how schools will be sited and developed rather than on how development may affect schools. School facilities mitigation is covered under California Government Codes noted above.

Parks and Recreation

Quimby Act

The Quimby Act (California Government Code Section 66477) states that "the legislative body of a city or county may, by ordinance, require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative map or parcel map…". It should be noted that the Quimby Act only applies to the acquisition of new parkland and does not apply to the physical development of new park facilities or associated operations and maintenance costs. The Quimby Act effectively preserves the open space needed to develop parkland and recreational facilities; however, the actual development of parks and other recreational facilities is subject to discretionary approval and is evaluated on a case-by-case basis with new residential development. The Quimby Act also finds that a minimum of three acres, up to a maximum of five acres, of park area is required per 1,000 persons. Sacramento County's Community Planning and Development Department and Municipal Services Agency oversee these requirements in the unincorporated area.

Sacramento County Code Title 22

Title 22 of the Sacramento County Code provides direction on calculating park acreage requirements for residential developments. Depending on the jurisdiction, residential developments are required to provide dedicated land for park construction or pay in-lieu fees.

Public Transit

Sacramento Regional Transit Master Plan

The Sacramento Regional Transit District's Transit Master Plan (TMP) is a long term plan (25-30 yeas) that provides a vision for transit service in the Sacramento region. The plan takes into account the development that is envisioned within the Sacramento region in SACOG's Blueprint. It is recognized that the type of growth envisioned in the Blueprint must be developed in such a way as to complement and facilitate transit in the region. The plan envisions and provides tools to facilitate the expansion of

Sacramento's existing light rail lines, the addition of streetcar lines to downtown and Rancho Cordova, and high frequency bus corridors throughout the Sacramento region.

2030 Sacramento County General Plan Circulation Element

The Sacramento County General Plan policies that are pertinent to public transit are policies CI-13 through CI-20. These policies are intended to support the stated goal of the Transit section of the Circulation Element which is to, "Promote a balanced and integrated transit system to maximize mobility in a safe and efficient manner." The General Plan states the following about the policies within the Transit section of the Circulation Element:

> Policies in this section seek to develop a safe and efficient transit system by promoting transit services within urban corridors of dense population and employment, assuring that users are provided with adequate transportation choices, addressing user needs, developing convenient transfers between transportation systems, and ensuring adequate funding for the system.

Sewer Services

Sacramento Regional County Sanitation District (Regional San)

Regional San provides wastewater conveyance and treatment services to about 1.6 million residential, commercial, and industrial customers in portions of unincorporated Sacramento County, the Cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento, and the Communities of Courtland and Walnut Grove. Wastewater travels through a system comprised of 169 miles of interceptor pipelines, of which 111 miles are gravity pipes and 58 miles are force mains, and 11 pump stations before it reaches the Sacramento Regional Wastewater Treatment Plant (SRWTP). There, it is treated and discharged to the Sacramento River. In normal weather years, Regional San treats an average of approximately 124million gallons of wastewater each day (mgd) (Regional San 2021).

Sacramento Regional Wastewater Treatment Plant (SRWTP) Master Plan 2020

Wastewater flows collected from Regional San's interceptors are ultimately transported into the SRWTP. The SRWTP is located west of Elk Grove and is owned and managed by Regional San. Currently, the SRWTP has a National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Valley Regional Water Quality Control Board (RWQCB) for discharge of up to 181 mgd average dry-weather flow of treated effluent into the Sacramento River. The SRWTP has the potential for expansion to 218 mgd.

The Regional San Board of Directors approved the SRWTP Master Plan 2020 in summer of 2004. A NPDES Discharge Permit was issued to Regional San by the Central Valley Regional Water Quality Control Board (Water Board) in December 2010. In adopting the new Discharge Permit, the Water Board required Regional San to meet significantly more restrictive treatment levels over its current levels. The "tertiary" treatment removes ammonia and nitrate, as well as enhances filtration for disinfection.

The construction of the new treatment process is largely complete with a final completion goal of 2023. The upgrade will not result in a net increase in the permitted capacity of the SRWTP (Regional San 2023).

Sacramento Area Sewer District (SacSewer)

SacSewer System Capacity Plan

The primary objective of SacSewer's 2020 System Capacity Plan update was to develop a comprehensive plan that addresses existing and buildout sewer capacity needs. Existing capacity needs are based on SacSewer's current sewer system conditions. Buildout capacity needs are based on providing sewer service to the entire SacSewer service area in the future (SacSewer 2020).

Sacramento County General Plan Public Facilities Element

The Sacramento County General Plan Public Facilities Element identifies a variety of goals and policies which relate to providing adequate service for new development and identify specific policies for development projects to accommodate services within their project. The Sacramento County General Plan policies that are pertinent to sewer facilities are policies PF-6 through PF-19. These policies are intended to support the stated goal of the Wastewater Collection and Treatment section of the Sacramento County General Plan: "safe, efficient, and environmentally sound public sewer system and treatment facility serving all urban development."

Water Supply

Urban Water Management Planning Act

Pursuant to California Water Code Sections 10610 – 10657, as last amended by Senate Bill 318 in 2004, the Urban Water Management Planning Act requires all urban water suppliers with more than 3,000 service connections or water use of more than 3,000 acre-feet annually are required to submit an Urban Water Management Plan (UWMP) to the California Department of Water Resources every five years and update the plan on or before December 31 in years ending in five and zero. SB 318 is the 18th amendment to the original bill requiring a UWMP, which was initially enacted in 1983. Amendments to SB 318 have focused on ensuring that the UWMP emphasizes and addresses drought contingency planning, water demand management, reclamation, and groundwater resources.

Senate Bill 610

SB 610 became effective January 1, 2002. The purpose of SB 610 is to strengthen the process by which local agencies determine the adequacy and sufficiency of current and future water supplies to meet current and future demands. SB 610 amended the California Public Resources Code to incorporate Water Code requirements within the CEQA process for certain types of projects (described below). SB 610 also amended the water code to broaden the types of information included in an UWMP. SB 610 consists of two primary components, the UWMP and the Water Supply Assessment (WSA) (Water Code Sections 10910 – 10915).

WATER CODE PART SECTION 10910

Water Code Section 10910 et seq. defines the projects for which the preparation of a Water Supply Assessment (WSA) is required as well as the lead agency's responsibilities related to the WSA. The Water Code also clarifies the roles and responsibilities of the lead agency under CEQA and of the water supplier with respect to describing current and future supplies compared to current and future demands. A WSA is required for:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed use development that includes one or more of the uses described above;
- A development that would demand a volume of water equivalent to or greater than the volume of water required by a 500-dwelling unit project; and
- For lead agencies with fewer than 5,000 water service connections, any new development that would increase the number of water service connections in the service area by 10% or more.

Under Section 10910 of the Water Code, the lead agency must identify the affected water supplier and ask the supplier whether the new demands associated with the project are included in the suppliers UWMP. If the UWMP includes the demands, it may be incorporated by reference in the WSA. If there is no public water system to serve the project, the lead agency must prepare the WSA.

SENATE BILL 221

SB 221 requires a city or county to include as a condition of approval of any tentative map, parcel map, or development agreement for certain residential subdivisions a requirement that a "sufficient water supply" be available. Proof of a sufficient water supply must be based on a written verification from the public water system that would serve the development.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA) was signed into law in 2014. SGMA tasks California DWR to draft a Strategic Plan for its Sustainable Groundwater Management (SGM) Program. DWR's SGM Program will implement new and expanded responsibilities identified in the 2014 SGMA. Some of these expanded responsibilities

include: (1) developing regulation 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.

January 1, 2015 will be used as a base line for sustainability in managing activities related to groundwater levels such that there is no adverse impact to identified beneficial uses, which includes chronic overdraft, reduction in groundwater, seawater intrusion, impacts to water equality, land subsidence, and impacts on beneficial use of surface water.

CALIFORNIA SAFE DRINKING WATER ACT

The California Safe Drinking Water Act (California Health and Safety Code 4010 – 4039.6) authorizes the California Department of Public Health (CDPH) to establish maximum contaminants levels that are at least as stringent as those required by the U.S. Environmental Protection Agency (EPA) under the SDWA. The CDPH has established maximum contaminants levels for contaminants that may occur in public water systems, including all the substances for which federal maximum contaminants levels exist, and may have adverse health effects. Operators of public water systems in California are required to meet federal and state drinking water standards.

SACRAMENTO COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

The Sacramento County General Plan Public Facilities Element identifies a variety of goals and policies which relate to providing adequate service for new development and identify specific policies for development projects to accommodate services within their project. The Sacramento County General Plan policies that are pertinent to water facilities are policies PF-1 through PF-5. These policies are intended to support the stated goal of the Water Facilities Section of the General Plan which is to have water facilities developed in an environmentally sound, economically efficient, and financially equitable manner.

ENERGY SERVICES

FEDERAL ENERGY REGULATORY COMMISSION

The Federal Energy Regulatory Commission is an independent agency that regulates the transmission and sale of electricity, natural gas, and oil; licenses and inspects hydropower projects; reviews proposals to build liquefied natural gas (LNG) terminals; and oversees related environmental matters.

CALIFORNIA PUBLIC UTILITIES COMMISSION

The California Public Utilities Commission (CPUC) regulates the design, installation, and management of California’s public utilities, including electric, natural gas, water, transportation, and telecommunications. The CPUC also provides consumer programs and information, such as energy efficiency, low income programs, demand response, and California solar initiative for California’s energy consumers.

CALIFORNIA CODE OF REGULATIONS

New buildings constructed in California must comply with the standards contained in Title 20, Energy Building Regulations, and Title 24, California Building Standards Code. Part 6 of Title 24 contains California's Energy Efficiency Standards for Residential and Non-residential Buildings. These regulations were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to incorporate new energy efficiency technologies and methods.

WARREN-ALQUIST STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

The Warren-Alquist Act of the Public Resources Code gives statutory authority to the California Energy Commission. Under the Warren-Alquist Act, there will be state policies for responsibility for energy resources, reduction in uses of energy, conservation of energy, and establishment of statewide goals for energy conservation. (Warren-Alquist Energy Resources Conservation and Development Act, Government Code Section 25000 *et seq*.).

CALIFORNIA ENERGY COMMISSION

On May 9, 2018, the California Energy Commission adopted new building standards requiring all new homes to have solar photovoltaic systems starting in 2020. The new standards aim to reduce energy uses in new homes by more than 50 percent. Other key areas the new standards address include updated thermal envelope standards (prevention of heat transfer), residential and nonresidential ventilation requirements, and nonresidential lighting requirements.

SACRAMENTO COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

The Sacramento County General Plan policies that are pertinent to energy services include Policy PF-65 through PF-119. These policies are intended to support the stated goal of the Energy Facilities section of the General Plan which is to have, "Appropriately sited energy facilities that efficiently and safely produce and distribute energy to Sacramento County residents without compromising environmental quality or human health."

Among other things, the General Plan Energy Facilities policies are related to the location of facilities to minimize visual intrusion, biological impacts, and land use incompatibilities for cogeneration and solar facilities as well as conventional electric facilities.

SOLID WASTE SERVICE

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT AND THE CALIFORNIA DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY (CALRECYLE)

The Integrated Waste Management Act of 1989 is the result of two pieces of legislation, AB 939 and SB 1322, which created the California Integrated Waste Management Board (which has been renamed CalRecycle). The Integrated Waste Management Act mandated a goal of 25 percent diversion of each city's and county's waste from disposal

by 1995 and 50 percent diversion in 2000, with a process to ensure environmentally safe disposal of waste that could not be diverted.

CalRecycle is the State agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. They provide grants and loans to help California cities, counties, businesses and organizations meet the State's waste reduction, reuse and recycling goals.

Senate Bill 1016, signed into law on September 26, 2008, represents a fundamental shift in the way local jurisdictions are measured for compliance with state diversion mandates. Jurisdictions are now evaluated based on the implementation of programs that measure per capita waste disposal, rather than diversion percentage.

SACRAMENTO COUNTY DEPARTMENT OF WASTE MANAGEMENT AND RECYCLING (DWMR)

The Sacramento County Department of Waste Management and Recycling (DWMR) is responsible for maintaining a waste management system for residents and businesses in the unincorporated areas of the County. The DWMR has responsibility for garbage recycling and collection services, garbage disposal and recycling facilities, and recycling programs.

SOLID WASTE ADVISORY COMMITTEE

The Solid Waste Advisory Committee (SWAC) is an advisory panel consisting of appointed representative from each jurisdiction in Sacramento County. The SWAC is the State-mandated Local Task Force (as mandated by the California Public Resources Code Section 40950), which coordinates waste management and recycling efforts throughout the County. The SWAC advises the County Board of Supervisors, the city councils of the cities within the County, and the Sacramento Regional County Solid Waste Authority (SWA) on all matters relating to the County of Sacramento Integrated Waste Management Plan and all matters relating to integrated waste management, including public education; source reduction; recycling; composting; transformation; materials recovery/resource recovery and marketing; and the collection, transfer, processing, and disposal of refuse and recycling.

SACRAMENTO COUNTY INTEGRATED WASTE MANAGEMENT PLAN

The County of Sacramento adopted the Sacramento County Integrated Waste Management Plan in March 1996, and it was approved by the California Integrated Waste Management Board in May 1998. This plan consists of the following:

- Siting Element (entire county: cities and unincorporated areas)
- Summary Plan (entire county: cities and unincorporated areas)
- Source Reduction & Recycling Elements (by city, county, or regional agency)
- Household Hazardous Waste Elements (by city, county, or regional agency)
- Non-disposal Facility Elements (by city, county, or regional agency)

These documents are the main sources and references for solid waste facility planning in Sacramento County. The Siting Element and Summary Plan are prepared and administered by the County of Sacramento, Department of Waste Management & Recycling. The remaining documents are prepared and administered by each individual jurisdiction or regional agency.

SACRAMENTO REGIONAL SOLID WASTE AUTHORITY (SWA)

The Sacramento Regional Solid Waste Authority is a joint powers authority of Sacramento County and the City of Sacramento. SWA was formed in December 1992 to assume the responsibility for solid waste, recycling, and disposal needs for businesses and apartment complexes in the Sacramento area. The SWA regulates commercial solid waste collection by franchised haulers and offers recycling services to multi-family dwelling units. SWA is governed by a Board of Directors consisting of elected officials from the City of Sacramento and the unincorporated area of Sacramento County. The following SWA recycling ordinances apply to the unincorporated areas of the County.

SWA ORDINANCES

The SWA has adopted three recycling ordinances that target three distinct waste streams: (1) The Business Recycling Ordinance, adopted in 2007 for commercial generators who subscribe to 4 cubic yards or more of refuse service per week; (2) The Certification of C&D [Construction and Demolition] Debris Sorting Facilities Ordinance, adopted in 2008, that creates a program for mixed C&D facilities that dovetails with both City and County C&D Ordinances for builders; and (3) The Multifamily Recycling Ordinance, adopted in 2009, that requires owners of multifamily properties with over 5 units to subscribe to a recycling service for their tenants.

SACRAMENTO COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

Sacramento County's *General Plan* (adopted November 2011), amended *Public Facilities Element* (amended December 17, 2019) includes countywide goals, objectives, policies, and implementation measures to address and/or protect community services. The Public Facilities Element is intended to promote the achievement of three general goals: (1) developing environmentally sound, economically efficient, and financially equitable water facilities; (2) implementing safe, efficient, environmentally sound public sewer systems and treatment facilities for the urban environment; and (3) appropriately siting energy facilities that efficiently and safely produce/distribute energy without compromising environmental quality or human health.

The majority of the policies in the General Plan pertain to service providers and not to development projects. The policies in the Public Facilities Element that support the County's Solid Waste Services strategies and are relevant to the project relate to fees to support waste adequate facilities and are as follows:

- PF-23. Solid waste collection, handling, recycling, composting, recovery, transfer and disposal fees shall recover all capital, operating, facility closure and maintenance costs.

- PF-24. Solid waste disposal fees and rate structures shall reflect current market rates and provide incentives for recovery.

Significance Criteria

Public Services

Based on CEQA Guidelines, impacts related to public services should be evaluated to determine if implementation of the Project would:

1. 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:

    a. Fire protection

    b. Police protection

    c. Schools

    d. Parks

    e. Other public facilities

Recreation

Based on the CEQA Guidelines, impacts related to recreation should be evaluated to determine if implementation of the Project would:

1. 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.

2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Public Utilities

Based on the CEQA Guidelines, impacts related to public utilities should be evaluated to determine if implementation of the Project would:

1. 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.

2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

3. 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.

4. 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.

5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Energy

Based on the CEQA Guidelines, impacts related to energy should be evaluated to determine if implementation of the Project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Issues not discussed further

The proposed project will add eight new single-family residences to the Carmichael community. These new residences will increase the use of neighborhood parks, specifically O'Donnell Heritage Park, but would not result in a substantial physical deterioration of existing recreational facilities. Impacts associated with the use of existing recreational facilities is ***less than significant***.

The proposed project will not involve the construction or expansion of recreational facilities. As such, the proposed project will not adversely physically effect the environment. ***No impact*** would occur.

For these reasons, impacts associated with recreation are not discussed further in this EIR.

IMPACTS AND ANALYSIS

PUBLIC SERVICES IMPACTS AND ANALYSIS

IMPACT PS-1: RESULT IN SUBSTANTIAL ADVERSE PHYSICAL IMPACTS ASSOCIATED WITH THE PROVISION OF FIRE PROTECTION

The Project is within the service area of the Sacramento Metropolitan Fire District. The Sacramento Metropolitan Fire District provides services for a 358 square mile district operating 42 fire stations. The Sacramento Metropolitan Fire District reviewed the proposed project and submitted comments and recommended conditions of approval for the proposed project. The provided comments and recommended conditions are standard design requirements specified by the Fire District for residential projects.

The proposed project will not result in substantial adverse physical impacts associated with the provision of emergency services. Impacts related to the project with respect to fire protection and emergency services are ***less than significant***.

IMPACT PS-2: RESULT IN SUBSTANTIAL ADVERSE PHYSICAL IMPACTS ASSOCIATED WITH THE PROVISION OF LAW ENFORCEMENT SERVICES

The project is served by the Sacramento County Sheriff's Department. The Sacramento County Sheriff's Department reviewed the proposed project and submitted comments and recommended conditions of approval for the proposed project. These comments pertain to safety concerns between the proposed development and the adjacent park. Specifically, there is a section of the fence that was damaged due to tree failure, there are trees growing within/or near the fence that could allow access to the private "open space area" easier, and there are three existing gates that should be removed or include knox devices for emergency services. These comments are safety measures are more appropriately handled as Conditions of Approval, and therefore are not suggested mitigation measures.

Based on past communication with the Sacramento County Sherriff's Department, the Sheriff's Department seeks to maintain a service ratio standard of 1 officer per 1,000 population. The project will result in the addition of eight residential units, which could result in a population increase of up to 24 residents (based on an assumption of 2.7 people per residential unit). In order to maintain the service standard ratio of 1 officer per 1,000 people an additional 0.02 officers would be required to serve the project population. Such personnel and equipment would be funded through a combination of tax revenue and other sources to which the project will contribute. Development of the project may also be subject to design requirements specified by the Sheriff's Department. Impacts of the project on law enforcement are considered ***less than significant***.

Impact PS-3: Result In Substantial Adverse Physical Impacts Associated With The Provision of Schools

The proposed project is within the San Juan Unified School District. The school district did not submit comments on the project. However, established case law, Goleta Union School District v. The Regents of the University of California (36 Cal-App. 4th 1121, 1995), indicates that school overcrowding, standing alone, is not a change in the physical conditions, and cannot be treated as an impact on the environment. Necessary school facilities will likely be funded through a combination of Mello-Roos bonds, statewide school bonds, and developer mitigation fees. The project will be required to pay the school impact fee in place at the time of project approval. Payment of required impact fees and taxes is determined to be full mitigation for impacts to schools pursuant to SB 50. Therefore, implementation of the proposed project would have a ***less than significant*** impact on school resources.

Impact PS-4: Result In Substantial Adverse Physical Impacts Associated With The Provision of Parks and Recreation

The proposed project is located within the Carmichael Recreation and Park District. Notably, the project site is adjacent to O'Donnell Heritage Park (east of the project site). The park is currently developed with a playground, natural walking path and open space. The District Master Plan is currently being updated and shows minor improvements including making the existing walking path ADA accessible. Along the western park boundary, is a wrought-iron fence with three gates that is owned by the proposed project.

The District reviewed the proposed project and provided comments to the NOP. The comments revolve around access to O'Donnell Heritage Park. The District does not want to direct access to the park from the proposed project site, as this may increase liability for the District. As previously mentioned, there are three access gates (one pedestrian, and two motorized, gates in the existing wrought-iron fence line. To address these comments along with the Sheriff Department comments, these gates should be removed and replaced with continuous wrought-iron fencing (to match existing), or replacement of the entire fence line with new, open style fencing. These comments are safety measures more appropriately handled as Conditions of Approval, and therefore are not suggested mitigation measures.

Since the project is residential in nature, the project proponent must comply with the Quimby Act and the provisions of Sacramento County's Title 22 and provide dedicated land for park construction or pay in-lieu fees. As stated in the Regulatory Section of this Chapter, a project that increases the population by 1,000 people is required to dedicate a minimum of three acres and a maximum of five acres of parkland. The addition of eight new single family lots, or 24 new people, within the District boundaries will not significantly impact park services such that parkland should be dedicated; however, in lieu fees may be required by the District. Impacts to park facilities as a result of the proposed project are ***less than significant***.

Impact PS-5: Result In Substantial Adverse Physical Impacts Associated With The Provision of Public Transit

The Sacramento Regional Transit District (SacRT) provides public transit service and facilities to the project area, offering several bus routes and connections to a light rail station. Transit service is readily available through the SacRT Smart Ride which provides corner to corner bus service within the Carmichael and Arden communities, Monday through Friday 7am to 7pm. The closest fixed bus route is a commuter line (Bus 129) and Bus 23 along Fair Oaks Boulevard, Monday through Friday during peak commute hours. SacRT did not provide comments on the proposed project. The project would not impact existing public transit infrastructure and therefore, impacts related to transit service are considered ***less than significant***.

Public Utilities Impact and Analysis

Impact PU-1: Require The Construction Of New Or The Expansion Of Existing Wastewater Facilities That Could Potentially Cause Significant Construction-Related Environmental Effects. Or Result In A Service Demand That Cannot Be Met By Existing Or Reasonably Foreseeable Future Service Capacity

Public sewer service within the unincorporated Sacramento County is provided by the Sacramento Regional County Sanitation District (Regional San) and the Sacramento Area Sewer District (SacSewer). The Plan area lies within the existing boundaries of both service districts. Each of the districts provides a distinct service.

SacSewer operates, maintains and constructs sewage trunks and collection lines that carry between 1 and 10 million gallons per day. SacSewer provides collection and transport of sanitary sewage and industrial wastes from its facilities to the major transmission, treatment, and disposal facilities operated by Regional San.

The Regional San provides sewage transport via interceptor lines with capacities exceeding 10 million gallons per day. Sewage collected locally by the SacSewer (along with other public agencies) is transported by Regional San via one of four interceptor sewers to the Regional Treatment Plant, in Elk Grove, near the town of Freeport. The Regional Treatment Plant provides tertiary sewage treatment through a process call biological nutrient removal and then discharges treated effluent into the Sacramento River downstream from domestic water supplies. The Regional Plant has the reserve capacity to serve the project area.

Based on the design flows disclosed in the Regulatory Setting section, the project is expected to generate 6 ESD/acre. This figure is applied to the entire project site, not just to the residential building area, because it is intended to serve all ultimate development consistent with the underlying zoning. Assuming 6 ESD/acre, the site will generate 30 ESDs, or 9,300 gallons per day. The project was forwarded to SacSewer and Regional San, and it was determined that existing capacity was sufficient to serve the proposed

project. Installation of new sewer lines will be necessary on-site, but no off-site construction will be needed.

There is adequate wastewater treatment and conveyance capacity to serve the proposed project and physical impacts resulting from infrastructure improvements are included within the analysis within respective topical areas (Air Quality, Biological, Water Quality, etc.). Project impacts related to wastewater treatment and conveyance are ***less than significant***.

Impact PU-2: Require The Construction Of New Or The Expansion Of Existing Water Facilities That Could Potentially Cause Significant Construction-Related Environmental Effects. Or Result In A Service Demand That Cannot Be Met By Existing Or Reasonably Foreseeable Future Service Capacity

The proposed project is within the Carmichael Water District's service area. The Carmichael Water District serves 11,700 connections in the northeast portion of Sacramento County. The service area is approximately eight square miles. Ongoing management of the water infrastructure assets are outlined in the 2015 Master Plan Update, and 2020 Urban Water Management Plan. The service area is predominantly residential with commercial use, schools, parks, and one golf course.

SB 610 does not apply to the proposed Project, which is too small to require a Water Supply Assessment; however, based on the District's 2020 Urban Water Management Plan, single-family residential uses have an annual demand of 0.41 acre-feet per year equating to 3.28 acre-feet per year, which accounts for only 0.04% of total forecasted 2025 water use. Carmichael Water District has sufficient water to supply the proposed Project.

The proposed project will not cause significant construction-related impacts, nor would the project result in a service demand that cannot be met by service providers; impacts are ***less than significant***.

Impact PU-3: Require The Construction Of New Or The Expansion Of Existing Capacity Of Energy Facilities (Electric And Natural Gas) That Could Potentially Cause Significant Construction-Related Environmental Effects. Or, Result In A Service Demand That Cannot Be Met By Existing Or Reasonably Foreseeable Future Service

The project is located in a developed urban area, and the existing residential buildings on the site are already connected to energy services. Service providers, SMUD and PG&E, reviewed the proposed project and submitted comments and recommended conditions of approval for the proposed project. These comments generally identify the existing infrastructure and outline how the project will be required, at the time the project proponent requests service, to comply with specific design requirements related to connection and extension of the utility system.

New utility lines will be routed within the existing and proposed right-of-way and public utility easements required for each parcel. These construction activities will take place within the site as part of overall site improvements. The project will not require the construction of new facilities or the expansion of existing facilities and infrastructure that could potentially cause significant construction-level environmental effects.

The proposed project will not cause significant construction-related impacts, nor would the project result in a service demand that cannot be met by service providers; impacts are ***less than significant***.

Impact PU-4: Comply With Federal, State, And Local Management And Reduction Statutes And Regulations Related To Solid Waste Or Result In The Need For Additional Landfill Capacity For Solid Waste Disposal

The Sacramento County Department of Waste Management and Recycling provides solid waste services to the unincorporated portions of Sacramento County. Kiefer Landfill is the primary municipal solid waste disposal facility in Sacramento County. The landfill facility sits on 1,084 acres located near the intersection of Kiefer Boulevard and Grant Line Road. The proposed project will generate construction debris from the demolition of existing structures and construction of new residences. The Kiefer Landfill currently has capacity to serve the County through 2064. Existing and planned solid waste facilities will be sufficient to serve the development of the project site. No new facilities will be required as a result of this project. Impacts are ***less than significant***.

Energy Impacts and Analysis

Impact EN-1: Result In Potentially Significant Environmental Impact Due To Wasteful, Inefficient, Or Unnecessary Consumption Of Energy Resources, During Project Construction Or Operation

The proposed project will involve the construction of infrastructure improvements (utilities, private drive, and public street improvements) and eight new single-family residences. Nothing about the proposed project site (physical design or distance to resources) would constitute an unusual circumstance which would result in wasteful, inefficient, or unnecessary consumption of energy during construction and impacts are ***less than significant***.

The proposed project will result in eight, new, single-family residences. The energy consumption (electric and natural gas) for the existing single-family residence on the project site is part of the baseline condition and is not considered in this discussion. As noted in Chapter 14 Climate Change of this document, new buildings will be required to comply with Tier 1 Best Management Practices for Greenhouse Gas – no natural gas, all energy use will be electric. New building construction will have to comply with the applicable California Green Building Code (Title 24) in place at the time of building permit submittal. Title 24 applies building regulations to reduce building energy use among other things. Compliance with Tier 1 Best Management Practices (mitigation

measure CC-1) and Title 24 will ensure operational impacts associated with wasteful, inefficient, or unnecessary consumption of energy are ***less than significant***.

Impact EN-2: Conflict With Or Obstruct A State Or Local Plan For Renewable Energy Or Energy Efficiency

The proposed project would create nine residential lots with eight new single-family residences. All new residential construction is required to meet the current Title 24; which regulates building energy efficiencies. Title 24 is updated tri-annually (last version 2022, effective January 2023) to meet State goals regarding renewable energy and energy efficiencies.

Sacramento County has released a draft Climate Action Plan which aims to significantly reduce greenhouse gas (GHG) emissions in the unincorporated County (see the Climate Change chapter for additional information). Some of the draft measures include requiring energy efficiencies on new residential construction. This plan has not been adopted by the County Board of Supervisors at this time, but once adopted property owners will have to comply with applicable measures.

Compliance with State and local regulations will ensure the proposed project will not conflict or obstruct with renewable energy or energy efficiency state or local plans; impacts are ***less than significant***.

Mitigation Measures

None recommended.

Cumulative Impacts: Public Services, Public Utilities, Energy

The Carmichael community is largely built out and there are very few vacant properties. Similarly, there are isolated residential parcels which are large and not built to current zoning densities. The proposed project will add eight new single-family residences in the Carmichael community on a site that has been planned for this level of development for decades. Cumulative impacts associated with public services, utilities or consumption of energy are ***less than significant***.

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7 TRANSPORTATION AND CIRCULATION

INTRODUCTION

This chapter describes traffic and circulation within the project area and vicinity; evaluates potential impacts of the proposed project; and, if necessary, recommends mitigation measures to reduce or eliminate significant impacts.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. There were no responses to the NOP that directly addressed impacts related to transportation and circulation; however, comments received from community members prior to the release of the NOP, involved general concerns regarding increase in traffic and deterioration of roadways. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

TRANSPORTATION SETTING

The proposed project is located within the Carmichael community of unincorporated Sacramento County. The project site spans from Woodfair Way/Rappahannock Way along the north boundary to Mapel Lane along the southwest corner. Existing access to the site is via a driveway off Mapel Lane.

Woodfair Way, Rappahannock Way and Mapel Lane are all two-lane residential streets with speed limits of 25 miles per hour. Woodfair Way has curb, gutter and sidewalk along both sides of the road. Rappahannock Way has curb, gutter and sidewalk along the north side of the road only. The south side of the road only has curb and gutter along the project frontage and extending east along the park frontage. Mapel Lane is a narrow street with no curb, gutter or sidewalk. Bicyclists share the road, as there are no striped bike lanes along these roadways.

There are no planned capacity increasing improvements on any of these residential roadways; however, the County is requiring the project proponent to grant a 42-foot right-of-way for Woodfair and Rappahannock Ways and install public street improvements (curb, gutter, sidewalk) pursuant to the Sacramento County Improvement Standards along the project frontage.

REGULATORY SETTING

STATE OF CALIFORNIA

SENATE BILL 743

In accordance with Senate Bill (SB) 743, which reformed the process for California Environmental Quality Act (CEQA) review of transportation impacts to align with greenhouse gas emissions reduction goals, the OPR identified VMT as the key metric to measure transportation impacts of new development under CEQA. SB 743, will "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions" (Cal. 2013). To support these goals, as of July 1, 2020, automobile delay and LOS performance measures may no longer be used to determine the transportation impacts of land development projects under CEQA. However, this requirement does not modify the discretion lead agencies have to develop their own methodologies or guidelines, or to analyze impacts to other components of the transportation system, such as walking, bicycling, transit, and safety.

LOCAL

SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan Circulation Element focuses on providing roadways for growing automobile demands and alternative modes of transportation. This requires improving those alternatives through regional coordination, improved funding, better land use and design, and fair pricing. The overarching goals of the element seeks a balanced transportation system that moves people and goods in a safe and efficient way that minimizes environmental impacts, supports urban land uses, and serves rural needs. Supporting General Plan policies include conducting planning for roads, parking, clean alternative fuel and low emission vehicles, and other methods consistent with achieving air quality goals; conducting land use and transportation planning with a regional perspective; and mitigating new development traffic impacts.

On October 7, 2020, the Sacramento County Board of Supervisors approved an amendment (Resolution Number 2020-0652) to the Sacramento County General Plan's Circulation Element to establish VMT significance thresholds as the metric to be utilized in order to analyze traffic impacts.

Goals and policies of the Sacramento County General Plan relating to traffic, circulation and transportation applicable to the project are listed below:

CI-1. Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated

through roadway shoulders of sufficient width or other means to accommodate all modes of travel.

CI-3. Travel modes shall be interconnected to form an integrated, coordinated and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.

CI-5. Land use and transportation planning and development should be cohesive, mutually supportive, and complement the objective of reducing per capita vehicle miles travelled (VMT). The standards shown in Table CI-1 shall be used as thresholds of significance for all projects subject to CEQA. Where the VMT level standards of Table CI-1 are predicted to be exceeded, all feasible mitigation measures shall be included to reduce projected VMT levels.

CI-9. Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or improvements that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

CI-10. Land development projects shall be responsible to provide improvements which address the project's adverse effects on local and regional roadways.

CI-12. To preserve public safety and local quality of life on collector and local roadways, land development projects shall incorporate appropriate treatments of the Neighborhood Traffic Management Program.

CI-35. The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.

Sacramento County Active Transportation Plan

The Sacramento County Active Transportation Plan guides the development and construction of a balanced transportation system that encourages active modes of transportation. Active transportation includes walking, biking, and rolling (mobility devices, skateboards, scooters, etc.). The Active Transportation Plan provides policies, programs and a prioritization method to implement infrastructure recommendations in a phased approach to improve active transportation within unincorporated Sacramento County. This plan replaces the County's Pedestrian Master Plan (2007) and the Bikeway Master Plan (2011). There are no existing or planned bicycle facilities within the immediate project vicinity.

SIGNIFICANCE CRITERIA AND METHODOLOGY

SIGNIFICANCE CRITERIA

TRAFFIC AND CIRCULATION

In accordance with Appendix G of the State CEQA Guidelines, a project would be considered to have a significant effect if it would:

1. Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) – measuring transportation impacts individually or cumulatively, using a vehicles miles traveled standard established by the County;

2. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;

3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or,

4. Result in inadequate emergency access.

BICYCLE AND PEDESTRIAN FACILITIES

Bicycle facilities include Class I (off-street facilities), Class II (on-street bicycle lanes identified with signage and markings), and Class III (on-street bicycle routes identified by signage). Pedestrian facilities are composed of paths, sidewalks, and pedestrian crossings. A bicycle or pedestrian impact is considered significant if the proposed Project would:

- Eliminate or adversely affect an existing bikeway or pedestrian facility in a way that would discourage its use;

- Interfere with the implementation of a planned bikeway as shown in the Bicycle Master Plan, or be in conflict with the Pedestrian Master Plan; or

- Result in unsafe conditions for bicyclists or pedestrians, including unsafe bicycle/ pedestrian, bicycle/ motor vehicle or pedestrian / motor vehicle conflict.

METHODOLOGY

Sacramento County Department of Transportation (SacDOT) has updated the Transportation Analysis Guidelines (September 10, 2020, herein referred to as 'Guidelines'), to incorporate the requirements under SB 743. Note that the Guidelines still require the preparation of a Level of Service analysis if the project would exceed 1,000 daily trips or 100 peak hour trips, as this is important information for SacDOT and the community. Table TC-1 presents the screening criteria for projects that are expected

to result in less than significant VMT impacts based on project description, characteristics, and/or location.

Table TC-1: Sacramento County Transportation Analysis Guidelines Screening Criteria for CEQA Transportation Analysis for Development Projects

Type	Screening Criteria
1. Small Projects	• Projects generating less than 237 average daily traffic (ADT)
2. Local-Serving Retail[1]	• 125,000 square feet of total gross floor area or less in an infill setting; OR 200,000 square feet of total gross floor area or less in a greenfield setting; OR if supported by a market study with a capture area of 3 miles or less; AND • Local Serving: Project does not have regional-serving uses, as shown in Appendix A.
3. Local-Serving Public Facilities/Services	• Day care center • Public K-12 schools • Neighborhood park (developed or undeveloped) • Community center • Post offices • Police and fire facilities • Libraries • Government offices (primarily serving customers in-person) • Utility, communications, and similar facilities • Water sanitation, waste management, and similar facilities
4. Projects in VMT-Efficient Areas	• Residential Located in a VMT Efficient Area: Based on an approved screening map. • Office/Business Professional Employment Project Located in a VMT Efficient Area: Based on an approved screening map. • Industrial Employment Project Located in a VMT Efficient Area: Based on an approved screening map.
5. Projects Near Transit Stations	• High-Quality Transit: Located within ½ a mile of an existing major transit stop[2] or an existing stop along a high-quality transit corridor[3]; AND • Minimum Gross Floor Area Ratio (FAR) of 0.75 for office projects or components; AND • Parking: Does not include substantially more parking than required[4], such that it discourages transit use by making it too convenient to drive; AND • Affordable Housing: Does not replace affordable residential units with a smaller number of moderate- or high-income residential units; AND • Active Transportation: Project does not negatively impact transit, bike or pedestrian infrastructure.

6. Affordable Residential Projects	• Affordability: Screening criteria only apply to the affordable units; AND • Parking: Does not include substantially more parking than required[4], such that it discourages transit use by making it too convenient to drive; AND • Transit Access: Project has access to transit within a ½ mile walking distance; AND • Active Transportation: Project does not negatively impact transit, bike or pedestrian infrastructure.

[1] See Appendix A for land use types considered to be retail.

[2] Defined in the Pub. Resources Code § 21064.3 ("Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods").

[3] Defined in the Pub. Resources Code § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours").

[4] Sacramento County Zoning Code Chapter 5: Development Standards

For projects that do not meet the screening criteria outlined in Table TC-1, then the following significant thresholds in Table TC-2 apply:

Table TC-2: CEQA VMT Thresholds for Development Projects

Project Type[1]	VMT Significance Criteria[2]	Threshold
Residential	Project VMT per capita exceeds 85 percent of the regional average VMT per capita	>15.0 VMT per capita
Office/Business Professional	Project VMT per employee exceeds 85 percent of the regional average VMT per	>13.9 VMT per employee
Industrial	Project VMT per employee exceeds the regional average VMT per employee	>16.4 VMT per employee
Regional Retail	Net increase in regional VMT	VMT increase
Regional Public Facilities/Services	Net increase in regional VMT	VMT increase
Redevelopment	Projects that result in a decrease to existing regional total VMT are presumed to have a less than significant VMT impact; otherwise, apply the relevant threshold based on the proposed land use (treating existing use as vacant)	Relevant threshold above
Mixed Use	Apply the relevant threshold to each land use component individually	Relevant threshold
Phased	Apply the relevant threshold to each phase independently	Relevant threshold

Land Development with Roadway Component	For locally-serving roadways, the significance determination is based on the land use component. For regional roadways, apply thresholds of significance for transportation projects.	Appropriate thresholds above or per Table 5-2
[1] Refer to Appendix A [2] If not presumed to be less than significant per Table 3-1		

IMPACTS AND ANALYSIS

IMPACT TC-1: RESULT IN AN INCREASE IN VMT

SacDOT reviewed the proposed project to determine whether the project would require a VMT analysis. SacDOT staff, Cameron Shew, prepared a Trip Generation Table (Table TC-3) comparing the existing use and zoning to the proposed use. As shown in Table TC-3, the proposed project would result in 76 new daily trips. Per the screening criteria listed in Table TC-1 because the project generates less than 237 new daily trips, a VMT analysis is not warranted due to the fact that the project would be considered a small project under the Guidelines. Therefore, the addition of 76 new daily trips does not result in a substantial increase in VMT and impacts are ***less than significant***.

Table TC-3: Trip Generation Table

Condition	Zoning or Use (Area)	Source	Daily Trip Rate	Daily Trips	P.M. Peak Hour Trip Rate	P.M. Peak Hour Trips
Existing Use	RD-2 1 DU	ITE (210)	9.44 VTE/DU	9	0.99 VTE/DU	1
Existing Zoning	RD-2 10 DU	ITE (210)	9.44 VTE/DU	94	0.99 VTE/DU	10
Proposed Project	RD-2 9 DU	ITE (210)	9.44 VTE/DU	**85**	0.99 VTE/DU	**9**
Increase in trips for the proposed project as compared to the existing use				**76**	**---**	**8**

Notes: VTE = Vehicle Trip Ends DU = Dwelling Units AC = Acres
ITE = Institute of Transportation Engineers, *Trip Generation*, 10th Edition (Land Use No.)

IMPACT TC-2: CONFLICT WITH A PROGRAM PLAN OR POLICY ADDRESSING THE CIRCULATION SYSTEM INCLUDING TRANSIT, ROADWAY, BICYCLE AND PEDESTRIAN FACILITIES

The SacDOT and County Engineering Department reviewed the proposed project for consistency with County General Plan policies and improvement standards. Comments were received requesting conditions of approval regarding street improvement standards, encroachment permits, gated access requirements and annexing to the County Service Area No.1 (or similar) for street and street light maintenance. As noted above, since the project will not increase daily or peak hour trips above the thresholds for preparation of a local transportation analysis, the project will not adversely impact the local roadways level of service.

The project site is within the Sacramento Regional Transit's service area; please refer to the Public Utilities and Services chapter for detailed information. The project will not conflict with transit existing or planned transit services.

As mentioned in the transportation setting above, some adjacent streets have sidewalks and some do not. Bicyclists share the road with vehicles on all surrounding streets. The County Active Transportation Plan does not show future improvements for the project area. Therefore the project would not conflict with existing or planned pedestrian or bicycle facilities.

The proposed project will introduce eight new single-family dwelling units. While the project will add vehicle trips and construct site improvements, impacts associated with local roadway, transit, pedestrian and bicycle circulation and facilities are ***less than significant*.**

IMPACT TC-3: SUBSTANTIALLY INCREASE ROADWAY HAZARDS

The proposed project will include a new private drive off of Woodfair Way to access eight of the lots. The existing access off Mapel Lane will remain to serve the ninth lot. The project will not alter the existing circulation system and will not increase roadway hazards. There are ***no impacts*** associated with roadway hazards. Frontage improvements will be required consistent with County Improvement standards including curb, gutter and sidewalk.

IMPACT TC-4: RESULT IN INADEQUATE EMERGENCY ACCESS

The proposed project will include a new private drive off of Woodfair Way to access eight of the lots. The ninth lot will be accessed off of Mapel Lane via the existing driveway. Both the private drive and driveway will have to meet minimum roadway widths and turn-around for fire access. Additionally, if any of these access points are to be gated, specific apparatus are required to ensure access by emergency personnel. These requirements will be included in the project's conditions of approval and will be verified during finalization of the subdivision map and during improvement plan review. No additional comments from the emergency service providers were received. Impacts associated with emergency access are ***less than significant***.

MITIGATION MEASURES

None recommended.

CUMULATIVE IMPACTS

The proposed project is an infill subdivision map within the established Carmichael community. The surrounding community is largely built out with a few larger parcels (over one acre) that could possibly be developed to denser use. There is one large

subdivision map (in construction) within ½ mile of the project site. Within one mile of the project site, there is a vacant commercial site and high-density residential site adjacent to Manzanita Avenue. The commercial site currently has a planning application in for a mixed use project.

The proposed project will use the existing streets, transit, pedestrian and bicycle facilities. The addition of eight (8) new single-family residences and associated vehicle trips will result in ***less than significant*** cumulative impacts.

REFERENCES

County of Sacramento, Community Planning and Development Department, Division of Planning. 2030 Sacramento County General Plan. Sacramento, CA.

County of Sacramento Department of Transportation. Sacramento County Bicycle Master Plan. Adopted April 2011.

_____Sacramento County Pedestrian Master Plan. Adopted November 2007.

_____"Transportation Analysis Guidelines." September 10, 2020.

Santiago, Anthony. Sacramento County Development and Surveyor Services, SIPS. Written Correspondence (May 21, 2020).

Shew, Cameron. Sacramento County Department of Transportation. Written Correspondence (May 21, 2020).

8 AIR QUALITY

INTRODUCTION

The Sacramento Metropolitan Area is a federal ozone non-attainment area, and one of the top ten worst air quality areas nationally[1]. In Sacramento County, pollutants of greatest concern are ozone precursors (hydrocarbons and nitrogen oxides), carbon monoxide (CO), particulate matter (PM_{10} and $PM_{2.5}$), and other visibility-reducing material. This chapter analyzes the potential impacts of the project to contribute pollutants of concern to the environment.

AIR QUALITY SETTING

ATMOSPHERIC CONDITIONS

The geography and weather patterns of the Sacramento Valley are conducive to high air pollution levels. The mountain ranges surrounding the valley are natural air current barriers, which restrict most of the circulating winds of lower elevations from mixing and dispersing air pollutants of the valley. Sacramento is also subject to thermal air inversions, especially during the summer and fall months, wherein a layer of cool air is overlain by warmer air. Also, solar radiation from the abundant sunshine in Sacramento acts as a catalyst to drive chemical reactions between atmospheric pollutants such as reactive hydrocarbons and nitrogen oxides; the result is photochemical smog. Thus, the combination of surrounding mountains, abundant sunshine, thermal air inversions and wind patterns make the Sacramento area susceptible to high levels of air pollution.

EXISTING AIR QUALITY

The Sacramento Federal Nonattainment Area for ozone (SFNA) is comprised of five air districts in the southern portion of the Sacramento air basin. The SFNA air districts include all of Sacramento and Yolo Counties, and portions of El Dorado, Placer, Sutter and Solano Counties (see Plate AQ-1). With the exception of ozone and particulate matter standards, this area is in attainment for all state and national ambient air quality standards (AAQS). However, the SFNA is designated a “severe” nonattainment area for the federal eight hour AAQS for ozone. As a part of the SFNA, Sacramento County is out of compliance with the state one hour and the federal eight hour AAQS for ozone.

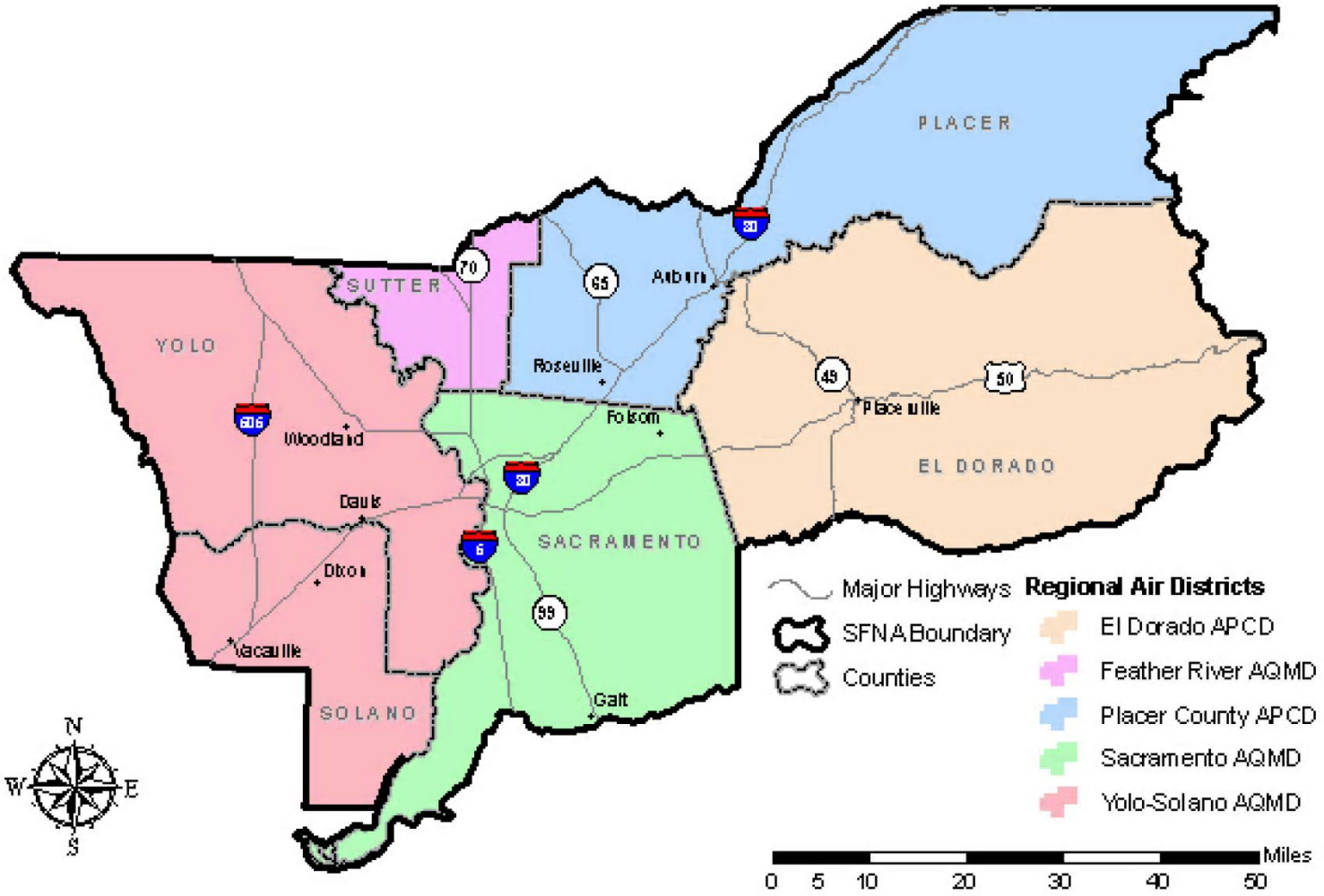
With respect to particulate matter, Sacramento County is designated as nonattainment for the state PM_{10} 24 hour standard and annual mean, the state $PM_{2.5}$ annual standard and the federal $PM_{2.5}$ 24 hour standard.

[1] American Lung Association, State of the Air 2023, ranked #7 for ozone.

Ambient air quality standards define clean air. Specifically, federal and state AAQS establish the concentration above which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Because AAQS have been established for specific pollutants using health-based criteria, the pollutants for which standards have been set are known as “criteria” pollutants. For some of the criteria pollutants, the state standards are more stringent than the federal standards. The differences in the standards are due to variations in health studies and interpretations involved in the standard-setting process.

The amount of pollutants released and the atmosphere’s ability to transport and dilute the pollutants affect a given pollutant’s concentration in the atmosphere. Factors affecting transport and dilution include terrain, wind, atmospheric stability, and, for photochemical pollutants, sunlight. Sacramento’s poor air quality can largely be attributed to emissions, geography, and meteorology.

Plate AQ-1: Sacramento Federal Nonattainment Area (SNFA) for Ozone



Source: Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, December 19, 2008 (revised in 2011, 2013 and 2017). The map in the adopted plan and the proposed revision are identical.

REGULATORY SETTING

POLLUTANTS AND AIR QUALITY STANDARDS

The criteria pollutants of greatest concern are due to construction activities and vehicle emissions. The pollutants from these activities are carbon monoxide (CO), ozone (O_3), and respirable particulate matter (PM_{10} and $PM_{2.5}$). A summary of state and federal ambient air quality standards for criteria pollutants is shown in Table AQ-1, below. Table AQ-2 shows the pollutants of concern within Sacramento County and their attainment status with state and federal standards.

CARBON MONOXIDE (CO)

State and Federal CO standards have been set for both 1-hour and 8-hour averaging times. The State 1-hour standard is 20 parts per million (ppm) by volume, while the Federal 1-hour standard is 35 ppm. Both State and Federal standards are 9 ppm for the 8-hour averaging period. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

PARTICULATE MATTER (PM_{10} & $PM_{2.5}$)

Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Few particles larger than 10 microns in diameter reach the lungs, but the smaller particles have been shown to have the most serious health risks. Consequently, there are Federal and State air quality standards for particulate matter 10 microns or less in diameter (PM_{10}) and for particulate matter 2.5 microns or less in diameter ($PM_{2.5}$).

The State PM_{10} standards are 50 micrograms per cubic meter ($\mu g/m^3$) as a 24-hour average and 20 $\mu g/m^3$ as an annual arithmetic mean. The Federal PM_{10} standard is 150 $\mu g/m^3$ as a 24-hour average. The $PM_{2.5}$ standard has been set by the State at a concentration of 12 $\mu g/m^3$ as an annual arithmetic mean, and the Federal Standards are 12 $\mu g/m^3$ as an annual arithmetic mean and 35 $\mu g/m^3$ in a 24-hour period.

Particulate matter conditions in Sacramento County reflect a mix of rural and urban sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

Ozone (O_3)

Ozone is not usually emitted directly into the air, but is created at ground level by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. The United States Environmental Protection Agency formerly called VOC reactive organic gases, or ROG – the latter term is still in use in most modeling programs and by the Sacramento Metropolitan Air Quality Management District. For this reason, both the term VOC and ROG may be used; the reader should be aware that these are the same constituents. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials.

State and federal standards for ozone have been set for an 8-hour averaging time, and the State also has set a standard for a 1-hour averaging time. There is a Federal 1-hour standard in existence, but the standard only applies to Early Action Compact Areas, and Sacramento County is not in such an area. The State 8-hour standard is 0.070 ppm (137 $\mu g/m^3$) and the 1-hour standard is 0.09 ppm (180 $\mu g/m^3$). The Federal 8-hour standard is 0.070 ppm (137 $\mu g/m^3$).

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used to indicate the quality of ambient air. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. Unlike criteria air pollutants, TACs are pollutants of local concern because they can present harmful effects when they are emitted in close proximity to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most prominent being diesel PM (ARB 2009). In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Naturally occurring asbestos (NOA) is also recognized by ARB as a TAC.

Table AQ-1: State and Federal Ambient Air Quality Standards

Pollutant	Symbol	Average Time	Standard, as parts per million		Standard, as micrograms per cubic meter		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	--	180	--	If exceeded	If exceeded more than 3 days in 3 years
		8 hours	0.070	0.070	137	--	If exceeded	If exceeded more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded more than 1 day per year
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded
		1 hour	0.18	0.100	339	188	If exceeded	
Sulfur dioxide	SO_2	24 hours	0.04	--	105	--	If exceeded	If exceeded more than 1 day per year
		3 hour	--	0.5	--	1,300	N/A	If exceeded more than 1 day per year
		1 hour	0.25	0.075	655	196	If exceeded	N/A
Hydrogen sulfide	H_2S	1 hour	0.03	--	42	--	If ≥	N/A
Vinyl chloride	C_2H_3Cl	24 hours	0.01	--	26	--	If ≥	N/A
Respirable particulate matter	PM_{10}	Annual arithmetic mean	--	--	20	--	If exceeded	N/A
		24 hours	--	--	50	150	If exceeded	If exceeded more than 1 day per year
Fine particulate matter	$PM_{2.5}$	Annual arithmetic mean	--	--	12	12	If exceeded	If exceeded over 3-year average
		24 hours	--	--	--	35	If exceeded	If exceeded over 3-year average
Sulfate particles	SO_4	24 hours	--	--	25	--	If ≥	N/A
Lead particles	Pb	Calendar Quarter	--	--	--	1.5	N/A	If exceeded more than 1 day per year
		Rolling 3-month average	--	--	--	0.15	If ≥	N/A
		30-day average	--	--	1.5	--	If ≥	N/A

Source: California Air Resources Board. "Ambient Air Quality Chart". May 4, 2016. Accessed: May 19, 2023. https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf
NOTES: **1)** All standards are based on measurements at 25 C and 1 atmosphere pressure. **2)** National standards shown are the primary (health effects) standards. **3)** N/A = not applicable

Table AQ-2: Sacramento County Attainment Status

Pollutant	Attainment with State Standards	Attainment with Federal Standards
Ozone	Non-Attainment (1 hour Standard[1] and 8 hour Standard)	Non-Attainment (1 hour Standard[2]) Non-Attainment, Classification = Severe -15* (8 hour[3] Standards)
Particulate Matter 10 Micron	Non-Attainment (24 hour Standard and Annual Mean)	Attainment (24 hour Standard)
Particulate Matter 2.5 Micron	Attainment (Annual Standard)	Non-Attainment (24 hour Standard) and Attainment (Annual)
Carbon Monoxide	Attainment (1 hour and 8 hour Standards)	Attainment (1 hour and 8 hour Standards)
Nitrogen Dioxide	Attainment (1 hour Standard and Annual)	Unclassified/Attainment (1 hour and Annual)
Sulfur Dioxide[4]	Attainment (1 hour and 24 hour Standards)	Attainment/Unclassifiable[5]
Lead	Attainment (30 Day Standard)	Attainment (3-month rolling average)
Visibility Reducing Particles	Unclassified	No Federal Standard
Sulfates	Attainment (24 hour Standard)	No Federal Standard
Hydrogen Sulfide	Unclassified (1 hour Standard)	No Federal Standard

1. Per Health and Safety Code (HSC) § 40921.59(c), the classification is based on 1989-1001 data, and therefore does not change.
2. Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. The SMAQMD attained the standard in 2009.
3. For both that 1997 and the 2008 Standard.
4. Cannot be classified.
5. Designation was made as part of EPA's designations for the 2010 SO_2 Primary National Ambient Air Quality Standard – Round 3 Designation in December 2017.

*Designations based on information from http://www.arb.ca.gov/desig/changes.htm#reports

Source: SMAQMD. "Air Quality Pollutants and Standards". Web. Accessed: May 19, 2023. http://airquality.org/air-quality-health/air-quality-pollutants-and-standards

Federal, State and Local Agencies

Air quality in Sacramento County is regulated by several agencies, which include the U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), and Sacramento Metropolitan Air Quality Management District (SMAQMD). Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be

superseded, both State and Local regulations may be more stringent. In general, air quality is evaluated based upon standards developed by Federal and State agencies. Mobile sources of air pollutants are largely controlled by Federal and State agencies, while Local air pollution control districts or air quality management districts (AQMD) regulate stationary sources.

Air pollution problems in Sacramento County are primarily the result of locally generated emissions. However, Sacramento County has been identified as a source of ozone precursor emissions that occasionally contribute to air quality problems in the San Joaquin Valley Air Basin and the Northern Sacramento Valley Air Basin. Consequently, the air quality planning for Sacramento County must not only correct local air pollution problems but must also reduce the impacts from the area on downwind air basins.

SACRAMENTO METROPOLITAN AIR QUALITY RULES AND REGULATIONS

SMAQMD regulates air quality in Sacramento County through its permit authority over stationary sources of emissions, through its vehicle and fuels management program, and through planning and review activities. All projects are subject to SMAQMD Rules and Regulations in effect at the time of construction. Several SMAQMD Rules pertinent to the project are discussed below.

RULE 201: GENERAL PERMIT REQUIREMENTS. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generator, compressors, pile drives, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

RULE 403: FUGITIVE DUST. The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

RULE 442: ARCHITECTURAL COATINGS. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

The SMAQMD was created by State law to enforce Local, State, and Federal air pollution regulations within the Sacramento Valley Air Basin. The SMAQMD's overall mission is to achieve clean air goals by leading the Sacramento region in protecting public health and the environment through effective programs, community involvement, and public education. The SMAQMD interacts with local, state, and federal government agencies, the business community, environmental groups, and private citizens to achieve these goals. The SMAQMD regulates air pollutant emissions from stationary

sources through permit limitations and inspection programs and oversees compliance with state and federal mandates by adopting rules and regulations as necessary.

Because the Sacramento Valley Air Basin is in nonattainment for ozone, PM_{10}, and $PM_{2.5}$, the SMAQMD requires the implementation of the following Basic Construction Emission Control Practices (BCECPs), regardless of the project's significance determination under CEQA.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads;

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered;

- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited;

- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph);

- All roadways, driveways, sidewalks, and parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;

- Minimize idling time by either shutting equipment off when not in use or reducing time of idling to 5 minutes. Provide clear signage that posts this requirement for workers at the entrances to the site; and

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Sacramento County

Local governments, such as Sacramento County, have the authority and responsibility to reduce air pollution through the land use decision-making authority allowed by their police power. Specifically, local governments are responsible for the mitigation of emissions resulting from land use decisions and for the implementation of transportation control measures as outlined in Federal, State and Local air quality attainment plans. In general, a first step toward implementation of a local government's responsibility is accomplished by identifying air quality goals, policies, and implementation measures in the agency's General Plan. Through capital improvement programs, local governments can fund infrastructure that contributes to improved air quality, by requiring such improvements as bus turnouts, energy-efficient street lights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, local governments assess air quality impacts, require mitigation of potential air quality

impacts by conditioning discretionary permits, and monitor and enforce implementation of such mitigation.

The Sacramento County General Plan includes the following policies that pertain to air quality for the proposed project:

AQ-4. Developments which meet or exceed thresholds of significance for ozone precursor pollutants as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

AQ-10. Encourage vehicle trip reduction and improved air quality by requiring development projects that exceed the SMAQMD's significance thresholds for operational emissions to provide on-going, cost-effective mechanisms for transportation services that help reduce the demand for existing roadway infrastructure.

AQ-16. Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

AQ-17. Promote optimal air quality benefits through energy conservation measures in new development.

AQ-19. Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

AQ-21. Support SMAQMD's particulate matter control measures for residential wood burning and fugitive dust.

Significance Criteria and Methodology

Significance Criteria

According to the CEQA Appendix G criteria a project may be deemed to have a significant effect on the environment if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan;

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment;

3. Expose sensitive receptors to substantial pollutant concentrations; or,

4. Result in other emissions (e.g. odors) adversely affecting a substantial number of people.

SMAQMD has adopted significance thresholds for CEQA projects within the District. The adopted significance thresholds for criteria pollutants of the greatest concern in the Sacramento area are shown, below, in Table AQ-3:

Table AQ-3: SMAQMD Significance Thresholds

	ROG[1] (lbs/day)	NO_x (lbs/day)	CO ($\mu g/m^3$)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Construction (short-term)	None	85	CAAQS[2]	80[3]	82[3]
Operational (long-term)	65	65	CAAQS	80[3]	82[3]

1. Reactive Organic Gas

2. California Ambient Air Quality Standards (see Table AQ-4).

3. Only applies to projects for which all feasible best available control technology (BACT) and best management practices (BMPs) have been applied. Projects that fail to apply all feasible BACT/BMPs must meet a significance threshold of 0 lbs/day.

4. Annual Thresholds are determined for PM_{10} and $PM_{2.5}$, 14.6 tons/year and 15 tons/year, for both construction and operational.

Short-term impacts are associated with project construction, and long-term impacts are associated with mobile and area emissions during operation of a completed project. The analyses below focus on ozone precursors and particulate matter (ROG, NO_x, PM_{10}) and $PM_{2.5}$), which is consistent with the SMAQMD Guidelines. Analyses are not included for sulfur dioxide, lead, and other constituents because there are no mass emission thresholds; these are concentration-based limits in the AAQS, which require substantial, point-source emissions before exceedance will occur. The project does not include any elements that will generate substantial point-source emissions. More specifically:

a. Page 3-1 of the SMAQMD Guide states that for construction activities, carbon monoxide, sulfur dioxide, and lead are of less concern because construction activities are not likely to generate substantial quantities of these criteria air pollutants (CAPs).

b. Page 4-1 of the SMAQMD Guide states that for most land use projects pollutants such as sulfur dioxide and lead are of less concern because operational activities are not likely to generate substantial quantities of these CAPs and the Sacramento Valley Air basin has been in attainment for these CAPs for multiple years.

Table AQ-4: CAAQS Thresholds

Pollutant	Concentration Thresholds
PM_{10}	50 µg/m_3 24-hour standard; 20 µg/m_3 Annual Arithmetic Mean
$PM_{2.5}$	12 µg/m_3 Annual Arithmetic Mean
CO	20 ppm 1- hour standard; 9 ppm 8- hour standard
NO_2	0.18 ppm 1- hour standard; 0.03 ppm Annual Arithmetic Mean
SO_2	0.25 ppm 1- hour standard; 0.04 ppm 24- hour standard
Lead	1.5 µg/m_3 30-day average
Visibility-Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent
Sulfates	25 µg/m_3 24-hour standard
H_2S	42 µg/m_3 or 0.03 ppm 1-hour standard
Vinyl Chloride	26 µg/m_3 or 0.01 ppm 24-hour standard

METHODOLOGY

The SMAQMD "Guide to Air Quality Assessment in Sacramento County" (December 2009, as amended, hereinafter called the SMAQMD Guide) contains screening thresholds for significant impacts. For project that do not screen out, the California Emissions Estimator Model (CalEEMod) version 2022.1.1.13, a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions including greenhouse gas emissions from land use projects.

CONSTRUCTION IMPACT METHODOLOGY

The SMAQMD Guide includes screening criteria for construction-related ozone precursor (NO_x) and particulate matter (PM_{10} and $PM_{2.5}$). Projects that are 35 acres or less in size will generally not exceed the SMAQMD's construction NO_x, $PM_{10,}$ or $PM_{2.5}$ thresholds of significance provided that the project does not:

- Include buildings more than 4 stories tall;
- Include demolition activities;
- Include significant trenching activities;
- Have a construction schedule that is unusually compact, fast-paced, or involves more than 2 phases (i.e., grading, paving, building construction, and architectural coatings) occurring simultaneously;
- Involve cut-and-fill operations (moving earth with haul trucks and/or flattening or terracing hills); or,

- Require import or export of soil materials that will require a considerable amount of haul truck activity.

Some PM_{10} and $PM_{2.5}$ emissions during project construction can be reduced through compliance with institutional requirements for dust abatement and erosion control. These institutional measures include the SMAQMD "District Rule 403-Fugitive Dust" and measures in the Sacramento County Code relating to land grading and erosion control [Title 16, Chapter 16.44, Section 16.44.090(K)].

Operational Impact Methodology

For this analysis, operational impacts include emissions associated with ozone precursors (NO_x and Reactive Organic Gases (ROG)) and fugitive dust (PM_{10} and $PM_{2.5}$). Most ozone precursor emissions result from mobile and area sources. Mobile sources include motor vehicle traffic, while area sources include pollutants generated from furnaces, water heaters/boilers, facility maintenance equipment, and consumer products.

Typically, a project must be comprised of large acreages or intense uses in order to result in significant operational air quality impacts. For ozone precursor emissions, the screening table in the SMAQMD Guide allows users to screen out projects that include up to 485 new single family dwelling units for residential projects. For particulate matter emissions, the screening table allows users to screen out projects that include up to 1,000 new single family dwelling units for residential projects.

Impacts And Analysis

Impact AQ-1: Conflict With Or Obstruct The Implementation Of Applicable Air Quality Plan

The County General Plan has a number of policies related to minimizing air quality impacts from projects. The land use analysis concluded that because project emissions do not exceed SMAQMD emission thresholds, complies with SMAQMD district rules, and included limited daily vehicle trips, the project would be consistent with applicable air quality General Plan policies and objectives.

SMAQMD is the primary agency responsible for overseeing meeting federal and state air quality standards and adopts various plans, rules, and regulations to attain and maintain those standards. As demonstrated in the impact analysis below, the project's emissions do not exceed SMAQMD emission thresholds. In addition, the project will be required to comply with applicable SMAQMD rules and regulation including basic emission control practices.

The project will not conflict with or obstruct the County General Plan and applicable SMAQMD plans, rules, and regulation. Therefore, this impacts is ***less than significant***.

IMPACT AQ-2: CONSTRUCTION EMISSIONS – INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS IN NON-ATTAINMENT

Construction activities require the use of various combinations and types of construction equipment. Much of this equipment is likely to be diesel-fueled and would emit NO_x and particulate matter as part of the fuel combustion process. In addition, the disturbance of paved surfaces and soils produces fugitive dust.

The project site is less than 35 acres (six gross acres) and does not involve buildings more than four stories tall; demolition activities, significant trenching activities; an unusually compact construction schedule; cut-and-fill operations; or, import or export of soil materials requiring a considerable amount of haul truck activity. The SMAQMD Guide includes a list of Basic Construction Emissions Control Practices that should be implemented on all projects, regardless of size. Dust abatement practices are required pursuant to SMAQMD Rule 403 and California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485; the SMAQMD Guide simply lays out the basic practices needed to comply. These requirements are already required by existing rules and regulations, and have also been included as mitigation (mitigation measure AQ-1 below). Therefore, the project falls below the SMAQMD Guide screening criteria for construction emissions related to both Particulate Matter and Ozone precursors and no further air quality modeling is required; impacts are ***less than significant with mitigation***.

IMPACT AQ-3: OPERATIONAL EMISSIONS – INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NON-ATTAINMENT

Once project construction is completed, additional pollutants are emitted through the use or operation of the site. Long-term emissions of ozone precursors (ROG and NO_x) and particulate matter (PM_{10} and $PM_{2.5}$) generated by the project are associated with the operation of the buildings (energy), mobile sources (tailpipe emissions) and area sources (architectural coatings, new landscaping).

The proposed project consists of eight (8) new single-family dwelling units, and therefore falls below the screening thresholds outlined in the methodology section above. Impacts related to operational emissions are ***less than significant***.

IMPACT AQ-4: EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS

HEALTH EFFECTS OF CRITERIA POLLUTANTS

The EPA and CARB have established AAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the SMAQMD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the AAQS.

Accordingly, elevated levels of criteria air pollutants as a result of a project's emissions could cause adverse health effects associated with these pollutants. However, as discussed below, the health risks associated with exposure to criteria pollutants are evaluated on a regional level. As a result, the mass emissions significance thresholds used in CEQA air quality analysis are not necessarily indicative of any localized human health impact that a project may have (SCAQMD 2015; SJVAPCD 2015). Therefore, even if the project were to exceed the mass regional emissions thresholds, this would not necessarily indicate that the project would cause or contribute to the exposure of sensitive receptors to ground-level concentrations in excess of health-protective levels.

In *Sierra Club v. County of Fresno* (Sierra Club) the Supreme Court held that CEQA requires environmental impact reports to either (i) make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (ii) explain why such an analysis is infeasible (6 Cal.5th at 1165-66). However, the Court also clarified that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure." Id. at 1665.

NO_x and ROG are precursor emissions that form O_3 in the atmosphere in the presence of sunlight where the pollutants undergo complex chemical reactions. It takes time and the influence of meteorological conditions for these reactions to occur, so O_3 may be formed at a distance downwind from the sources. Breathing ground-level O_3 can result in health effects that include reduced lung function, inflammation of airways, throat irritation, pain, burning, or discomfort in the chest when taking a deep breath, chest tightness, wheezing, or shortness of breath. In addition to these effects, evidence from observational studies strongly indicates that higher daily O_3 concentrations are associated with increased asthma attacks, increased hospital admissions, increased daily mortality, and other markers of morbidity. The consistency and coherence of the evidence for effects upon asthmatics suggests that O_3 can make asthma symptoms worse and can increase sensitivity to asthma triggers.

There is currently no methodology available that can accurately quantify regional health effects from CO, NO_2 or O_3 exposure associated with an individual project's ROG or NO_x emissions. The SCAQMD reached a similar conclusion in its *Amicus Curiae* brief filed with the California Supreme Court in the case of *Sierra Club v. County of Fresno*, when, speaking about ozone, the SCAQMD stated that it does not know of a way to accurately quantify health impacts caused by emissions produced on a scale as small as individual projects. One existing tool, U.S. EPA's Environmental Benefits Mapping and Analysis Program (BenMAP), calculates the number and economic value of air pollution-related deaths and illnesses resulting from changes in O_3 and $PM_{2.5}$ concentration. However, the expected changes in regional O_3 concentrations associated with the proposed project would be so low that BenMAP would likely produce estimates of health effects that are near zero.

The SMAQMD prepared *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the District* (October 2020). The guidance provides screening health information for projects at or below regional CEQA thresholds of significance emissions levels and selected strategic areas above thresholds of significance emissions levels. Modeling guidance for large projects located outside strategic areas is also included. To date, SMAQMD has published three options for analyzing projects: small projects may use the Minor Project Health Screening Tool, while larger projects may use the Strategic Area Project Health Screening Tool, and practitioners have the option to conduct project-specific modeling.

The Minor Project Health Screening Tool is intended for use by projects that would result in emissions at or below 82 lbs/day, while the Strategic Area Project Health Screening Tool is intended for use by projects that would result in emissions between two and eight times greater than 82 lbs/day. The Strategic Area Project Screening Model was prepared by SMAQMD for five locations throughout the Sacramento region for two scenarios: two times and eight times the threshold of significance level (2xTOS and 8xTOS). The corresponding emissions levels included in the model for 2xTOS were 164 lb/day for ROG and NO_x, and 656 lb/day under the 8xTOS for ROG and NO_x (SMAQMD 2020).

As noted in SMAQMD's Friant Guidance, "each model generates conservative estimates of health effects, for two reasons: The tools' outputs are based on the simulation of a full year of exposure at the maximum daily average of the increases in air pollution concentration… [and] [t]he health effects are calculated for emissions levels that are very high" (SMAQMD 2020).

DISCUSSION OF CRITERIA POLLUTANT HEALTH RISKS

Since the project was below the daily operational thresholds for criteria air pollutants, the Minor Project Health Screening Tool was used to estimate health risks. The results are shown in Table AQ-5 and Table AQ-6.

Table AQ-5: PM2.5 Health Risk Estimates

$PM_{2.5}$ Health Endpoint	Age Range [1]	Incidences Across the Reduced Sacramento 4-km Modeling Domain Resulting from Project Emissions (per year)[2,5]	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year)[2]	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]
		(Mean)	(Mean)		
Respiratory					
Emergency Room Visits, Asthma	0 - 99	1.0	0.96	0.0052%	18419
Hospital Admissions, Asthma	0 - 64	0.067	0.062	0.0034%	1846
Hospital Admissions, All Respiratory	65 - 99	0.37	0.33	0.0017%	19644
Cardiovascular					
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65 - 99	0.20	0.18	0.00077%	24037
Acute Myocardial Infarction, Nonfatal	18 - 24	0.000088	0.000081	0.0021%	4
Acute Myocardial Infarction, Nonfatal	25 - 44	0.0078	0.0074	0.0024%	308
Acute Myocardial Infarction, Nonfatal	45 - 54	0.019	0.018	0.0024%	741
Acute Myocardial Infarction, Nonfatal	55 - 64	0.031	0.030	0.0024%	1239
Acute Myocardial Infarction,	65 - 99	0.13	0.12	0.0023%	5052

Nonfatal					
Mortality					
Mortality, All Cause	30 - 99	2.5	2.3	0.0050%	44766

Notes:

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.
5. The technical specifications and map for the Reduced Sacramento 4-km Modeling Domain are included in Appendix A, Table A-1 and Appendix B, Figure B-2 of the *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*.

Table AQ-6: Ozone Health Risk Estimates

Ozone Health Endpoint	Age Range [1]	Incidences Across the Reduced Sacramento 4-km Modeling Domain Resulting from Project Emissions (per year)[2,5] (Mean)	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					
Hospital Admissions, All Respiratory	65 - 99	0.090	0.072	0.00037%	19644
Emergency Room Visits, Asthma	0 - 17	0.37	0.31	0.0053%	5859
Emergency Room Visits, Asthma	18 - 99	0.63	0.53	0.0042%	12560
Mortality					
Mortality, Non-Accidental	0 - 99	0.057	0.048	0.00016%	30386

Notes:

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.
5. The technical specifications and map for the Reduced Sacramento 4-km Modeling Domain are included in Appendix A, Table A-1 and Appendix B, Figure B-2 of the *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District.*

Again, it is important to note that the "model outputs are derived from the numbers of people who would be affected by [the] project due to their geographic proximity and based on average population through the Five-District-Region. The models do not take into account population subgroups with greater vulnerabilities to air pollution, except for ages for certain endpoints" (SMAQMD 2020). Therefore, it would be misleading to correlate the levels of criteria air pollutant and precursor emissions associated with

project implementation to specific health outcomes. While the effects noted above could manifest in individuals, actual effects depend on factors specific to each individual, including life stage (e.g., older adults are more sensitive), preexisting cardiovascular or respiratory diseases, and genetic polymorphisms. Even if this specific medical information was known about each individual, there are wide ranges of potential outcomes from exposure to ozone precursors and particulates, from no effect to the effects listed in the tables. Ultimately, the health effects associated with the project, using the SMAQMD guidance "are conservatively estimated, and the actual effects may be zero" (SMAQMD 2020).

CONCLUSION OF CRITERIA POLLUTANT HEALTH RISKS

Neither SMAQMD nor the County of Sacramento have adopted thresholds of significance for the assessment of health risks related to the emission of criteria pollutants. Furthermore, an industry standard level of significance has not been adopted or proposed. Due to the lack of adopted thresholds of significance for health risks, this data is presented for informational purposes and does not represent an attempt to arrive at any level-of-significance conclusions.

MITIGATION MEASURES

AQ-1. The following Basic Construction Emissions Control Practices are considered feasible for controlling fugitive dust from a construction site. The practices also serve as best management practices (BMPs), allowing the use of the non-zero particulate matter significance thresholds. Control of fugitive dust is required by District Rule 403 and enforced by District staff.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1]. For more information contact CARB at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert1.html.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic.

Cumulative Impacts

Project construction and operation will result in the generation of ozone precursors and particulate matter. Ozone precursors and particulate matter generated by construction and operations are below thresholds. This project, together with all cumulative projects are subject to the same SMAQMD rules and thresholds related to construction ozone precursors and particulate matter, and if necessary are required to offset emissions. On a cumulative level, existing compliance with adopted rules and regulations will be sufficient to offset construction and operational-related emissions. The project will have ***less than significant*** cumulative impacts.

References

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_____"Guide to Air Quality Assessment in Sacramento County". April 2021. Web, Accessed May 18, 2023. Available at: http://airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools

_____"Greenhouse Gas Thresholds for Sacramento County," prepared by Ramboll US Corporation. June 1, 2020. Available at: http://airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf

_____2016 Annual Progress Report. March 2017.

_____Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, December 19, 2008 (revised in 2011 and 2013)

9- NOISE

INTRODUCTION

This chapter addresses the potential noise impacts associated with the proposed O'Donnell Estates project. The analysis in this chapter considers the potential impacts of the project with regards to construction-related noise.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. There were no responses to the NOP that directly addressed impacts related to transportation and circulation; however, comments received from community members prior to the release of the NOP, involved general concerns regarding construction noise. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

ENVIRONMENTAL SETTING

EXISTING AMBIENT NOISE LEVELS

The project site is an infill site within an established Carmichael neighborhood. A community park is located east of the project site. The community park contains a playground approximately 280 feet east of the project boundary that is open during typical daytime hours, open space, and a walking path. Existing residential homes are located to the north, south and west. There are no existing, significantly noise-generating uses within the project vicinity. Roadways surrounding the project site are two lane neighborhood collectors with 25 mph speed limits.

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration, and as any pressure variation in the air that the human ear can detect.

SOUND PROPERTIES

A sound wave is introduced into a medium (air) by a vibrating object. The vibrating object (e.g., vocal cords, the string and soundboard of a guitar, the diaphragm of a radio speaker) is the source of the disturbance that moves through the medium. Regardless of the type of source that creates the sound wave, the particles of the medium through which

the sound moves are vibrating in a back-and-forth motion at a given frequency (pitch).[1] A commonly used unit for frequency is cycles per second, called hertz (Hz).[2]

A wave transports energy along a medium. The amount of energy carried by a wave is related to the amplitude (loudness) of the wave. A high-energy wave is characterized by high amplitude; a low-energy wave is characterized by low amplitude. The amplitude of a wave refers to the maximum amount of displacement of a particle from its rest position. The energy transported by a wave is directly proportional to the square of the amplitude of the wave. This means that a doubling of the amplitude of a wave is indicative of a quadrupling of the energy transported by the wave.

SOUND AND THE HUMAN EAR

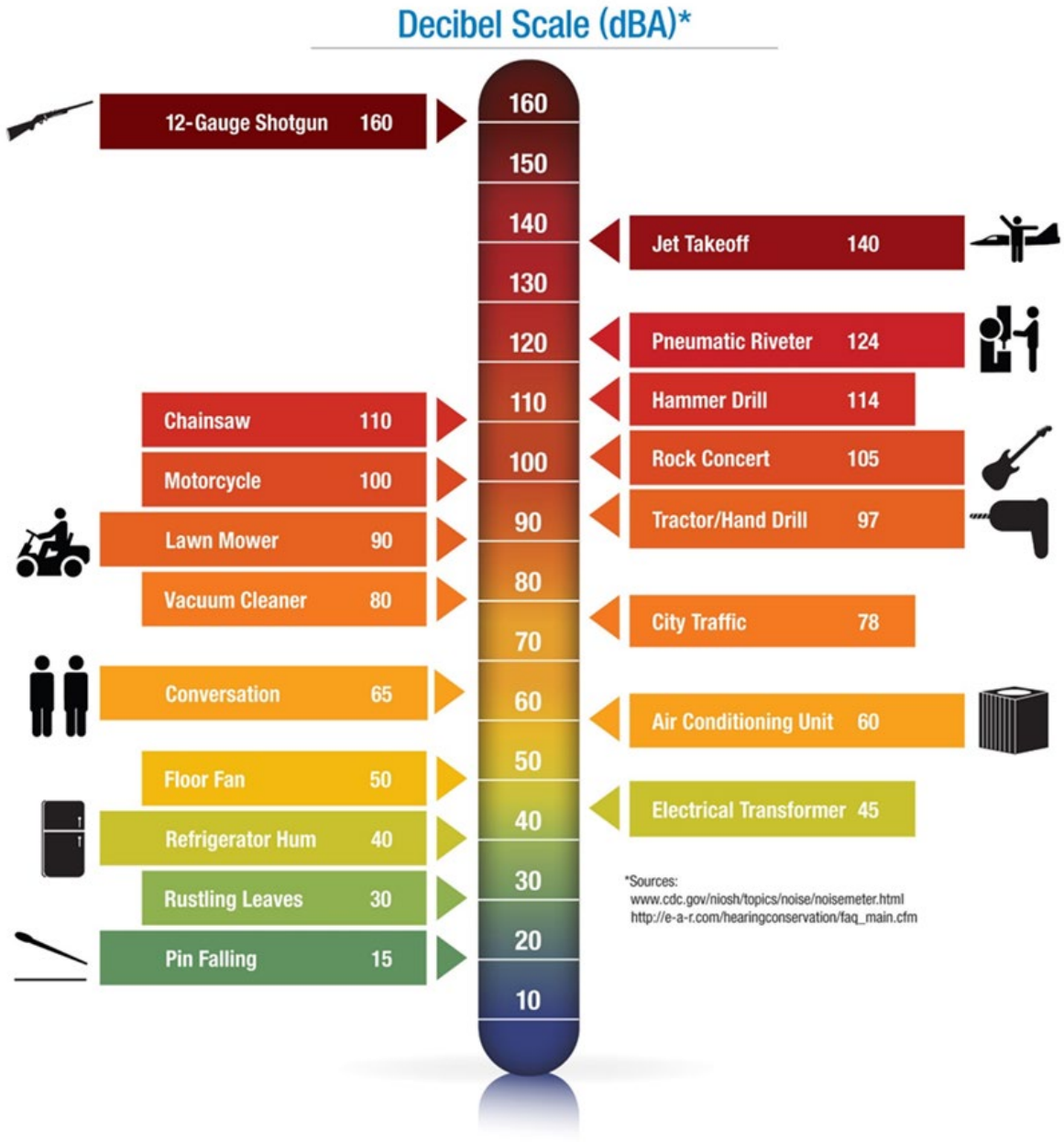
Because of the ability of the human ear to detect a wide range of sound-pressure fluctuations, sound-pressure levels are expressed in logarithmic units called decibels (dB) to avoid a very large and awkward range in numbers. The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 2013). Use of this logarithmic scale reveals that the total sound from two individual sources, each measured at 65 A-weighted decibels (dBA), is 68 dBA, not 130 dBA; that is, doubling the source strength increases the sound pressure by 3 dBA. Typical noise levels associated with various sources are shown on (Plate NOI-1).

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[1] The frequency of a wave refers to how often the particles vibrate when a wave passes through the medium. The frequency of a wave is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave would be 500 vibrations per second.

[2] Hertz (abbreviated: Hz) is the standard unit of measurement used for measuring frequency. Since frequency is measured in cycles per second, one hertz equals one cycle per second. Hertz is commonly used to measure wave frequencies, such as sound waves, light waves, and radio waves. For example, the average human ear can detect sound waves between 20 and 20,000 Hz. Sound waves close to 20 Hz have a low pitch and are called "bass" frequencies. Sound waves above 5,000 Hz have a high pitch and are called "treble" frequencies.

Plate NOI-1: Common Noise Sources



Because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. A dBA scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale has been chosen by most authorities to regulate environmental noise. With respect to how humans perceive and react to changes in noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly noticeable, and a 10-dBA increase is subjectively perceived as approximately twice as loud (Egan 1988), as presented in Table NOI-1.[3]

Table NOI-1. Subjective Reaction to Changes in Noise Levels of Similar Sources

Change in Level, dBA	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (except for tones)	1.3
3	Just barely perceptible	2.0
6	Clearly noticeable	4.0
10	About twice (or half) as loud	10.0

Note: dBA = A-weighted decibels
Source: Egan 1988

Noise Attenuation

Stationary “point” sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of approximately 6+ dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility, spread over many acres or a street with moving vehicles (a “line” source), would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans, 2020). Noise from large construction sites (with heavy equipment moving dirt and trucks entering and exiting the site daily) would have characteristics of both “point” and “line” sources, so attenuation would generally range between 4.5 and 7.5 dBA per doubling of distance.

Vibration

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains,

[3] Table NOI-1 was developed on the basis of the reactions of test subjects to changes in the levels of steady-state pure tones or broadband noise and changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50–70 dBA, as this is the usual range of voice and interior noise levels.

construction equipment). Vibration sources may be continuous, such as operating factory machinery, or transient, such as explosions. As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean square (RMS), as in RMS vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (FTA 2018). PPV and RMS are normally described in inches per second (in/sec).

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. Table NOI-2, which was developed by the California Department of Transportation (Caltrans), shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a period of one second. Like airborne sound, the RMS velocity is often expressed in decibel notation, as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018). This is based on a reference value of one microinch per second (µin/sec).

The background vibration-velocity level in residential areas is usually approximately 50 VdB. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018).

Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate groundborne vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018).

Table NOI-2. Effects of Various Vibration Levels on People and Buildings

Velocity Level, PPV (in/sec)	Vibration Level, VdB	Human Reaction	Effect on Buildings
0.01	68	Barely perceptible	No effect
0.04	80	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structures
0.08	86	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	88	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	98	Strongly perceptible to Severe	Threshold at which there is a risk of damage to older residential structures
0.5	102	Severe – Vibration considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Notes:
PPV=peak particle velocity
In/sec=inches per secondVdB = Vibration Decibel
Source: Caltrans 2020

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, horizontal directional drilling, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. “Architectural” damage can be classified as cosmetic only, such as minor cracking of building elements, while “structural” damage may threaten the integrity of a building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to a building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is in a high state of disrepair and the construction activity occurs immediately adjacent to the structure. Table NOI-3 shows the criteria established by the Federal Transit Administration (FTA) for the likelihood of structural damage due to vibration.

Table NOI-3. Groundborne Vibration Criteria: Architectural Damage

Building Category	PPV (in/sec)	Lv (VdB)a
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely and susceptible to vibration damage	0.12	90

Notes: in/sec = inches per second; PPV = peak particle velocity; Lv = Vibration Level; VdB = Vibration Decibel.
a RMS velocity calculated from vibration level (VdB) using the reference of one micro-inch/second.
Source: FTA 2018.

REGULATORY SETTING

FEDERAL

Although not directly applicable to the proposed project, the research that supported the development of federal community noise standards is broadly applicable in understanding human response to different noise levels and is summarized below for the reader's edification.

U.S. ENVIRONMENTAL PROTECTION AGENCY NOISE CONTROL ACT

The Federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare.[4] Although the EPA was given a major role in disseminating information to the public and coordinating federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs.[5]

In 1974, in response to the requirements of the federal Noise Control Act, the EPA identified indoor and outdoor noise level limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor and indoor noise exposure limits of 55 dB L_{dn} and 45 dB L_{dn}, respectively, are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. The sound-level criterion identified to protect against hearing damage in commercial and industrial areas is 70 dB 24-hour L_{eq} (both outdoors and indoors).

The U.S. Environmental Protection Agency's (EPA's) Office of Noise Abatement and Control was established to coordinate federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments.

U.S. DEPARTMENT OF TRANSPORTATION AND U.S. EPA VIBRATION GUIDELINES

To address the human response to groundborne vibration, the FTA of the U.S. Department of Transportation has set forth guidelines for maximum-acceptable vibration

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[4] The U.S. Environmental Protection Agency (EPA) was given the responsibility for providing information to the public regarding identifiable effects of noise on public health and welfare, publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety, coordinating federal research and activities related to noise control, and establishing federal noise emission standards for selected products distributed in interstate commerce. The Noise Control Act also directed that all federal agencies comply with applicable federal, State, interstate, and local noise control regulations.

[5] The EPA can, however, require other federal agencies to justify their noise regulations in terms of the Noise Control Act policy requirements.

criteria for different types of land uses. These include 65 VdB for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2018).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the U.S. Environmental Protection Agency (FTA 2018). For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA 2018).

State

The California Department of Health Services (DHS) Office of Noise Control has studied the relationship between noise levels and different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land uses. Noise in the "normally acceptable" category places no undue burden on affected receptors and would need no mitigation. As noise rises into the "conditionally acceptable" range, some mitigation of exposure (as established by an acoustical study) would be warranted. At the next level, noise intrusion is so severe that it is classified "normally unacceptable" and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the "clearly unacceptable" category is so severe that it cannot be mitigated.

In 1971, the State required cities and counties to include noise elements in their general plans (Government Code Section 65302 et seq.). The State of California General Plan Guidelines (Office of Planning and Research 2015) identify guidelines for the noise elements of local general plans, including a sound level/land-use compatibility chart. The noise element guidelines identify the "normally acceptable" range of noise exposure for low-density residential uses as less than 60 dB L_{dn}, and the "conditionally acceptable" range as 55-70 dB L_{dn}. Overlapping noise level ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land use compatibility at specific locations. The State's guidance for land use/noise compatibility is summarized in Table NOI-4.

Table NOI-4. Land Use Noise Compatibility Guidelines

Land Use Category	Community Noise Exposure (CNEL/L_{dn}, dBA)			
	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Residential-Low Density Single Family, Duplex, Mobile Home	<60	55–70	70–75	75+
Residential-Multiple Family	<65	60–70	70–75	75+
Transient Lodging, Motel, Hotel	<65	60–70	70–80	80+
School, Library, Church, Hospital, Nursing Home	<70	60–70	70–80	80+
Auditorium, Concert Hall, Amphitheater		<70	65+	
Sports Arenas, Outdoor Spectator Sports		<75	70+	
Playground, Neighborhood Park	<70		67.5–75	72.5+
Golf Courses, Stable, Water Recreation, Cemetery	<75		70–80	80+
Office Building, Business Commercial and Professional	<70	67.5–77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70–80	75+	

Notes: CNEL = Community Noise Equivalent Level; dBA = A-weighted decibels; L_{dn} = day-night average noise level.
[1] Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
[2] New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
[3] New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.
[4] New construction or development should generally not be undertaken.
Source: OPR 2015

CALIFORNIA DEPARTMENT OF TRANSPORTATION

For the protection of fragile, historic, and residential structures, Caltrans recommends for highway construction analysis a threshold of 0.2 in/sec PPV for normal residential buildings and 0.08 in/sec PPV for old or historically significant structures (Caltrans 2013). These standards are more stringent than the recommended guidelines established by the Federal Transit Administration (FTA), presented above. Table NOI-5 shows the general thresholds for structural responses to vibration levels.

Table NOI-5. Structural Responses to Vibration Levels, Peak Vibration Threshold (in/sec PPV)

Structure and Condition	Peak Vibration Threshold (in/sec PPV) Transient Sources	Peak Vibration Threshold (in/sec PPV) Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes: in/sec = inches per second; PPV = peak particle velocity
Source: Caltrans 2020

CRITERIA FOR ACCEPTABLE VIBRATION EXPOSURE

Sacramento County has no adopted vibration standards. As a result, Caltrans-recommended criteria are applied for this project, as described below. 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. The Caltrans publication, *Transportation and Construction Vibration Guidance Manual*, April 2020, provides guidelines for acceptable vibration limits for transportation and construction projects in terms of the induced peak particle velocity (PPV). Those standards are reproduced below in Table NOI-6.

Table NOI-6: Vibration Criteria

	Maximum Peak Particle Velocity(ppv) (inches/second)	
Human Response	Transient Sources[1]	Continuous or Frequent Intermittent Sources[2]
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Notes:
1 Transient sources create a single isolated vibration event, such as blasting or drop balls.
2 Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Current Caltrans research illustrates that there are different thresholds of perception for different types of vibration sources. Section XI(b) of Appendix G of the CEQA guidelines requires that a project result in exposure of persons to, or generation of, *excessive* groundborne vibration levels or groundborne noise levels, for the finding of a significant impact. The CEQA guidelines specifically mention “excessive” vibration, rather than just perceptible vibration.

The general range at which vibration becomes distinctly to strongly perceptible to people is noted in Table NO-1 as being 0.04–0.10 in/sec ppv for continuous or frequent sources. Similarly, damage to structures is considered likely at 0.25 in-sec ppv.

LOCAL

COUNTY OF SACRAMENTO GENERAL PLAN

Sacramento County General Plan (updated in 2011) and serves as the overall guiding policy document for land use, development, and environmental quality for the County. Sacramento County Noise Element of the General Plan contains noise standards for transportation as well as non-transportation or "stationary" noise sources. Table NOI-7 below outlines threshold standards for sensitive uses. These standards would apply to both the project's potential impact on neighboring uses from the generation of onsite noise, as well as the potential for future uses on the site to be impacted by neighboring noise-generating uses. Pursuant to footnote 3 of Table NOI-7, noise level standards are applied with windows in the closed position. Therefore, provided exterior noise levels do not exceed the Table NOI-7 standards outside the nearest residences, noise levels inside the residences would be below the interior noise level standards shown in Table NOI-7. As a result, this analysis focuses on the more restrictive exterior noise level standards.

Table NOI-7: Non-Transportation Noise Standards
Sacramento County General Plan Noise Element

Receiving Land Use	Outdoor Area[2] Daytime (7 a.m. – 10 p.m.)	Outdoor Area[2] Nighttime (10 p.m. – 7 a.m.)	Interior[3] Day & Night	Notes
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	--	35 / 55	4
Hospitals & Nursing Homes	55 / 75	--	35 / 55	5,6
Theaters & Auditoriums	--	--	30 / 50	6
Churches, Meeting Halls Schools, Libraries, etc.	55 / 75	--	35 / 60	6
Office Buildings	60 / 75	--	45 / 65	6
Commercial Buildings	--	--	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	--	--	6
Industry	60 / 80	--	50 / 70	6

Notes: L_{50} = sound level exceeded by 50% of a specific period of time; L_{max} = maximum sound level (the maximum instantaneous sound level during a specific period); Leq = equivalent or energy-averaged noise level.

1 The Table 2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table 1, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

2 Sensitive areas are defined in the acoustic terminology section.

3 Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.

4 Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

5 Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

6 The outdoor activity areas of these uses (if any), are not typically used during nighttime hours.

7 Where median (L_{50}) noise level data is not available for a particular noise source, average (L_{eq}) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Source: Sacramento County General Plan Noise Element (Amended 2011)

COUNTY OF SACRAMENTO NOISE ORDINANCE

Section 6.68 of the Sacramento County Code (noise control) establishes standards for acceptable noise exposure at residential uses. Table NOI-8 outlines excerpts for noise standards from the County's Noise Control Ordinance. Regarding project construction activities, the Sacramento County Code Section 6.68.090 (Exemptions), states that the following activities shall be exempted from the provisions of the Noise Ordinance:

Table NOI-8. Excerpts from the County of Sacramento Noise Control Ordinance

Noise Area	County Zoning Districts	Time Period	Exterior Noise Standard
1	RE-1, RD-1, RE-2, RD-2, RE-3, RD-3, RD-4, R-1-A, RD-5, R-2, RD-10, R-2A, RD-20, R-3, R-D-30, RD-40, RM-1, RM-2, A-1-B, AR-1, A-2, AR-2, A-5, AR-5	7 a.m.–10 p.m.	55 dB
		10 p.m.–7 a.m.	50 dB

a Noise standards, unless otherwise specifically indicated in this chapter, shall apply to all properties within a designated noise area.

b It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated noise area, to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels (dB)
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	+ 5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

c. Each of the noise limits specified in subdivision (b) of this section shall be reduced by five dB for impulsive or simple tone noises, or for noises consisting of speech or music.

d. If the ambient noise level exceeds that permitted by any of the first four noise-limit categories specified in subdivision (b), the allowable noise limit shall be increased in five dB increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

Notes: dB = A-weighted decibels
Source: County of Sacramento Code, Noise Control 1976

Excerpt from the Sacramento County noise ordinance:

> e. Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of eight p.m. and six a.m. on weekdays and Friday commencing at eight p.m. through and including seven a.m. on Saturday; Saturdays commencing at eight p.m. through and including seven a.m. on the next following Sunday and on each Sunday after the hour of eight p.m. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after eight p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

SIGNIFICANCE CRITERIA AND METHODOLOGY

SIGNIFICANCE CRITERIA

The CEQA Guidelines define "significant" as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objectives of historic or aesthetic significance." Based on the CEQA Guidelines, a noise impact is significant if the project results in any of the following:

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.

2. Generation of excessive groundborne vibration or groundborne noise levels.

3. 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.

ISSUES NOT DISCUSSED FURTHER

No private airstrips were identified in the project vicinity. The project would not expose people residing or working in the project area to excessive noise levels; therefore, an evaluation of aircraft noise impacts associated with such facilities is not warranted for this project.

The project would result in the construction of eight single family dwellings and would not result in substantial operational noise. The noise associated with the operation of the project would be consistent with day to day activities and noise that are already occurring the neighborhood. Therefore, the following analysis focuses on the potential impacts surrounding construction activities and associated noise/vibration associated with construction.

METHODOLOGY

To assess potential short-term, temporary (i.e., construction-related) noise impacts, sensitive receptors and their relative exposure were identified. Noise levels of specific construction equipment were determined and resultant noise levels at those receptors (at given distances from the source) were calculated. Predicted noise levels during construction are shown in Table NOI-9 that were compared with applicable County standards for determination of significance.

Table NOI-9: Construction Equipment Noise Level

Anticipated Type of Equipment that May Be Utilized by the Contractor	Estimated Noise Level at 50 ft (L_{max}, dBA / L_{eq}, dBA)	
Construction		
Grader	85	81
Dozer	82	78
Roller	80	76
Tractor	84	80
Excavator	81	77
Paver	89	85
Loader	85	80
Concrete Mixer	85	81

IMPACTS AND ANALYSIS

IMPACT NO-1: WOULD THE PROJECT RESULT IN 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: CONSTRUCTION NOISE

Construction noise associated with the Project would be temporary during construction of the private drive and associated residences. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., grading, excavation, trenching, paving). Noise generated by construction equipment can reach high levels (see Table NOI-9 for typical noise levels of construction equipment). Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

Short-term construction source noise levels could exceed the applicable County standards at nearby noise-sensitive receptors. Construction activities associated with the proposed project have the potential to result in varying degrees of temporary noise. Residences located adjacent to areas of construction activity could be exposed to construction noise from on-site construction. Construction noise impacts primarily result when the construction occurs in areas immediately adjoining noise-sensitive land uses,

or when construction durations last over extended periods of time. Construction of the project would occur during typical daytime construction hours. Weekend and nighttime construction is not anticipated. Therefore, it is expected that there could be periods of loud, temporary noise associated with construction, but those activities are not unusual and would fall within the realm of expected construction activity outlined in Sacramento County Code Section 6.68.090 (Exemptions) (see regulatory setting above).

Construction activities that occur within the hours prescribed by the County Noise ordinance (refer to Table NOI-8) are exempt from the County noise standards, and as a result would not violate County standards. Thus, the impact of construction noise, including that resulting from construction-related traffic, which occurs during daytime hours conforming to the County Noise ordinance, is considered ***less than significant***.

IMPACT NO-2: WOULD THE PROJECT RESULT IN 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: CONSISTENCY WITH ADOPTED NOISE POLICY

The non-transportation criteria, shown in Table NOI-7, would apply to the future residences on the site upon completion of construction. Satisfaction of the County's exterior noise level standards would ensure compliance with interior noise level standards. This is because the interior noise level standards are 15–20 dB lower than the exterior noise level standards, and typical noise reduction for residential structures is 25 dB with windows in the closed position. For residential uses, the noise standards per General Plan policy for non-transportation related noise standards are 55 / 75 for outdoor noise levels.

O'Donnell Heritage Park is located directly east of the project site and contains a playground, which can be a noise generating use. The backyard of proposed Lot 9 is the closest noise-sensitive area to the park and is located approximately 300 feet from the playground. At a distance of 300 feet, average noise levels of 100 dB at the playground would result in a noise level of 64 dB at the nearest backyard due to attenuation over distance. A noise level of 100 dB is likened to that of a motorcycle in Table NOI-1 above. While playgrounds generate noise from children playing and crowds of people, data from similar parks indicate maximum noise levels of 65-70 dB and average noise levels of 55 to 60 dB at a distance of 50 feet. Therefore, the distance between the nearest proposed property and the existing playground would attenuate and noise generated from the playground and ensure that the noise-sensitive backyard area of future residential lots are within the standards prescribed by General Plan policy. Impacts would be ***less than significant.***

IMPACT NO-3: WOULD THE PROJECT RESULT IN GENERATION OF EXCESSIVE GROUND BORNE VIBRATION OF GROUND BORNE NOISE LEVELS

This project would not result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels. To quantify reference vibration levels generated by heavy equipment typically used in the proposed construction activities, the analysis uses vibration measurement results from similar pieces equipment conducting similar activities (Table NOI-10).

Table NOI-10: Reference Heavy Equipment Vibration Levels

Vibration Source	Measurement Distance (Feet)	Peak Particle Velocity (inch/second)
Bulldozer	35	0.0209
Front-Loaders	100	0.0047
Haul Truck	100	0.0062
Water Truck	100	0.0070

The California Department of Transportation (Caltrans) has developed criteria that are commonly applied as an industry standard to determine the impacts of project vibration relative to human annoyance and structural damage. Caltrans determines that the vibration level of 80 VdB (0.04 in/sec PPV) would be distinctly perceptible. Therefore, remaining less than 80 VdB at residential uses would avoid human annoyance. Also, Caltrans recommends staying below 0.3 (in/sec PPV at older residential structures and below 0.5 in/sec PPV for new residential structures (Table NOI-5), to avoid structural damage (Caltrans 2020).

The project would result in construction of a new private road and eight associated single family homes. Typical construction methods would be utilized. It is not expected that construction would occur within 35 feet of any existing structures, and in most cases construction would occur over 100 feet from neighboring houses. For continuous or frequent intermittent vibration sources, a vibration level of 0.25 inch per second peak particle velocity (in/sec ppv) is considered a criterion that would protect against significant architectural or structural damage. The general range at which vibration becomes distinct to strongly perceptible is 0.04–0.10 in/sec ppv. Vibration measurement results shown in Table NOI-10 indicate that heavy equipment-generated vibration levels would be below the thresholds for annoyance and damage to structures even at the very close measurement locations of 35–100 feet from the operating equipment. As a result, given the setback from the proposed operations relative to the nearest receivers, project vibration levels generated by heavy earthmoving equipment are expected to be well below the threshold of perception. Therefore, the exposure of persons to or generation of excessive groundborne vibration or noise levels as a result of implementing the proposed project would be ***less than significant***.

MITIGATION MEASURES

None Recommended.

CUMULATIVE IMPACTS

The project would result in short-term, temporary noise impacts associated with construction activities. Impacts associated with groundborne vibration have been found to be less than significant for the project. Upon completion of the project, there would not be any additional construction noise. Therefore, cumulative impacts associated with noise are considered ***less than significant***.

REFERENCES CITED

Caltrans, 2020. Transportation and Construction Vibration Guidance Manual (Caltrans, April 2020)

Egan, David M. 1988. Architectural Acoustics.

Federal Transit Agency. 2018. Policy Manual. https://www.transit.dot.gov/ntd/manuals

10 HYDROLOGY AND WATER QUALITY

INTRODUCTION

This chapter addresses the potential hydrology and water quality impacts that may result from the proposed O'Donnell Estates Project, which includes a nine lot residential subdivision and an open space lot within the unincorporated Sacramento County Carmichael Community.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. There were no responses to the NOP that directly addressed impacts related to hydrology and drainage; however, comments received from community members prior to the release of the NOP, involved concerns related to drainage and localized flooding. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

ENVIRONMENTAL SETTING

The project is located within the boundaries of the Carmichael Creek and Verde Cruz Creek watersheds. The Project site is within the boundaries of Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map 06067C0093H, Zone X and is classified as an area of minimal flood hazard. It is not within a local floodplain.

EXISTING DRAINAGE CONDITIONS

The project site is located between a Northern (Verde Cruz Creek) Watershed and a Southern (Carmichael Creek) Watershed (Plate HY-1). The project area is comprised of two drainage sheds in the Northern Watershed (A and C), and one drainage shed (M) in the Southern Watershed. A fourth drainage shed (B) is located north of the project area and conveys runoff from that developed residential area to an existing 15" storm drain located at the intersection of Woodfair Way and Rappahannock Way. Approximately 52% of the site's runoff comes from Shed A and 11% from Shed C in the Northern Watershed; and 37% from Shed M in the Southern Watershed (Plate HY-2).

Runoff from Sheds A1 & A2 on the project site combines with runoff from portions of O'Donnell Heritage Park (Shed A3) and flows west towards the Woodfair and Rappahannock way storm drain. Runoff from the existing residential neighborhood in Shed B combines with runoff from Shed A at this drain.

The existing 15" storm drain system conveys the developed flow from Sheds A & B to an existing drainage ditch (Mapel Ditch), located northwest of the project site. Mapel Ditch flows south to north within the rear yards of the residences along Mapel Lane. At the outfall of the 15" storm drain (rear yards of 4501 Woodfair Way and 4514 Mapel Lane), 11% of the project site's runoff (Shed C2) contributes to the flow of Mapel Ditch, as well as the off-site residential area (Sheds C1.1 & C1.2). Flow from Sheds A, B, and C are

conveyed to the northwest via the Mapel Ditch, eventually connecting to a roadside swale near 4530 Mapel Lane. Under existing conditions, the driveway of 4530 is subject to potential localized flooding during large storm events.

The southern watershed makes up the remainder of the project site (37%) and is shown as Shed M. Runoff from Shed M flows to the south towards the neighboring properties. Existing depressions, yard swales and minor drainage ways convey Shed M runoff to Mapel Lane's southbound flowing roadside ditch.

Plate HY-1: Watershed and Associated Waterways

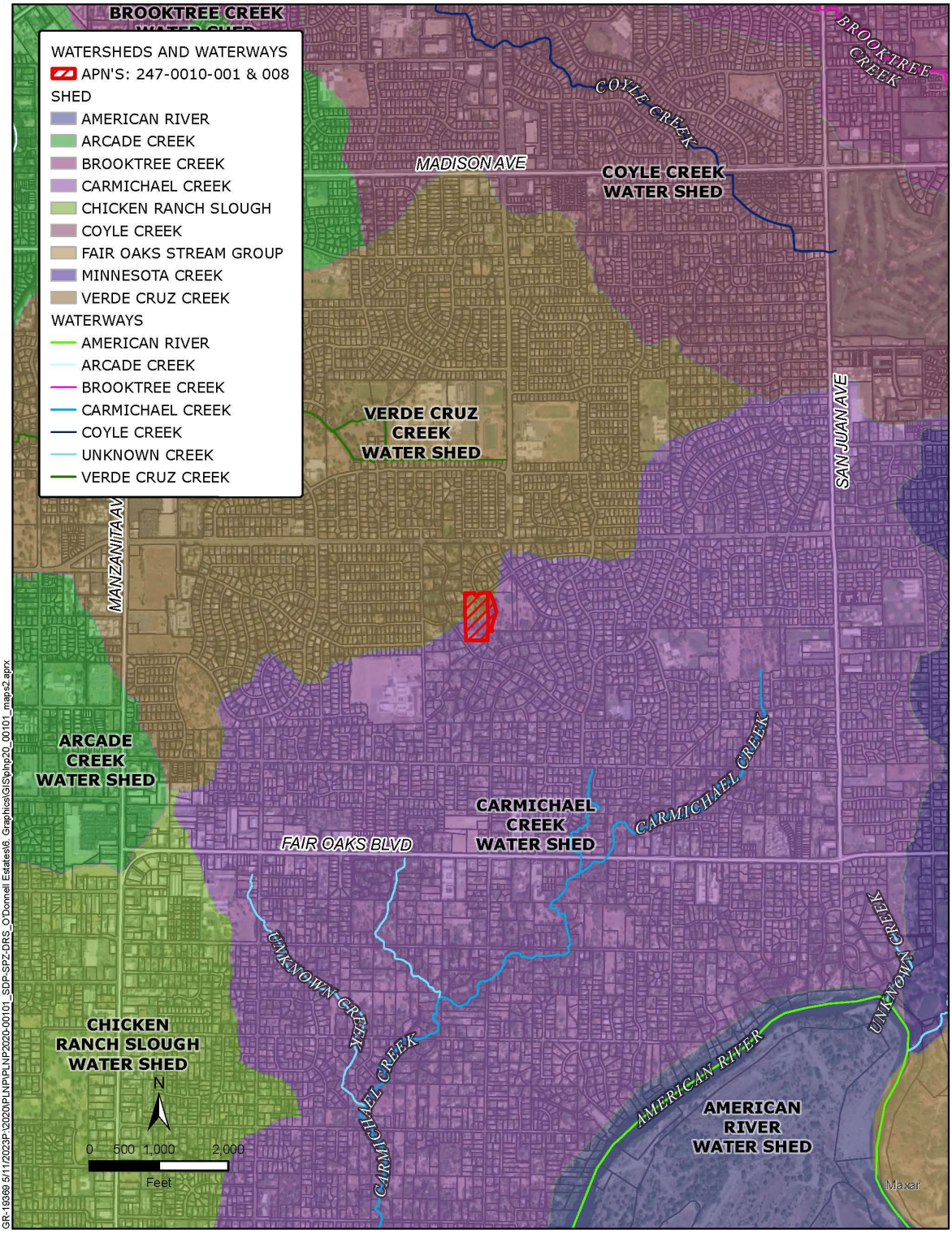
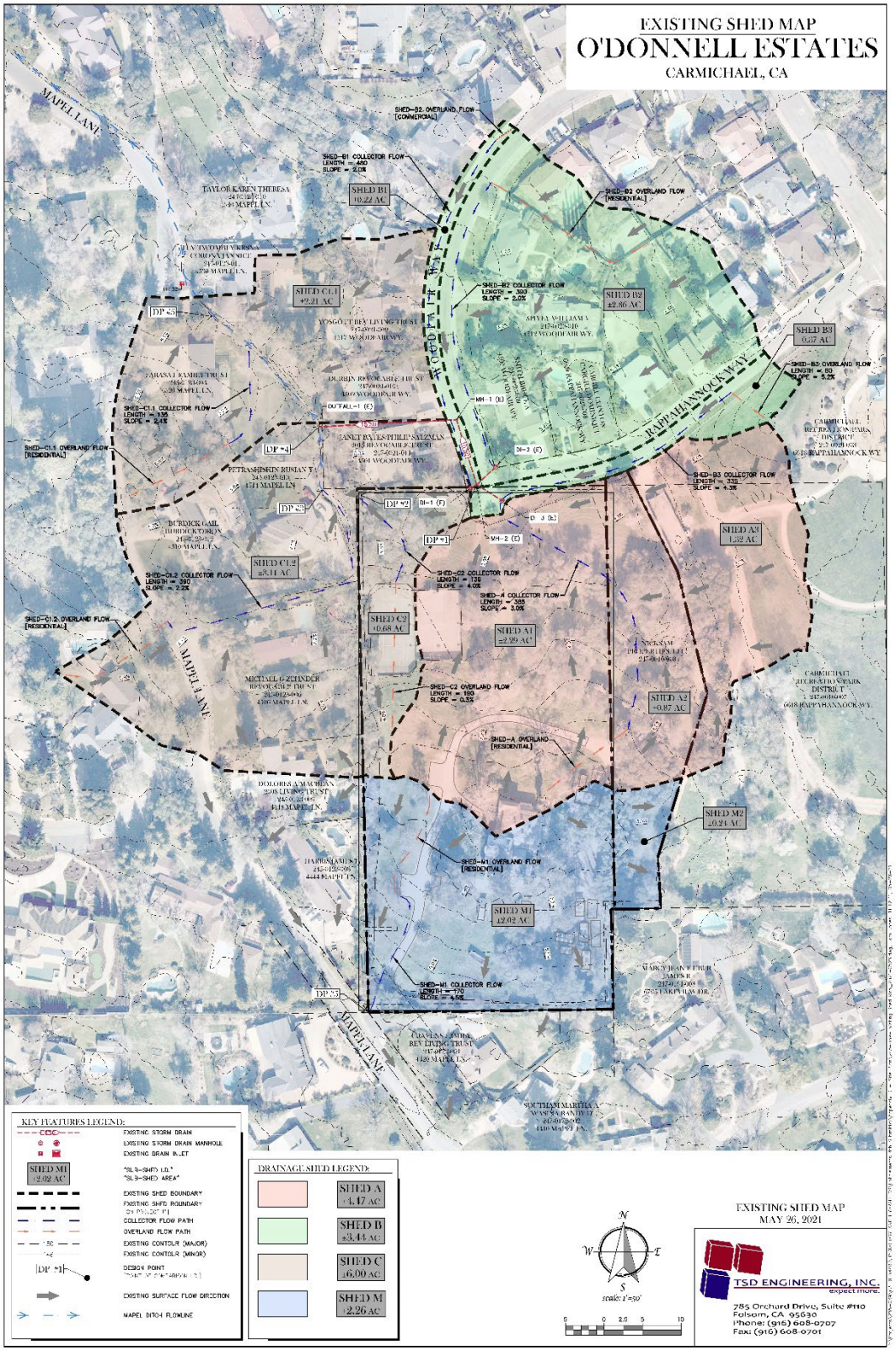


Plate HY-2: Existing Shed Map



REGULATORY SETTING

FEDERAL

Government agencies regulate potential impacts to water quality in order to comply with legislative acts such as: the Clean Water Act (CWA), the Porter-Cologne Water Quality Act (Porter-Cologne), the Rivers and Harbors Act, and the California Environmental Quality Act (CEQA). The Clean Water Act contributes to the dramatic improvement of surface water bodies in the United States. The Rivers and Harbors Act prevents obstructions to navigation, including dumping of trash and sewage. CEQA prevents avoidable damage to water quality by requiring changes in projects through the use of alternatives or mitigation measures [PRC §15002(a)(3)]. Coordinated efforts by the following agencies protect water supplies from degradation:

- County of Sacramento
- Sacramento Area Flood Control Agency (SAFCA)
- California Department of Fish and Wildlife (CDFW)
- State Water Resources Control Board (State Water Board)
- Regional Water Quality Control Board (Regional Water Board)
- State Lands Commission
- U.S. Coast Guard (Coast Guard)
- National Park Service (NPS)
- State Department of Water Resources Reclamation Board
- U.S. Army Corps of Engineers (USACE)

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA maintains and updates the National Flood Insurance Program maps, called the Federal Insurance Rate Map (FIRM), that define areas of federal flood hazard. In Sacramento County and elsewhere the floodplains are identified based on Army Corps studies. FIRM maps denote the location of the federal 100-year flood area, 500-year flood area, and the Base Flood Elevation (BFE). In a 100-year floodplain, there is a 1% chance of flooding in a given year, and in a 500-year floodplain, there is a 0.2% chance of flooding in a given year. If an area is within a 100-year floodplain, flood insurance is required by most mortgage companies. FEMA is also responsible for the accreditation of levee systems (certification is by the Army Corps).

Not all 100-year floodplains are mapped by FEMA, because the focus of the FEMA FIRM maps is to provide information for insurance programs. Areas that have very little development that would be at risk from flooding, such as rural areas and wilderness areas, typically are not mapped. Areas not mapped by FEMA, or areas where there are

additional site-specific constraints that change the shape of the floodplain, are referred to as local floodplains in this EIR.

Clean Water Act

The Clean Water Act (CWA) is the Federal regulation covering surface water quality – it does not address either groundwater quality or water quantity. Surface waters protected by the CWA must either be navigable or hydrologically connected to navigable waters. The provisions of the CWA are administered and regulated primarily by the Environmental Protection Agency (EPA), the California EPA (Cal EPA), the Army Corps, and the State and Regional Water Boards. Under the "umbrella" of Cal EPA, the State and Regional Water Boards are responsible for administration of the National Pollutant Discharge Elimination System (NPDES) program, which deals with stormwater pollution from construction, industrial areas, and municipal areas. The Army Corps is responsible for issuance of the CWA Section 404 permit, which deals with the discharge of dredged or fill material in a surface water, and the State and Regional Water Boards are responsible for issuance of the CWA Section 401 permit, which covers the same activity. Section 303(d) of the CWA also requires States to identify waters that do not meet water quality standards, and to develop plans to address polluted water bodies on the 303(d) list (called Total Maximum Daily Load plans, or TMDLs).

State Of California

Porter-Cologne Water Quality Act

Porter-Cologne is enacted as part of the California Water Code, and is intended to protect the quality of waters within the State. Porter-Cologne covers the same issues as the Federal Clean Water Act (see above), but is specific to the needs and objectives of the State. Waters protected by the Clean Water Act must be navigable or hydrologically connected to navigable waters, whereas Porter-Cologne also protects so-called "isolated" waters. The State Water Resources Control Board (Water Board) and the Regional Water Quality Control Boards (Regional Water Board) are responsible for the coordination and control of water quality protection efforts related to Porter-Cologne.

Local

Sacramento County has a NPDES Municipal Stormwater Permit issued by the Regional Water Quality Control Board. It requires the County to reduce pollutants in stormwater discharges to the maximum extent practicable and to effectively prohibit non-stormwater discharges. The County complies with this permit in part by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff from newly developing and redeveloping areas of the County.

The Sacramento area-wide NPDES Municipal Stormwater Permit is a Phase I permit and applies to the County of Sacramento along with the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova and Sacramento. Originally issued in 1990, the Sacramento stormwater permit has been reissued several times. The most recent permit (NPDES Permit No. CAS082597) was adopted in December 2002, reissued in September

2008, and reissued again in April 2015. The Regional Water Quality Control Board replaced it with a region-wide MS4 permit in June 2016. The Permittees function independently on many tasks, including reviewing, processing and permitting plans for new development and redevelopment in their respective jurisdictions. New construction is required to comply with the Sacramento Region Stormwater Quality Design Manual (SQDM; 2018).

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, Sacramento County Code 16.44 (Land Grading and Erosion Control) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. To obtain a grading permit, project proponents must prepare and submit for approval an Erosion and Sediment Control Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to SCC 16.44 are subject to the Stormwater Ordinance (SCC 15.12) described above.

In addition to complying with the County's ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities (CGP). CGP coverage is issued by the State Water Resources Control Board and enforced by the Regional Water Board. Coverage is obtained by submitting a Notice of Intent (NOI) to the State Board prior to construction and verified by receiving a WDID#. The CGP requires preparation and implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) that must be kept on-site at all times for review by the State inspector.

Applicable projects applying for a County grading permit must show proof that a WDID# has been obtained and must submit a copy of the SWPPP. Although the County has no enforcement authority related to the CGP, the County does have the authority to ensure sediment/pollutants are not discharged and is required by its Municipal Stormwater Permit to verify that SWPPPs include the minimum components.

Future projects must include an effective combination of erosion, sediment and other pollution control BMPs in compliance with the County ordinances and the State's CGP.

COUNTY OF SACRAMENTO GENERAL PLAN

The General Plan includes multiple Elements containing policies relevant to flooding and water quality: the Agriculture Element, Circulation Element, Conservation Element, and Safety Element. There are many policies within each Element, but the policies of greatest relevance to the project are included below.

CO-24. Comply with the Sacramento Areawide National Pollutant Discharge Elimination System Municipal Stormwater Permit (NPDES Municipal Permit) or subsequent permits, issued by the Central Valley Regional Water Quality Control Board

(Regional Board) to the County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership [SSQP]).

CO-30. Require development projects to comply with the County's stormwater development/design standards, including hydromodification management and low impact development standards, established pursuant to the NPDES Municipal Permit.

CI-65. Incorporate Low Impact Design (LID) techniques to the greatest extent feasible to improve water quality runoff and erosion control, infiltration, groundwater recharge, visual aesthetics, etc.

CO-31. Require property owners to maintain all required stormwater measures to ensure proper performance for the life of the project.

Significance Criteria and Methodology

Significance Criteria

According to the CEQA Guidelines, impacts may be significant if the Project results in one of the following:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin
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
    i. result in substantial erosion or siltation on or off-site;
    ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater systems or provide substantial additional sources of polluted runoff; or
    iv. impede or redirect flood flows
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

ISSUES NOT DISCUSSED FURTHER

The project will not substantially decrease groundwater supplies. The project will connect to an existing public water infrastructure system; it will not rely on well water. The provision of water to eight (8) additional housing units can be supported through a minor extension of existing infrastructure. Therefore, the project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impacts will be ***less than significant***.

The project is not in a flood hazard, tsunami, or seiche zone. The elevation of the project site ranges from 147-feet to 162-feet (Plate HY-4). The project site is within the boundaries of Federal FEMA FIRM 06067C0093H, Zone X and is classified as an area of minimal flood hazard. The FEMA FIRM indicates that the property is outside of the 0.2% annual chance floodplain (area of minimal flood hazard). The project site is not within a designated FEMA floodplain area or within a local floodplain. The project area is inland and not mapped in an area where tsunami or seiche are likely to occur (USGS 2021). Impacts will be ***less than significant***.

The project will not conflict or obstruct a water quality control plan. Implementation of the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts will be ***less than significant***.

METHODOLOGY

TDS Engineering prepared a Preliminary Hyrdrologic and Hydraulic Report dated September 22, 2021 for the project (Appendix HY-1). The following analysis is based on the findings of this technical report.

PROPOSED PROJECT CONDITIONS

Existing drainage patterns remain unchanged post-development: drainage Sheds A and C will continued to drain to the north, Shed M will drain to the south, and O'Donnell Heritage Park will continue to drain through the project site. Runoff from development within shed A will flow to a new Bio-Retention Basin A located on the open space lot within the site. Runoff from Shed C & Shed M and a portion of shed A (Lot 9- Shed A1.2) will flow through new Low Impact Development LID features (HY-3, HY-4, HY-5).

The 1.09± acre parcel to the east will remain a private open space for the nine residential lots. This lot will also include a detention basin for drainage purposes that will be maintained through the private homeowners association (HOA). The project includes construction of O'Donnell Park Court, trenching and grading for the installation of public utilities. Preliminary grading plans indicate the movement of 1,670 cubic yards of soil, consisting of 1,265 cubic yards of cut and 405 cubic yards of fill. Approximately 860 cubic yards of soil will be exported from the project site.

Hydrology and water quality improvements generally consist of the following:

- On-Site private roadside ditches, driveway culverts and roadway cross culverts;

- Pavement widening for County standard street elbow
- Concrete sidewalk and curb & Gutter
- Connections to underground utilities;
- Dedication of 1.09± acres of open space (APN: 247-0010-008)
- Onsite residential lot LID features; and
- Bio-Retention Basin “A” (LID bio-retention & to attenuate runoff)
- Offsite improvements include:
    - Graded swale on APN 245-0123-013 at NW corner of Lot 1
    - Construct 15” SD out of Bio-Retention Basin “A” in Rappahannock Way to Woodfair Way
    - Construct 3 new Drop Inlets in the Rappahannock/Woodfair knuckle with 12” SD laterals
    - Construct 12” culvert under common driveway of Lot 5 and APN 247-0172-001 at Mapel Lane

Plate HY-3: Developed Shed Map

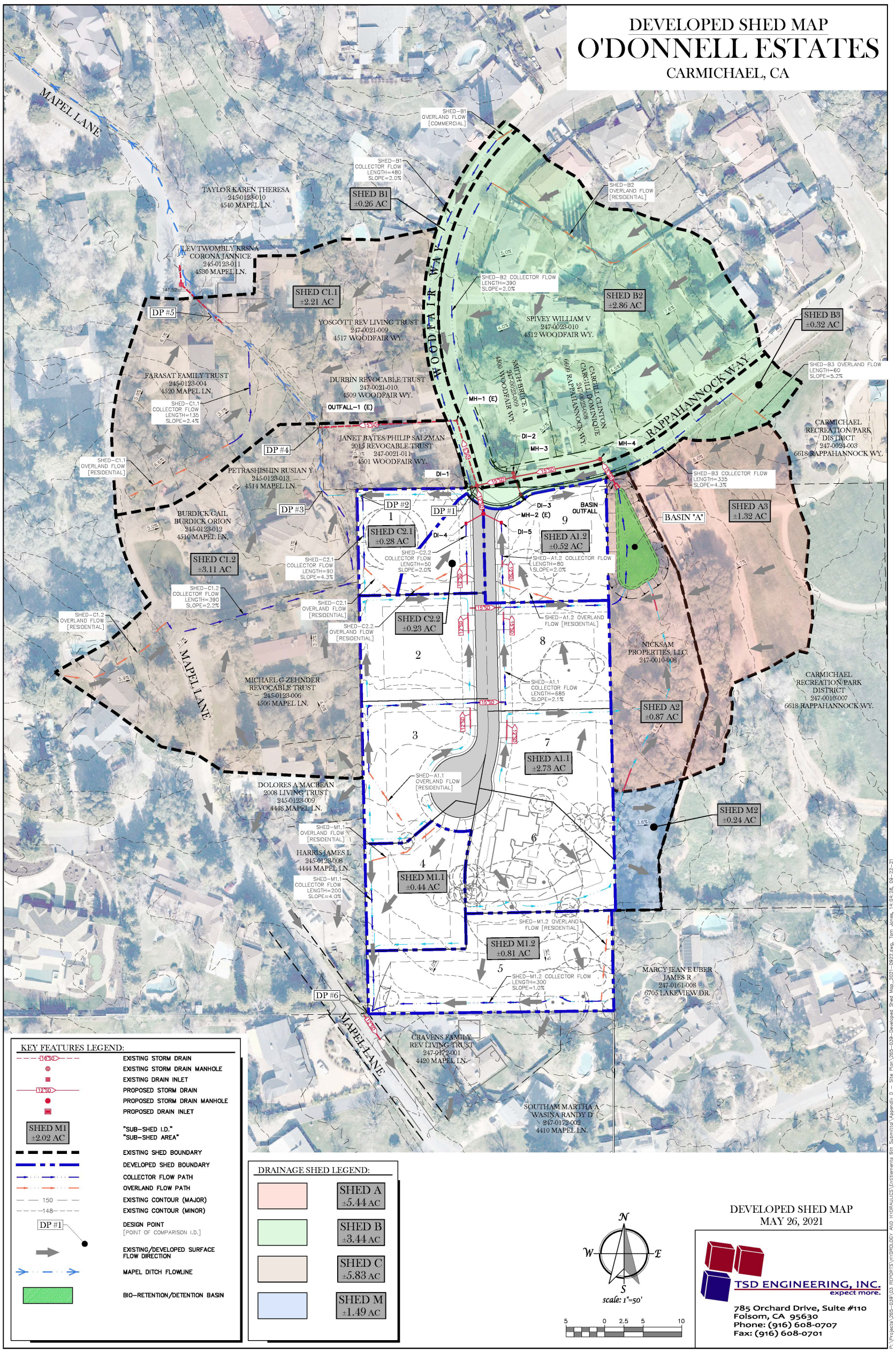


Plate HY-4: Grading and Low Impact Development (LID) Features

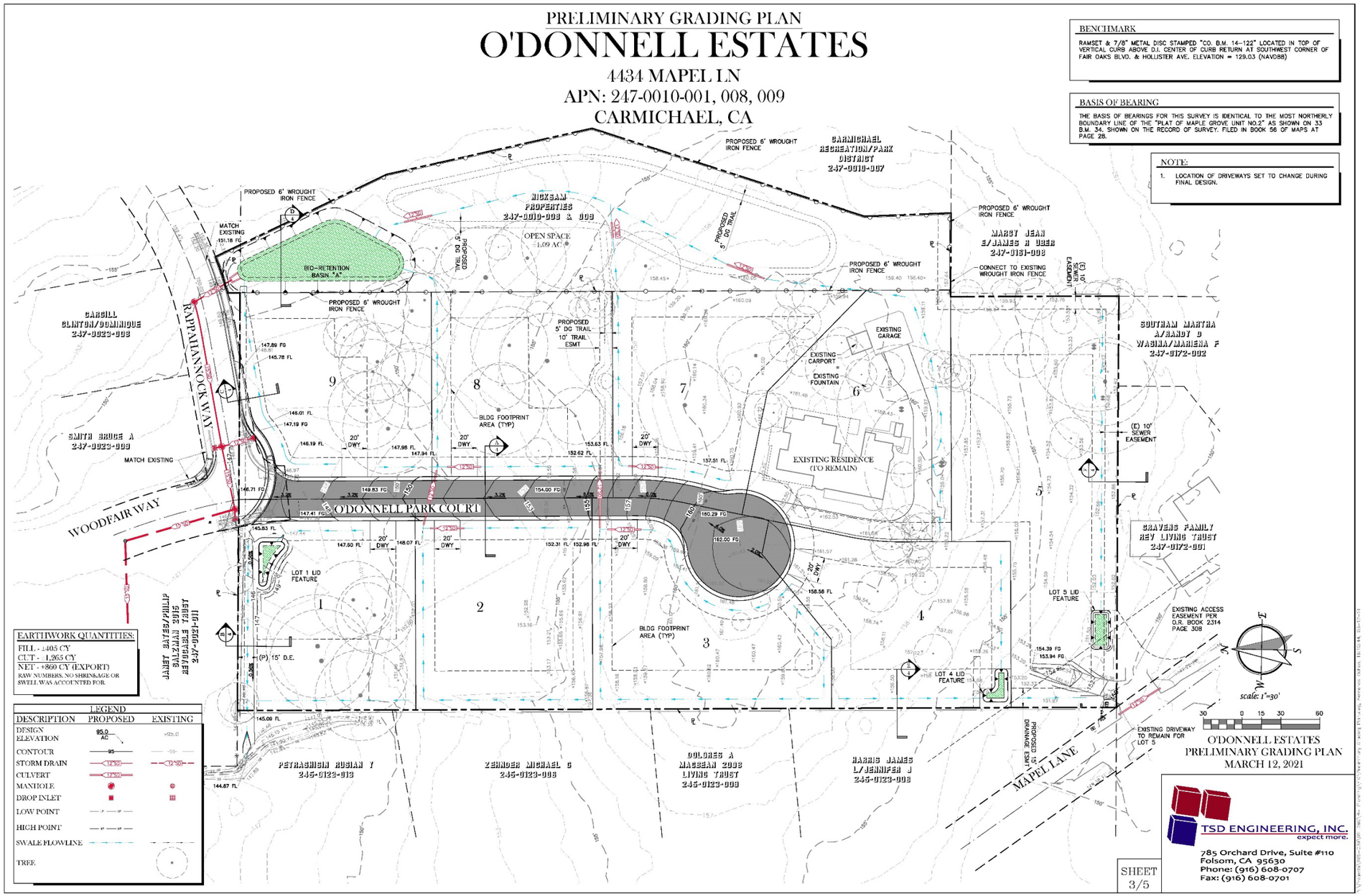
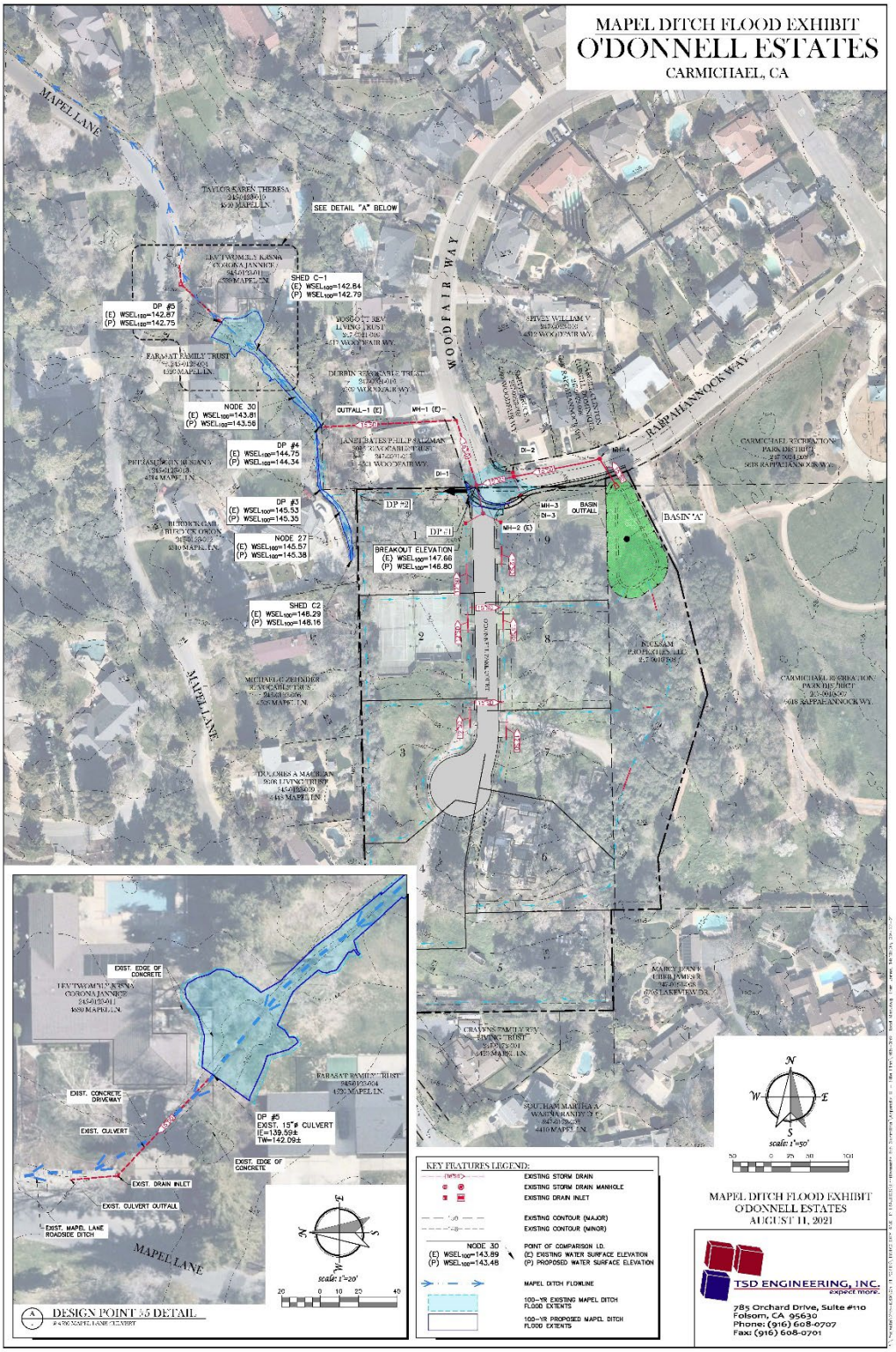


Plate HY-5: Mapel Ditch Exhibit



IMPACTS AND ANALYSIS

IMPACT HY-1: VIOLATE ANY WATER QUALITY STANDARDS OR WASTE DISCHARGE REQUIREMENTS OR OTHERWISE SUBSTANTIALLY DEGRADE SURFACE OR GROUND WATER QUALITY

Development and urbanization can increase pollutant loads, temperature, volume and discharge velocity of runoff over the predevelopment condition. The increased volume, increased velocity, and discharge duration of stormwater runoff from developed areas has the potential to greatly accelerate downstream erosion and impair stream habitat in natural drainage systems. Studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving waters. These impacts must be mitigated by requiring appropriate runoff reduction and pollution prevention controls to minimize runoff and keep runoff clean for the life of the project.

The County requires that projects include source and/or treatment control measures on selected new development and redevelopment projects. Source control BMPs are intended to keep pollutants from contacting site runoff. Examples include “No Dumping-Drains to Creek/River” stencils/stamps on storm drain inlets to educate the public, and providing roofs over areas likely to contain pollutants, so that rainfall does not contact the pollutants. Treatment control measures are intended to remove pollutants that have already been mobilized in runoff. Examples include vegetated swales and water quality detention basins. These facilities slow water down and allow sediments and pollutants to settle out prior to discharge to receiving waters. Additionally, vegetated facilities provide filtration and pollutant uptake/adsorption.

The County requires developers to utilize the Stormwater Quality Design Manual for the Sacramento Region, 2018 (Design Manual) in selecting and designing post-construction facilities to treat runoff from the project. Regardless of project type or size, developers are required to implement the minimum source control measures (Chapter 4 of the Design Manual). Low impact development measures and Treatment Control Measures are required of all projects exceeding the impervious surface threshold defined in Table 3-2 and 3-3 of the Design Manual. Further, depending on project size and location, hydromodification control measures may be required (Chapter 5 of the Design Manual).

Updates and background on the County’s requirements for post-construction stormwater quality treatment controls, along with several downloadable publications, can be found at the following websites:

https://waterresources.saccounty.gov/stormwater/Pages/default.aspx

https://www.beriverfriendly.net/new-development/

The Design Manual establishes that a residential development of 20 acres or more would be required to include post-construction stormwater treatment designs. The proposed Project is 6.1 acres; thus it does not exceed the established threshold and will not be

required to incorporate post-construction stormwater treatment control measures into the Project design. At a minimum the Project will be required to provide source control measures by installing storm drain markings and signage.

The proposed project incorporates several "low impact development" techniques to reduce the amount of imperviousness on the site, reduce the volume of runoff, and reduce the size/cost of stormwater quality treatment required. On site, the project will incorporate private roadside ditches, driveway culverts and roadway cross culverts, curb and gutters, and will include connections to underground utilities. The approximately 1.09± acres of open space (APN: 247-0010-008) will include a Bio-Retention Basin "A" and the development will include onsite residential lot LID features. Offsite improvements will include a graded swale on APN 245-0123-013 at NW corner of Lot 1, and a 15" connection from Bio-Retention Basin "A" to Rappahannock Way to Woodfair Way, which will contain 3 new drop inlets with 12" SD laterals. Finally, a 12" culvert will be constructed under the common driveway of Lot 5 and APN 247-0172-001 at Mapel Lane.

With incorporation of these proposed LID improvements, the project is not expected to result in significant operational stormwater runoff. Compliance with existing County Ordinances will ensure that there will be no substantial net-increase in pollutants of concern. Impacts are ***less than significant***.

IMPACT HY-2: 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

The project includes the construction of O'Donnell Park Court and street frontage improvements, construction of a new detention basin on the open space lot, and trenching and grading for the installation of public utilities. Preliminary grading plans indicate the movement of 1,670 cubic yards of soil, consisting of 1,265 cubic yards of cut and 405 cubic yards of fill. Approximately 860 cubic yards of soil will be exported from the project site.

Construction on undeveloped land exposes bare soil, which can be mobilized by rain or wind and displaced into waterways or become an air pollutant. Construction equipment can also track mud and dirt onto roadways, where rains will wash the sediment into stormdrains and thence into surface waters. After construction is complete, various other pollutants generated by site use can also be washed into local waterways. These pollutants include, but are not limited to, vehicle fluids, heavy metals deposited by vehicles, and pesticides or fertilizers used in landscaping.

Demolition activities may also pulverize building materials such as drywall, which can also be transported by rain and wind. Breaking up asphalt may also allow the mobilization of the oils and other asphalt products. Sacramento County has a NPDES Municipal Stormwater Permit issued by the Regional Board. The Municipal Stormwater Permit

requires the County to reduce pollutants in stormwater discharges to the maximum extent practicable. The County complies with this permit in part by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff from newly developing and redeveloping areas of the County.

The County has established a Stormwater Ordinance as part of Sacramento County Code (SCC) 15.12. The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, Sacramento County Code 16.44 (Land Grading and Erosion Control) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. To obtain a grading permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to SCC 16.44 are subject to the Stormwater Ordinance (SCC 15.12) described above.

In addition to complying with the County's ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities (CGP). CGP coverage is issued by the State Water Resources Control Board (State Board) http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml and enforced by the Regional Water Board. Coverage is obtained by submitting a Notice of Intent (NOI) to the State Board prior to construction and verified by receiving a WDID#. The CGP requires preparation and implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) that must be kept on site at all times for review by the State inspector.

Applicable projects applying for a County grading permit must show proof that a WDID # has been obtained and must submit a copy of the SWPPP. Although the County has no enforcement authority related to the CGP, the County does have the authority to ensure sediment/pollutants are not discharged and is required by its Municipal Stormwater Permit to verify that SWPPPs include the minimum components.

The project must include an effective combination of erosion, sediment and other pollution control BMPs in compliance with the County ordinances and the State's CGP. Such measures would also be included in the project's Stormwater Pollution Prevention Plan (SWPPP).

Erosion controls should always be the *first line of defense*, to keep soil from being mobilized in wind and water. Examples include stabilized construction entrances, tackified mulch, 3-step hydroseeding, spray-on soil stabilizers and anchored blankets. Sediment controls are the *second line of defense*; they help to filter sediment out of runoff before it reaches the storm drains and local waterways. Examples include rock bags to protect storm drain inlets, staked or weighted straw wattles/fiber rolls, and silt fences.

In addition to erosion and sediment controls, the project must have BMPs in place to keep other construction-related wastes and pollutants out of the storm drains. Such practices include, but are not limited to: filtering water from dewatering operations, providing proper washout areas for concrete trucks and stucco/paint contractors, containing wastes, managing portable toilets properly, and dry sweeping instead of washing down dirty pavement.

It is the responsibility of the project proponent to verify that the proposed BMPs for the project are appropriate for the unique site conditions, including topography, soil type and anticipated volumes of water entering and leaving the site during the construction phase. In particular, the project proponent should check for the presence of colloidal clay soils on the site. Experience has shown that these soils do not settle out with conventional sedimentation and filtration BMPs. The project proponent may wish to conduct settling column tests in addition to other soils testing on the site, to ascertain whether conventional BMPs will work for the project.

If sediment-laden or otherwise polluted runoff discharges from the construction site are found to impact the County's storm drain system and/or Waters of the State, the property owner will be subject to enforcement action and possible fines by the County and the Regional Water Board.

Project compliance with the County's Stormwater Ordinance will ensure that water quality impacts are ***less than significant***.

IMPACT HY-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 SUBSTANTIALLY INCREASE THE RATE OR AMOUNT OF SURFACE RUNOFF IN A MANNER WHICH WOULD RESULT IN FLOODING ON OR OFF SITE

Development of the project site will not result in significant alteration the existing drainage sheds and patterns; nor will it necessitate extension or improvements of the existing 15" storm drain system and drainage ditch (Mapel Ditch) currently serving the site.

Development of the project will increase amount of impervious surfaces on the site; however, the hydrology report concluded that the project would not result in significant change to the overall shed boundaries. The project will not increase water surface elevations or exacerbate potential flooding based on design flows. The existing driveway at 4530 Mapel Lane is subject to potential flooding during large storm events under both existing and developed project conditions. The proposed LID measures and drainage basin will mitigate increased runoff from the developed site.

Drainage Basin "A" will attenuate runoff to Mapel Ditch and will reduce the potential for negative impacts to existing downstream properties. The combined developed flow from the Shed M portion of the project is reduced because of LID features proposed within

Sheds M1.1 & M1.2 and because of a slight reduction in the size of the shed (2.02± acres to 1.25± acres). Shed M2's design runoff remains the same between existing and developed conditions, as there are no proposed improvements (development) within this drainage shed.

The project includes creation of a new on-site drainage basin and LID features, creation of a new swale off-site on parcel (APN 245-0123-013) at the northwest corner of Lot 1 and a new 12" drain under the driveway from Mapel. The new on and offsite features will ensure that the project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Therefore, impacts are ***less than significant.***

IMPACT HY-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 RESULT IN THE CREATION OR CONTRIBUTION OF RUNOFF WATER WHICH WOULD EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER DRAINAGE SYSTEMS OR PROVIDE SUBSTANTIAL ADDITIONAL SOURCES OF POLLUTED RUNOFF

Project plans indicate that lots will be ungraded (building footprint area only) thereby maintaining some of the natural drainage pattern and associated on-site stormwater absorption. Given the additional development on the project site, there will be some additional run-off that will be directed to existing stormwater infrastructure located directly off-site (15" storm drain system at the intersection of Woodfair Way and Rappahannock Way). The existing & proposed underground storm drain in Rappahannock Way & Woodfair Way adequately conveys post-project Design Runoff (Nolte) storm event to the Mapel Ditch, with available freeboard to drain inlet grate and manhole rim elevations. The hydrology study concluded that the minor changes in the overall onsite sheds due to the development of the property are considered insignificant. The combination of the existing and proposed drainage improvements will meet Sacramento County standards.

The Project will not result in a substantial alteration of the drainage pattern that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems; impacts are ***less than significant***.

IMPACT HY-5: 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 Impeding Or Redirecting Flood Flows

The project will not result in physical improvements or stormwater runoff discharge that would obstruct, impede, or otherwise redirect designated flood zones or naturally occurring floodplains; nor will these actions place buildings or new construction in high-risk flood areas. ***Less than significant*** impacts are anticipated for potential impedances or redirection of flood flows.

Mitigation Measures

None recommended.

Cumulative Impacts

The project will not result in hydrology and water quality impacts. Compliance with existing County ordinances and water quality permits ensures that the project will not contribute to a cumulative impact to downstream hydrology or water quality. Impacts are ***less than significant.***

References

TSD Engineering, Inc. *O'Donnell Estates Carmichael, CA: Preliminary Hydrologic and Hydraulic Report*. September 22 2021.

11 - BIOLOGICAL RESOURCES

INTRODUCTION

This chapter describes and addresses potential impacts to biological resources associated with the proposed O'Donnell Estates project (proposed project), which involves grading and development of the subject property along with removal of native and non-native trees. The analysis focuses on impacts to a remnant oak woodland/urban forest and the special status species whom rely on these habitats. Species covered in this document include: migratory nesting birds, nesting birds of prey, white-tailed kite and Swainson's hawk. This chapter describes the biological resources that occur within the Project area, includes a description of applicable federal, state and local regulations and policies that influence biological resources, identifies impacts to these resources, and recommends mitigation measures to reduce or eliminate impacts.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. There were no responses to the NOP that directly addressed impacts related to biological resources; however, comments received from community members prior to the release of the NOP, involved general concerns regarding impacts to oak woodlands and native trees. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

ENVIRONMENTAL SETTING

The project site is located in northeastern Sacramento County, north of the American River within the community of Carmichael. The property is located west of O'Donnell Heritage Park and access to the project would be via O'Donnell Park Court, a proposed cul-de-sac connecting at the intersection of Woodfair Way and Rappahannock Way. The project is surrounded by neighborhoods with single-family homes; thus, the biological resources present are those that thrive in an urbanized residential environment. The vegetative environment is generally made up of residential landscaping including native and non-native trees, grasses, and shrubs. Wildlife, birds and amphibians in the surrounding Carmichael community include those species that have readily adapted to the urban residential environment. Common mammals such as squirrel, opossum, skunk and raccoon are found within the Carmichael community and greater vicinity. More pristine natural habitat can be found along the American River and associated Parkway, which is located approximately 1.5 miles south of the project site.

The project site is approximately 6.1 acres and is located on topography ranging in elevation from 146 to 160 feet above mean sea level. The dominant vegetation type consists of native and non-native trees (Plate BR-1). The site does not contain wetlands or waters.

Plate BR-1: Aerial Photograph of Site



Special Status Species

A special status species has relative scarcity and/or declining populations. Special status species include those formally listed as threatened or endangered, those proposed for formal listing, candidate for federal listing, and those classified as species of special concern. Also included are those species considered to be "fully protected" by CDFW, those granted "special animal" status for tracking and monitoring purposes, and those plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS).

There are multiple status designations applied to animal and plant species; the relevant definitions are provided below[1]:

Endangered Species: Any species which is in danger of extinction throughout all or a significant portion of its range.

Threatened Species: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Species of Concern: Any species with declining population levels, limited ranges, and/or other factors that make them vulnerable to extinction and may ultimately qualify the species for threatened or endangered status.

Fully Protected: The classification of Fully Protected was California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Most have subsequently been defined as endangered or threatened, but there are exceptions.

Special Animals: A general term that refers to all of the taxa that CDFW is interested in tracking, regardless of their legal or protection status. Though the species themselves have not declined to the extent that they are listed by one of the classifications noted above (endangered, etc), such species are closely associated with a habitat that is declining in California.

List 1B Plants: Plants that are rare throughout their range, and have declined significantly over the last century. The majority of plants on this list are endemic to California.

List 2 Plants: The same as List 1B plants, except that List 2 plants are common outside of California.

[1] Source: California and Federal Endangered Species Acts, http://www.dfg.ca.gov/wildlife/nongame/ssc/, http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html, and http://www.cnps.org/cnps/rareplants/ranking.php

Table BR-1 details the species identified in the species searches and the likelihood of occurrence based on habitat presence either on the site or in proximity of the site, survey results, and nearby recorded species occurrences. Note that some species are listed for loss of foraging habitat, while others may be listed for loss of breeding habitat. If the species is listed for loss of a particular habitat, it is so reported in Table BR-1 and the likelihood of occurrence will be based specifically on that habitat type. Likelihood of occurrence is rated as *Not expected to occur*, *Could occur*, or *Known to occur*, which are defined as:

> *Not expected to occur:* Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.
>
> *Could occur:* Suitable habitat is available on the project site; however, there are little to no other indicators that the species might be present.
>
> *Known to occur:* The species, or evidence of its presence, was observed on the project site during project surveys, or was otherwise documented.

Refer to the Methodology section below for additional information regarding the determination of potential species presence. Species which are not present or were found to have a low potential of occurrence are not discussed further in subsequent analysis sections.

Table BR-1: Special Status Wildlife Species

Common and Scientific Names	Regulatory Status[1]		Habitat Requirements	Potential for Occurrence
	Federal	State/CNPS		
Sanford's arrowhead *Sagittaria sanfordii*		1B.2	Perennial rhizomatous herb found in shallow, standing, fresh water and sluggish waterways including marshes, swamps, ponds, reservoirs, sloughs, ditches, canals, streams and rivers at elevations from 0 to 2000 feet. Blooms May-October.	**Not expected to occur**; Suitable habitat may be present in the vicinity of the drainage ditch (Mapel Ditch) at the perimeter of the property. The project would not result in impacts to the ditch or potential habitat to Sanford's arrowhead.
Crustaceans				
vernal pool fairy shrimp *Branchinecta lynchi**	FT	-	Occurs primarily in small, clear-water sandstone-depression vernal pools and grassland swales or basalt-flow depression vernal pools.	**Not expected to occur;** No vernal pools or seasonal wetlands occur on the project site.
vernal pool tadpole shrimp *Lepidurus packardi**	FE	-	Vernal pools in valley and foothill grassland; pools commonly found in grass-bottomed swales of unplowed grasslands. Has been identified in pools that are mud-bottomed and highly turbid. Has also been identified in seasonal pools in unplowed grasslands with historic alluvial soils underlain by hardpan or in sandstone depressions.	**Not expected to occur;** No vernal pools or seasonal wetlands identified occur on the project site.
Insects				
andrenid bee *Andrena subapasta*		S1S2	Vernal pools in valley and foothill grassland; pools commonly found in grass-bottomed swales of unplowed grasslands. Has been identified in pools that are mud-bottomed and highly turbid. Has also been identified in seasonal pools in unplowed grasslands with historic alluvial soils underlain by hardpan or in sandstone depressions.	**Not expected to occur;** No vernal pools or seasonal wetlands occur on the project site.
Crotch bumble bee *B. crotchii*		S1S2	The range for this species is primarily limited to California. The bees inhabit open grassland and scrub habitats and are associated with the following flora: California Cleome (*Peritoma arborea*), Larkspurs (*Delphinium*) Yerba (*Eriodictyon californicum)*, Glandular Yellow Phacelia (*Phacelia adenophora*), and Woolly Bluecurls (*Trichostema lanatum*). Species are generally present between February and September.	**Not expected to occur**; the project site does not contain open grassland or scrub areas.
monarch butterfly *Danaus plexippus*	FC	-	Adult monarch butterflies during breeding and migration (spring through fall) require a diversity of blooming nectar resources. Also need milkweed (for both oviposition and larval feeding) within nectaring habitat. In western North America, nectar and milkweed resources are often associated with riparian corridors.	**Not expected to occur;** The project site is located within a remnant oak woodland. Milkweed species are most often located within riparian corridors.

Common and Scientific Names	Regulatory Status[1]		Habitat Requirements	Potential for Occurrence
	Federal	State/CNPS		
western bumble bee *B. occidentalis*		S1	The range for this species includes several states in North America, Canada, and Alaska. Bees must have suitable nesting sites for colonies, nectar and pollen from floral resources available, and suitable overwintering sites for queens. The bees typically inhabit open grasslands and are associated with the following flora: Glacier Lily (*Erythronium grandiflorum*), Vetch (*Vicia americana*), Scarlet Gilia (*Ipomopsis aggregate*), and Snowberries (*Symphoricarpos albus*). Species are generally present between February and November.	**Not expected to occur;** the project site does not contain open grassland areas and has limited flora.
valley elderberry longhorn beetle *Desmocerus californicus dimorphus**	FT	-	Host plant is the elderberry shrub (*Sambucus nigra*). Prefers to lay eggs in elderberry stems 2–8 inches in diameter; some preference shown for "stressed" elderberries. Elderberry bushes in western North America are associated with riparian forests along rivers and streams but can also occur as isolated shrubs distant from rivers or streams.	**Not expected to occur;** elderberry shrubs were not identified on the project site.
Birds				
Bald Eagle *Haliaeetus leucocephalus*		E FP	Forages primarily in large water bodies and rivers. Winters throughout California. Typically nests in northern mountain and foothills, but some nest in the Central Valley vicinity, near to their foraging habitat. Typically spotted around the Folsom Lake area.	**Could occur.** Although the project site is limited in size, it is possible that bald eagles could pass through or nest within the project site.
Burrowing owl *Athene cunicularia** (burrow sites and some wintering sites)	-	- SSC	Open, dry, annual or perennial grasslands, deserts, and scrublands, characterized by low-growing vegetation. Dependent on burrowing mammals, most notably, the California ground squirrel, for underground nests.	**Not expected to occur;** The habitat that Burrowing owls thrive in consists of prairies and grasslands. The subject property has been partially developed and does not provide quality habitat.
Golden Eagle Aquila chrysaetos		FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands in the Central Valley. Nests on cliffs and escarpments or tall trees; forages in annual grasslands, chaparral, and oak woodlands with plentiful prey.	**Could occur.** Due to the size of the project site, it is unlikely that golden eagles would nest in trees within this remnant oak woodland; however, the project site contains suitable tall trees.
Swainson's hawk Buteo swainsoni* (nesting)	-	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas, such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Could occur.** Suitable nesting habitat is present within the oak woodland habitat. However, foraging habitat is not present on the subject property. No CNDDB records have been identified within 0.5-mile of the project area.

Common and Scientific Names	Regulatory Status[1]		Habitat Requirements	Potential for Occurrence
	Federal	State/CNPS		
tricolored blackbird *Agelaius tricolor** (nesting colony)	-	SE SSC	Highly colonial. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**Not expected to occur;** The habitat that Tricolored blackbird thrive in consists of agricultural lands and grasslands. The subject property has been partially developed and is surrounded by residential development. The project site does not provide quality habitat.
White-tailed kite *Elanus leucurus** (nesting)	-	- FP	Open grasslands, meadows, or marshes for foraging, close to dense- topped trees for nesting and perching. Nest trees may be growing in isolation, or at the edge of or within a forest.	**Could occur.** Suitable nesting habitat is present within the oak woodland habitat; however, foraging habitat is not present on the subject property.

[1] **Legal Status Definitions**
Federal:
E Endangered (legally protected)
T Threatened (legally protected)
D Delisted
SCC Species of Conservation Concern
State:
D Delisted
FP Fully protected (legally protected)
SC Species of special concern (no formal protection other than CEQA consideration)E Endangered (legally protected)
T Threatened (legally protected)

[2] **Potential for Occurrence Definitions**
Not expected to occur: Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.
Could occur: Suitable habitat is available on the project site; however, there are little to no other indicators that the species might be present.
Known to occur: The species, or evidence of its presence, was observed on the project site during project surveys, or was otherwise documented.

REGULATORY SETTING

FEDERAL REGULATIONS

FEDERAL ENDANGERED SPECIES ACT

Under the Federal Endangered Species Act (FESA) of 1973, the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as endangered or threatened. FESA defines "endangered" species as any species in danger of extinction throughout all or a significant portion of its range. A "threatened" species is any species that is likely to become an "endangered" species within the foreseeable future throughout all or a significant portion of its range. Additional special-status species include "candidate" species and "species of concern." "Candidate" species are those for which USFWS has enough information on file to propose listing as endangered or threatened. "Species of concern" are those for which listing is possibly appropriate but for which USFWS lacks sufficient information to support a listing proposal. A species that has been "delisted" is one whose population has met its recovery goal target and is no longer in jeopardy of extinction. Taking of federally listed species is prohibited under Section 9 of FESA. To "take" is defined by FESA (Section 2[19]) to mean "to harass, harm, pursue, hunt, shoot, would, kill, trap, capture, or collect, or attempt to engage in any such conduct."

All government agencies must review their actions and determine if a "may affect" situation occurs with respect to a federally listed or proposed species. If the agency makes a "may affect" determination, it is then required to formally consult with National Oceanic and Atmospheric Administration (NOAA), Fisheries.

For federal agencies, the consultation is conducted under Section 7 of FESA. The agency submits a Biological Assessment to USFWS that evaluates the potential adverse effects to federally listed species. USFWS then prepares a Biological Opinion that addresses the requirements that must be followed to avoid, minimize, and compensate for impacts to federally listed species and their habitats.

For non-federal agencies or individuals (i.e. private applicants), the consultation is conducted under Section 10 of FESA. The agency or individual submits an incidental take[2] permit application to USFWS accompanied by a habitat conservation plan (HCP). The purpose of the habitat conservation planning process associated with the permit is to ensure there is adequate minimization and mitigation of the effects of the authorized incidental take. The purpose of the permit is to authorize the incidental take of a listed species, not to authorize the activities that result in take (USFWS 2005).

[2] Incidental take is take of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a federal agency or applicant (50 CFR 402.2).

Further explanation is provided in the following notification, which was submitted to the County by USFWS for inclusion[3] into all environmental documents when threatened or endangered species may be adversely affected:

> As a requirement of the Department of Interior, U.S. Fish and Wildlife Service, the following notification is provided to proponents of any Project that has the potential to adversely affect threatened or endangered species:
>
> > "The applicant is hereby notified of additional conditions as stipulated by the U.S. Fish and Wildlife Service. Features of the applicant's Project may adversely affect federally listed threatened or endangered species. An applicant must go through one of two processes to obtain authorization to take federally listed species incidental to completing his or her Project. One of the processes is formal consultation. When the authorization or funding of a Federal agency is an aspect of a Project that may affect federally listed species, Section 7 of the Endangered Species Act requires the Federal agency to formally consult with the Service.
> >
> > Formal consultation is concluded when the Service issues a biological opinion to the Federal agency. The biological opinion includes terms and conditions to minimize the effect of take on listed species. The Federal agency must make the terms and conditions of the biological opinion into binding conditions of its own authorization to the Project applicant. An example of this process is when the U.S. Army Corps of Engineers consults with the Service prior to issuing a permit to fill jurisdictional waters under Section 404 of the Clean Water Act. The terms and conditions of the biological opinion become binding on the Project applicant through the Corps' 404 authorization. When no Federal funding or authorization is involved in a Project, an applicant must prepare a habitat conservation plan and obtain a permit directly from the Service in accordance with Section 10(a)(1)(B) of the Act. For additional information on these processes please contact the Endangered Species Division of the U.S. Fish and Wildlife Service's Sacramento Fish and Wildlife Office at (916) 414-6600."

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) of 1916 established federal responsibilities for the protection of nearly all native species of birds, their eggs, and nests. Section 16 U.S.C. 703–712 of the Act states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. A migratory bird is any native species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Currently, there are 1,093 migratory birds protected nationwide by the MBTA, of which 58 are legal to hunt.

[3] As a condition of the USFWS Biological Opinion for the "Fazio Water" 101-514 water contract, the County of Sacramento has agreed to include Fish and Wildlife notification language in Initial Studies and EIRs when endangered and threatened species may be adversely affected.

State Regulations

California Endangered Species Act (CESA)

The CESA (established in Fish and Game Code §2050) generally parallels the main provisions of the FESA and is administered by CDFW for most terrestrial species, with assistance from the National Oceanic and Atmospheric Administration Fisheries for most freshwater fishery species. The CESA prohibits taking state listed species except as otherwise provided by state law. Unlike FESA, the CESA extends the take prohibitions to not only listed species but also for candidate species while CDFW reviews a listing petition it has accepted for consideration. "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." Section 2081 of the CESA identifies the following criteria that must be met for CDFW to authorize the take of endangered, threatened or candidate species:

- The taking of a listed or candidate species can be minimized and fully mitigated.
- The take would not jeopardize the continued existence of the species.
- Authorization for take must be based on the best scientific material that is reasonably available, and that due consideration will be given to the species' ability to survive and reproduce.

California Fish and Game Code

Animals and Plants

Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto. Section 3503.5 make it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto. Sections 1908, 3511, 4700, 5050 state that Fully Protected plant and animals or parts thereof may not be taken or possessed at any time.

Local Regulations

Sacramento County General Plan

The Sacramento County General Plan contains numerous goals, policies, concepts and strategies to proect and/or preserve biological resources. The following are applicable to the proposed project:

CO-58. Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.

CO-59. Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function:

- vernal pools,

- wetlands,
- riparian,
- native vegetative habitat, and
- special status species habitat.

CO-137. Mitigate for the loss of native trees for road expansion and development consistent with General Plan policies and/or the County Tree Preservation Ordinance.

CO-138. Protect and preserve non-oak native trees along riparian areas if used by Swainson's hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.

CO-140. For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:

- An adopted habitat conservation plan.

- Ensure no net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.

- Removal of native oaks shall be compensated with native oak species with a minimum of a one to one dbh replacement.

- A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary.

- If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees that cannot be accommodated may be paid to the County's Tree Preservation Fund or another appropriate tree preservation fund.

- If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be used

as a suitable site for replacement tree plantings required by ordinances or other mitigations.

i. Equal or greater in area to the total area that is included within a radius of 30 feet of the dripline of all trees to be removed;

ii. Adjacent to protected stream corridor or other preserved natural areas;

iii. Supports a significant number of native broadleaf trees; and

iv. Offers good potential for continued regeneration of an integrated woodland community.

CO-146. If new tree canopy cannot be created onsite to mitigate for the non-native tree canopy removed for new development, project proponents (including public agencies) shall contribute to the Greenprint funding in an amount proportional to the tree canopy of the specific project.

SIGNIFICANCE CRITERIA & METHODOLOGY

SIGNIFICANCE CRITERIA

Standards for determining thresholds of significance were established based on the State CEQA Guidelines and professional standards. Impacts to biological resources were considered significant if the project would result in the following:

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 CDFW or USFWS;

2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plan, policies, regulations, or by the CDFW or USFWS.

3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, costal, etc.) through direct removal, filling, hydrological interruption, or other means;

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;

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

6. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or approved local, regional, or state habitat conservation plan.

Issues not Discussed Further

Have a substantial adverse effect on state or federally protected wetlands. No waters identified on site, etc. Federal and state regulation (Clean Water Act Sections 404 and 401) uses the term "surface water" to refer to all standing or flowing water which is present above-ground either perennially or seasonally. There are many types of surface waters, but the two major groupings are linear waterways with a bed and bank (streams, rivers, etc) and wetlands. The project site does not contain wetlands; thus impacts associated with wetlands, will not be discussed further in this EIR.

Conflict with the provisions of an adopted habitat conservation plan. The property is not located within the boundaries of the South Sacramento Habitat Conservation Plan (SSHCP), or a State Habitat Conservation Plan; therefore impacts are not applicable or discussed further in this EIR.

Methodology

Acorn Arboricultural Services, Inc. prepared an arborist report for the property on July 27, 2021 (Appendix BR-1). The Inventory identified the species, size, and location of onsite and overhanging offsite native and non-native trees. The site contains the following native oak trees: interior live oak, blue oak and valley oaks. A variety of non-native trees are located on the subject property, including: olive, almond, blue gum, pear, chinese pistache and sweetgum.

Sacramento County staff prepared the Special Status Wildlife Species Table BR-1 and queried the California Natural Diversity Database (CDFW 2022) for records of special-status species occurring within the Citrus Heights quad map containing and surrounding the project area. Additionally, the U.S. Fish and Wildlife Service IPaC resource list was utilized to determine species occurring within the surrounding area of the proposed project. Planning and Environmental Review (PER) staff also conducted field visits to the site.

Impacts And Analysis

IMPACT BR-1: The 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 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE OR THE U.S. FISH AND WILDLIFE SERVICE

SPECIAL STATUS PLANTS

Special status plants identified in the species searches included Sanford's arrowhead (*Sagittaria Sanford)*. Sanford's arrowhead is typically found in sites containing shallow, standing fresh water and other waterways with slow moving water such as marshes, swamps, ponds, and reservoirs. Although Sanford's arrowhead was not identified on the project site, there is a drainage ditch that conveys flows offsite (Mapel Ditch), that may provide suitable habitat. The project will not directly impact the ditch; therefore, impacts to Sanford's arrowhead are anticipated to be ***less than significant.***

BIRDS

Based on the type of habitat present within and adjacent to the project site, the following special status avian species have the potential to occur: Bald eagle, Golden eagle, Swainson's Hawk, and White-tailed kite. Impact discussion BR-3 addresses migratory birds, which are subject to the Migratory Bird Treaty Act (MBTA).

NESTING RAPTORS

Raptors are defined as members of the order Falconiformes (vultures, eagles, hawks, and falcons) and the order Strigiformes (owls). Common species of raptors found locally include Cooper's hawk (*Accipiter cooperii*) red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), and great horned owl (*Bubo virginianus*).

Raptors and their active nests are protected by the California Fish and Game Code Sections 3503.5, 3511, and 3513. The Code states the following: "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird." Because most raptors migrate they are also protected by the Federal Migratory Bird Treaty Act of 1918, which states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. Section 3(18) of the Federal Endangered Species Act defines the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Causing a bird to abandon an active nest may cause harm to egg(s) or chick(s) and is therefore considered "take."

The project vicinity generally contains a number of mature native and non-native trees. Additionally, O'Donnell Heritage Park is located directly adjacent to the subject property and contains a number of large trees. Mature trees of sufficient size to support tree-nesting raptors are located within the project area. Raptors, in general, build nests in large mature trees.

Sacramento County and other nearby jurisdictions use a 50-foot buffer as a screening tool to assess project impacts to nesting raptors. This buffer has been accepted by the

CDFW for that purpose. Since the project vicinity may provide suitable tree nesting habitat, construction activities may impact nesting raptors if they occur within 500 feet of suitable nesting trees. To avoid impacts to tree-nesting raptors, mitigation is recommended requiring pre-construction nesting surveys. The purpose of the survey requirement is to ensure that construction activities do not agitate nesting raptors, potentially resulting in nest abandonment or other harm to nesting success. If raptor nests are found, the applicant is required to contact CDFW to determine what measures need to be implemented in order to ensure that nesting raptors remain undisturbed. The measures selected will depend on many variables, including the distance of activities from the nest, the types of activities, whether the landform between the nest and activities provides any kind of natural screening, and other variables.

Pre-construction surveys for nesting raptors are required prior to project related construction or land clearing activities that occur during nesting season (generally March through mid-September), for all mature trees within 500 feet of project construction activities. If nesting raptors are observed, the applicant shall consult with CDFW and determine the appropriate measures that must be implemented. If no nesting raptors are observed, no further mitigation will be required.

If active nests of protected species are found within the survey area and breeding and fledging success may be affected, a work exclusion zone shall be established around each nest by a qualified biologist. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes shall be determined by a qualified biologist and may vary dependent upon bird species, nest location, existing visual buffers, noise levels, and other factors (an exclusion zone radius may be as small as 50 feet for common, disturbance-adapted species or as large as 250 feet or more for raptors). Exclusion zone size may be reduced from established levels if supported with nest monitoring findings by a qualified biologist indicating that work activities outside the reduced radius are not adversely impacting the nest. With implementation of recommended mitigation measure BR-1, impacts to nesting raptors are ***less than significant***.

SWAINSON'S HAWK

The Swainson's hawk (*Buteo swainsoni*) is listed as a Threatened species by the State of California and is a candidate for federal listing as threatened or endangered. It is a migratory raptor typically nesting in or near valley floor riparian habitats during spring and summer months. Swainson's hawks were once common throughout the state, but various habitat changes, including the loss of nesting habitat (trees) and the loss of foraging habitat through the conversion of native Central Valley grasslands to certain incompatible agricultural and urban uses has caused an estimated 90% decline in their population.

Swainson's hawks feed primarily upon small mammals, birds, and insects. Their typical foraging habitat includes native grasslands, alfalfa and other hay crops that provide suitable habitat for small mammals. Certain other row crops and open habitats also provide some foraging habitat. The availability of productive foraging habitat near a Swainson's hawk's nest site is a critical requirement for nesting and fledgling success. In

central California, about 85% of Swainson's hawk nests are within riparian forest or remnant riparian trees. CEQA analysis of impacts to Swainson's hawks consists of separate analyses of impacts to nesting habitat and foraging habitat.

The CEQA analysis provides a means by which to ascertain impacts to the Swainson's hawk. When the analysis identifies impacts, mitigation measures are established that will reduce impacts to the species to a less than significant level. Project proponents are cautioned that the mitigation measures are designed to reduce impacts and do not constitute an incidental take permit under the CESA. Anyone who directly or incidentally takes a Swainson's hawk, even when in compliance with mitigation measures established pursuant to CEQA, may violate the CESA.

NESTING HABITAT

The project site is located in the northeastern portion of Sacramento County within the community of Carmichael and the area is generally made up of residential landscaping including native and non-native trees that can provide suitable nesting habitat. Within the Carmichael community, the project area is largely built out with properties designated for residential use. The O'Donnell Heritage Park is located directly to the east and contains larger native and non-native trees that provide suitable nesting habitat. This area predominantly contains a landscape typical of urban/suburban residential neighborhoods and native and non-native ornamental trees are scattered throughout the community. Construction activities in close proximity to nesting sites could disturb and disrupt nesting activities and potentially result in nest abandonment. These impacts would be potentially significant.

For determining impacts to and establishing mitigation for nesting Swainson's hawks in Sacramento County, CDFW recommends utilizing the methodology set forth in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk TAC 2000). The document recommends that surveys be conducted for the two survey periods immediately prior to the start of construction. The five survey periods are defined by the timing of migration, courtship, and nesting in a typical year (Table BR-2). Surveys should extend a ¼ -mile radius around all project activities, and if active nesting is identified, CDFW should be contacted.

Table BR-2: Recommended Survey Periods for Swainson's Hawk (TAC 2000)

Period #	Timeframe	# of surveys required	Notes
I.	Jan. 1 – Mar. 20	1	Optional, but recommended
II.	Mar. 20 – Apr. 5	3	
III.	Apr. 5 – Apr. 20	3	
IV.	Apr. 21 – June 10	N/A	Initiating surveys is not recommended during this period
V.	June 10 – July 30	3	

The closest recorded Swainson's hawk nests to the project site are located along the American and Sacramento rivers, approximately 1.4 miles from the project site; however, the project site includes several native oaks, which could contain nests. Pre-construction surveys are, therefore, required to ensure that construction activities do not agitate nesting hawks, potentially resulting in nest abandonment or other harm to nesting success.

If construction will occur during the nesting season of March 1 to September 15, mitigation for Swainson's hawk and other nesting raptors involves pre-construction nesting surveys in accordance with Table BR-2, above, to identify active nests and to implement avoidance measures if nests are found. The number of surveys employed will be dependent on the proposed date of construction. According to the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley,* prepared by the Swainson's Hawk Technical Advisory Committee (May 2000), the risk for impacts to nesting birds is lower in environments near roadways and areas that have high human use. The purpose of the survey requirement is to ensure that construction activities do not agitate or harm nesting raptors, potentially resulting in nest abandonment or other harm to nesting success. If nests are found, the developer is required to contact CDFW to determine what measures need to be implemented in order to ensure that nesting raptors remain undisturbed. The measures selected will depend on many variables, including the distance of activities from the nest, the types of activities, and whether the landform between the nest and activities provides any kind of natural screening. If no active nests are found during the focused survey, no further mitigation will be required. With nesting survey mitigation, impacts to nesting raptors are ***less than significant***.

IMPACT BR-2: HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY IDENTIFIED IN LOCAL OR REGIONAL PLAN, POLICIES, REGULATIONS, OR BY THE CDFW OR USFWS

OAK WOODLAND

The project site contains approximately 6 acres of remnant oak woodland. The overstory is dominated by a variety of hardwood species including interior live oak, valley oak, and blue oak (*Quercus douglasii*). Although the site contains many older, established native trees, historic aerial photographs, maps, and documents indicate that the land has undergone steady changes over the decades. Chapter 12 Cultural Resources describes the history of the site in further detail, but in the 1870s, the 6-acre project site was part of a larger 160-acre estate that was primarily farmed for wheat and barley. The age of the trees, the quantity of native oaks, and the size of the trees located immediately around the existing residence are representative of a remnant oak woodland. The site is described as "remnant" oak woodland because historically the area around it was farmed, so it became disconnected from other stretches of oak woodland. Furthermore, the over and under stories of the project site include several non-native species not associated with oak woodlands. The site is limited in size, and no longer connected to other woodland habitat areas because of surrounding residential development and the O'Donnell Heritage Park on the east. The neighboring O'Donnell Heritage Park contains a mix of both natural (passive) and developed (active) recreational spaces.

Although the project site does not represent an oak woodland natural community, construction impacts will result in the loss of 68 native and non-native trees in the project site. Impacts to native and non-native tree impacts are discussed in greater detail in Impact BR-4. However, because the project site no longer represents a natural oak woodland habitat, impacts to sensitive natural communities are ***less than significant.***

IMPACT BR-3: 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

MIGRATORY NESTING BIRDS

The Migratory Bird Treaty Act of 1918, which states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. Section 3(19) of the Federal Endangered Species Act defines the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Causing a bird to abandon an active nest may cause harm to egg(s) or chick(s) and is therefore considered "take." To avoid take of nesting migratory birds, mitigation has been included to require that activities either occur outside of the nesting

season, or to require that nests be buffered from construction activities until the nesting season is concluded.

Trees in the project vicinity provide potential nesting habitat for migratory birds. To avoid impacts to nesting birds, mitigation has been included either to require that activities occur outside of the nesting season, or to require that nests be buffered from construction activities until the nesting season is concluded. With mitigation measure BR-1, impacts to migratory birds are ***less than significant.***

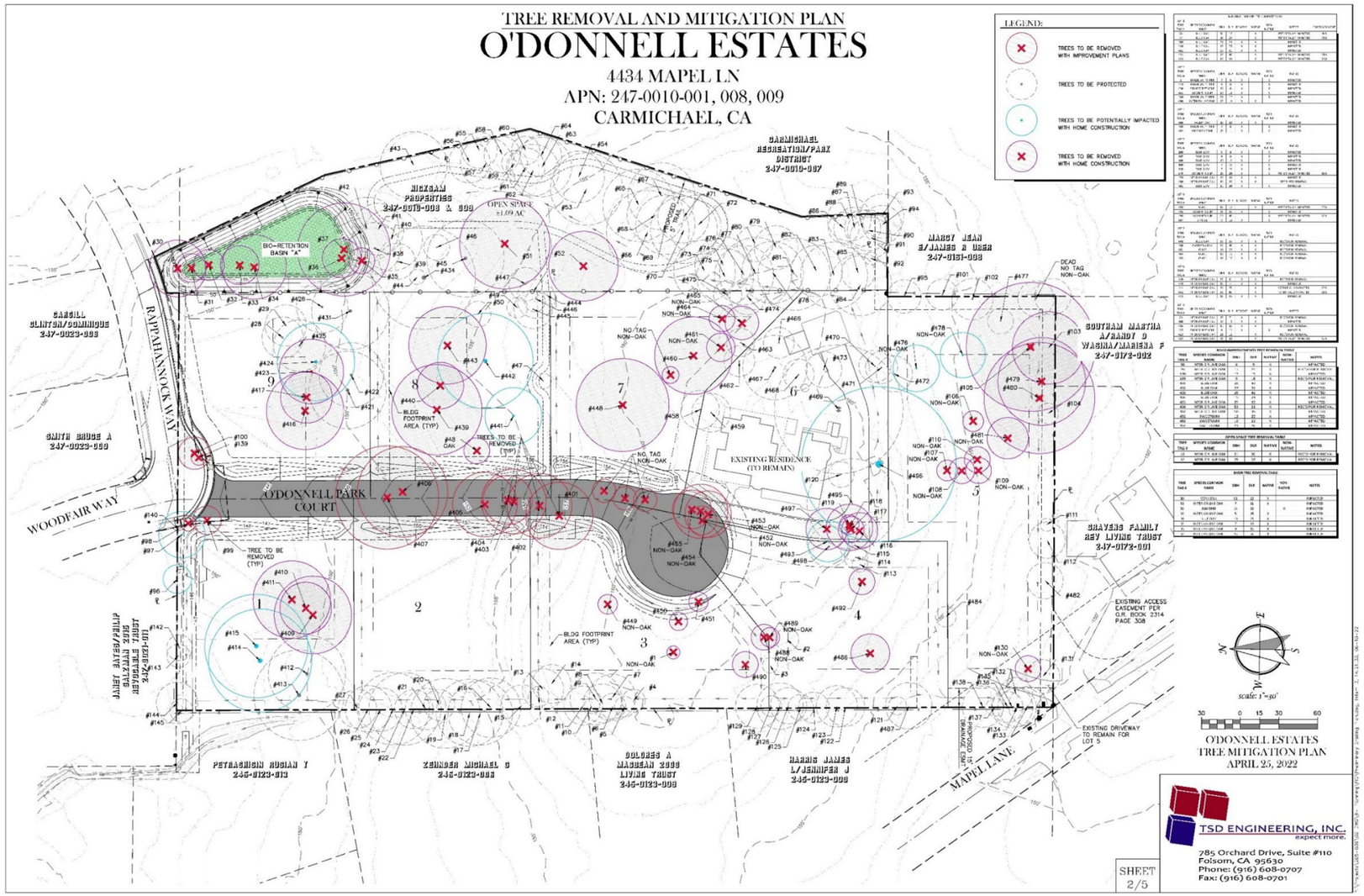
IMPACT BR-4: WOULD THE PROJECT CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE

NATIVE TREES

Sacramento County has identified the value of its native and landmark trees and has adopted measures for their preservation. The Tree Ordinance (Chapter 19.04 and 19.12 of the County Code) provides protections for landmark trees and heritage trees. The County Code defines a landmark tree as "an especially prominent or stately tree on any land in Sacramento County, including privately owned land" and a heritage tree as "native oak trees that are at or over 19" diameter at breast height (dbh)." Chapter 19.12 of the County Code, titled Tree Preservation and Protection, defines native oak trees as valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*) and states that "it shall be the policy of the County to preserve all trees possible through its development review process." It should be noted that to be considered a tree, as opposed to a seedling or sapling, the tree must have a diameter at breast height (dbh) of at least 6 inches or, if it has multiple trunks of less than 6 inches each, a combined dbh of 10 inches. The Sacramento County General Plan Conservation Element policies CO-138 and CO-139 (see regulatory section above) provide protections for native trees:

Native trees other than oaks include Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*, which is also a List 1B plant), Oregon ash (*Fraxinus latifolia*), western redbud (*Cercis occidentalis),* gray pine (*Pinus sabiniana*), California white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), California buckeye (*Aesculus californica*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*), Pacific willow (*Salix lasiandra*), and dusky willow (*Salix melanopsis*).

Plate BR-1: Tree Removal Plan



NATIVE TREES

The applicant provided a preliminary tree removal plan (Plate BR-2). A total of 36 native trees (686.1 aggregate diameter inches) would be removed for implementation of the proposed project. Twelve (12) of the 36 trees have severe health and/or structural deficiencies and do not require mitigation for removal (Table BR-3).

Table BR-3: Trees Recommended for Removal – No Mitigation Required

Tree #	Common Oak Name	Dripline	dbh
51	Interior Live	30 ft.	31”
52	Interior Live	32 ft.	35”
99	Interior Live (Multi-Trunk)	21 ft.	12”
103	Blue Oak (Multi-Trunk)	28 ft.	24.4”
403	Blue	10 ft.	25”
406	Interior Live	32 ft.	14”
423	Interior Live	12 ft.	11”
429	Interior Live (Multi-Trunk)	16 ft.	15.8”
439	Interior Live	41 ft.	35”
448	Blue	35 ft.	39”
479	Interior Live	38 ft.	33”
480	Interior Live	35 ft.	40”
Total DBH removed due to poor health/condition…….315.2” DBH			

The remaining 22 native trees (370.9 aggregate diameter inches) would be removed to accommodate the development (Table BR-4). The removal of native trees requires compensation on an inch-for-inch dbh basis. Mitigation Measure BR-4 has been included to address the loss of 370.9 inches dbh through onsite replacement plantings, or payment to the Sacramento Tree Foundation if is demonstrated that onsite plantings are infeasible.

The relationship between native trees and tribal cultural resources is further discussed in Chapter 13 Tribal Cultural Resources; however, in response to the O’Donnell NOP, tribes indicated that heritage trees may also be tribal cultural resources. Heritage trees are defined as native trees that are typically 100 years of age or greater that have significance to tribes. Heritage trees may hold significance to tribes as a landmark or feature of the land associated with a significant place/event, or may be significant because they hold a collective memory passed down from generation to generation.

Table BR-4: Removal of Native Trees Requiring Mitigation

Tree #	Common Oak Name	Dripline	dbh	Health/Structure Condition	Removal Location
31	Interior Live	11 ft.	7”	Fair	Retention Basin “A”
34	Blue	25 ft.	10”	Fair	Retention Basin “A”
35	Interior Live	14 ft.	7”	Fair	Retention Basin “A”
37	Interior Live	36 ft.	33”	Poor to Fair	Retention Basin “A”
48	Interior Live (Multi-Trunk)	12 ft.	7”	Fair	Lot #8
97	Blue	25 ft.	16”	Poor to Fair	75% Encroachment
98	Interior Live	9 ft.	6”	Fair	road improvements
100	Interior Live	15 ft.	12”	Fair	road improvements & Lot #9
139	Interior Live (Multi-Trunk)	15 ft.	6.4”	Fair	road improvements
401	Blue	43 ft.	29”	Poor to Fair	road improvements
402	Blue	29 ft.	27”	Poor to Fair	road improvements
404	Blue	24 ft.	20”	Poor to Fair	road improvements
405	Interior Live	32 ft.	25”	Poor to Fair	road improvements
407	Interior Live (Multi-Trunk)	35 ft.	32.1”	Poor to Fair	road improvements
409	Blue	28 ft.	24”	Poor to Fair	Lot #1
410	Blue	23 ft.	17”	Fair	Lot #1
411	Blue	31 ft.	20”	Poor to Fair	Lot #1
440	Interior Live (Multi-Trunk)	11 ft.	8.8”	Poor to Fair	Lot #8
443	Blue	25 ft.	18”	Poor to Fair	Lot #8
486	Valley	26 ft.	19”	Fair	Lot #4
490	Interior Live (Multi-Trunk)	16 ft.	12.6”	Fair	Lot #3
491	Interior Live	25 ft.	14”	Poor to Fair	Lot #4
Total DBH removed: ……370.9” DBH					

Although Tribes noted that given the age and size of the native trees on the site, special consideration to the protection and preservation of the trees should be afforded, they did not identify specific tribal cultural resources on the project site. Tribes did not request to consult regarding TCR trees on the site. The importance of mature trees as a tribal cultural resource is discussed in Chapter 13.

As discussed in Chapter 12 Cultural Resources, the greater area around this concentration of native oak trees was farmed from the 1870s until acreage was sold off in the 1950s; however, the project site contained the original homestead and potentially retains trees that pre-date construction of the homestead. Based on historic aerials and other documentation, many of the blue oaks and interior live oaks on the site appear to be older than 100 years. As noted in the arborist report and tree inventory, several of the native trees slated for removal have a diameter at breast height of 20-30 inches; however, several trees with a dbh in the 6-7 inch range will also be removed. Blue oaks, in particular, grow very slowly, so while large trees are most likely to also be older trees, small trees may also be quite old. Some studies have shown that blue oaks that are 7 inches in diameter were 100 years old (McCreary, 1990). The inclusion of Mitigation BR-4 can lessen impacts to native trees through the planting of new saplings. Although new saplings are the same size as the mature native trees proposed for removal, many saplings would be planted to that equal the total inches of mature trees removed.

The arborist report and tree inventory for the project is based on current improvement plans; however, final impacts will need to be calculated to individual trees upon submittal of finalized grading and improvement plans. Although mitigation will result in the replacement of mature trees with saplings, the inches of tree removed with be replaced with a greater number of native trees. Therefore, removal of native trees as a result of the proposed project will be ***less than significant*** with mitigation.

ENCROACHMENT

Even when a tree will not be removed, construction within the dripline can cause impacts. For this reason, mitigation establishing protective fencing (and other measures) is typically required whenever construction will be occurring near native trees to protect the health of the tree during temporary construction impacts. In cases where a tree will remain but some construction within the dripline will occur, mitigation is required for any encroachment that exceeds 20% of the total dripline. At encroachment between 20 and 50%, partial mitigation is required, and when encroachment reaches 50% of the dripline, the entire tree is considered lost and full compensatory mitigation is required.

Development of the retention basin and some of the buildable lots within the proposed tentative parcel map will result in encroachment upon the dripline of native trees. Table BR-5 below identifies impacts associated with encroachment. As summarized in the table, development that will encroach more than 20% upon the dripline of native trees results in a percentage of mitigation needed per tree. The number of dbh inches required for encroachment impacts will be added to the total inches of dbh of native trees removed. These impacts will also be covered by Mitigation Measure BR-4 Removal of Native Trees. Mitigation has also been included to address potential temporary impacts associated with

construction that may occur within the dripline of healthy trees (Mitigation Measure BR-5). With mitigation, impacts due to encroachment ***will be less than significant***.

Table BR-5: Trees with Encroachment of More than 20%

Tree #	Common Oak Name	Dripline	dbh	Health/Structure Condition	Location	Encroachment	Mitigation
38	Interior Live (Multi-Trunk)	20 ft.	10.5”	Poor to Fair	Retention Basin “A”	38%	4” & Protective Measures
41	Interior Live (Multi-Trunk)	20 ft.	13.6”	Poor to Fair	Retention Basin “A”	25%	3.4” & Protective Measures
42	Interior Live	25 ft.	8”	Poor to Fair	Retention Basin “A”	43%	3.4” & Protective Measures
96	Blue (Multi-Trunk)	17 ft.	11.4”	Poor to Fair	Lot #1	38%	4.3” & Protective Measures
415	Blue	33 ft.	26”	Poor to Fair	Lot #1	26%	6.7” & Protective Measures
442	Interior Live	32 ft.	35”	Poor to Fair	Lot #8	26%	9.1” & Protective Measures
Total							30.9” DBH

Non-Native Trees

There are a total of 102 non-native trees located on the subject property (Appendix BR-1). Project implementation would result in the removal of 32 non-native trees (#1, #30, #32, #105, #106, #107, #108, #109, #110, #116, #117, #118, #119, #495, #130, #417, #449, #450, #451, #452, #453, #454, #455, #456, #460, #461, #464, #465, #481, #488, #489, #492) located on the project site. Mitigation for the removal of non-native trees involves compensating for the removal of square footage of canopy lost. The non-native tree canopy removal has been calculated through digitization of tree canopy utilizing current aerial imagery. This method ensures overlapping canopy within tree clusters is not double counted. For individual trees (outside of a cluster), the calculation is canopy radius x canopy radius x 3.14= square footage of canopy for the individual tree. In total, 21,964 square feet of canopy will be removed.

Mitigation measure BR-6 has been included to address the loss of canopy through payment to the Sacramento Tree Foundation or planting equivalent trees onsite. Impacts with respect to non-native tree canopy are ***less than significant***.

MITIGATION MEASURES

MITIGATION MEASURE BR-1: NESTING RAPTORS

If construction activity (which includes clearing, grubbing, or grading) is to commence within 500 feet of suitable nesting habitat between March 1 and September 15, a survey for raptor nests shall be conducted by a qualified biologist. The survey shall cover all potential tree and ground nesting habitat on-site and off-site up to a distance of 500 feet from the project boundary. The survey shall occur within 30 days of the date that construction will encroach within 500 feet of suitable habitat. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. If no active nests are found during the survey, no further mitigation will be required. If any active nests are found, the Environmental Coordinator and California Fish and Wildlife shall be contacted to determine appropriate avoidance/protective measures. The avoidance/protective measures shall be implemented prior to the commencement of construction within 500 feet of an identified nest.

MITIGATION MEASURE BR-2: SWAINSON'S HAWK NESTING HABITAT

If construction, grading, or project-related improvements are to commence between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and within ¼ mile of the site shall be conducted by a qualified biologist no later than 30 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Fish and Wildlife shall be contacted to determine appropriate protective measures, and these measures shall be implemented prior to the start of any ground-disturbing activities. If no active nests are found during the focused survey, no further mitigation will be required.

MITIGATION MEASURE BR-3: MIGRATORY BIRD NEST PROTECTION

To avoid impacts to nesting migratory birds the following shall apply:

1. If construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist.

2. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.

3. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall

be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.

MITIGATION MEASURE BR-4: NATIVE TREE REMOVAL

The project will result in the removal of 370.9 inches dbh of native trees, and 30.9 inches dbh of encroachment. The loss of this dbh shall be compensated for by planting in-kind native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. Native trees include: valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*, which is also a List 1B plant), Oregon ash (*Fraxinus latifolia*), western redbud (*Cercis occidentalis),* gray pine (*Pinus sabiniana*), California white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), California buckeye (*Aesculus californica*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*), Pacific willow (*Salix lasiandra*), and dusky willow (*Salix melanopsis*).

Replacement tree planting shall be completed prior to completion of the project

Equivalent compensation based on the following ratio is required:

- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to ground disturbance, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the SASD for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved
2. Method of irrigation
3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage
4. Planting, irrigation, and maintenance schedules;

5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period.

6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single-family lots (including front yards), and roadway medians.

If tree replacement plantings are demonstrated to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

MITIGATION MEASURE BR-5: NATIVE TREE CONSTRUCTION PROTECTION

For the purpose of this mitigation measure, a native tree is defined as a valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), having a diameter at breast height (dbh) of at least 6 inches, or if it has multiple trunks of less than 6 inches each, a combined dbh of at least 10 inches.

With the exception of the trees removed and compensated for through Mitigation Measure BR-4, above, all native trees and portions of adjacent off-site native trees which have driplines that extend onto the project site, and all off-site native trees which may be impacted by utility installation and/or improvements associated with this project, shall be depicted on construction plans, and preserved and protected as follows:

1. A circle with a radius measurement from the trunk of the tree to the tip of its longest limb shall constitute the dripline protection area of the tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of the tree. Removing limbs which make up the dripline does not change the protected area.

2. Chain link fencing or a similar protective barrier shall be installed one foot outside the driplines of the native trees prior to initiating project construction, in order to avoid damage to the trees and their root system.

3. No signs, ropes, cables (except cables which may be installed by a certified arborist to provide limb support) or any other items shall be attached to the native trees.

4. No vehicles, construction equipment, mobile home/office, supplies, materials or facilities shall be driven, parked, stockpiled or located within the driplines of the native trees.

5. Any soil disturbance (scraping, grading, trenching, and excavation) is to be avoided within the driplines of the native trees. Where this is necessary, an ISA Certified Arborist will provide specifications for this work, including methods for root pruning, backfill specifications and irrigation management guidelines.

6. All underground utilities and drain or irrigation lines shall be routed outside the driplines of native trees. Trenching within protected tree driplines is not permitted. If utility or irrigation lines must encroach upon the dripline, they should be tunneled or bored under the tree under the supervision of an ISA Certified Arborist.

7. If temporary haul or access roads must pass within the driplines of oak trees, a roadbed of six inches of mulch or gravel shall be created to protect the root zone. The roadbed shall be installed from outside of the dripline and while the soil is in a dry condition, if possible. The roadbed material shall be replenished as necessary to maintain a six-inch depth.

8. Tree pruning that may be required for clearance during construction must be performed by an ISA Certified Arborist or Tree Worker and in accordance with the American National Standards Institute (ANSI) A300 pruning standards and the International Society of Arboriculture (ISA) “Tree Pruning Guidelines”.

MITIGATION MEASURE BR-6: NON- NATIVE TREE CANOPY

Removal of non-native tree canopy for development shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation’s Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento County Tree Foundation).

CUMULATIVE IMPACTS

Impacts to special status species, sensitive communities, and the movement of migratory species is less than significant, and likewise, cumulative impacts to these topics is ***less than significant.***

The project will, however, impact old-growth, native trees. Mitigation is recommended that would reduce impacts; however, this mitigation will replace mature trees with small, saplings. The loss of older hardwood trees, which can take many years to mature, is not

fully captured by mitigation that may be met through payment towards, or the planting of, new saplings. Therefore, cumulative impacts to native trees are ***significant and unavoidable***.

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12 CULTURAL RESOURCES

INTRODUCTION

This chapter addresses the potential cultural resources impacts associated with the proposed O'Donnell Estates project (proposed project). The analysis in this chapter differentiates historical and archaeological resources from Tribal Cultural Resources that are considered significant by local indigenous tribes. Tribal Cultural Resources (TCRs) are separate and distinct from archaeological cultural resources, and are discussed in Chapter 13, Tribal Cultural Resources.

ENVIRONMENTAL SETTING

The project location is in the northeastern portion of unincorporated Sacramento County, at 4434 Mapel Lane, in the community of Carmichael. The project is in Section 10 of Township 9 North and Range 6 East, Mount Diablo Meridian, on the U.S. Geological Survey (USGS) 7.5-minute "Citrus Heights, CA" 7.5- minute quadrangle map. The 5.4-acre project site is characterized by moderate to high disturbance due to development and occupation throughout, with a primary home and associated outbuildings. The property contains a large number of oaks, palm, and eucalyptus trees, as well as non-native bushes.

The property is predominantly flat with good ground surface visibility in most areas, although some portions of the property were covered with heavy vegetation. The property contains one large residence that was constructed in two parts. The original residence was constructed in 1874 and is approximately 2,000 square feet. A 5,500 square foot addition was built on the south elevation of the original residence in 1985. The evaluation of the residence concludes that the residence does not meet any of the four criteria for significance under local, state, or federal criteria. No additional cultural resources were identified.

CULTURAL CONTEXT

Native American Period (13,500-481 BP)

The archaeological record of Sacramento Valley is complicated by a variety of factors, some caused by geomorphic processes and others resulting from the high degree of cultural diversity that characterized much of northern California deep into the past (Hildebrandt and McGuire 2022). As a result, historians and archaeologists rely heavily on linguistic grouping to delineate the vast riverine landscape of pre-contact California.

The general project area lies within the traditional territory of the Nisenan, or Southern Maidu, a Penutian speaking central California group (Kroeber 1925). The Nisenan territory

held the plains, foothills and mountainous portions of the drainages of the Feather River. The Sacramento Valley formed the western border and the Sierran Crest the eastern limit.

Paleoindian Period (13,500-8,000 BP)

The earliest evidence of human occupation in north-central California comes from isolated Clovis points found in just a few locations adjacent to the Sacramento Valley (Fiedel 1999). The archaeological record indicates that resource intensification increased from at least 10,000 and 8,000 BP favoring trophy hunting and large game tracking, characterized by archaeological sites containing numerous fluted projectile points and butchered large animal bones (Andrushko, et. al., 2005). Large game strategies were determined through tool assemblages and butchery evidence. Bones of extinct species have been found, but evidence of butchery has yet to be identified in California (Wallace 1978).

Lower Archaic Period (8,000-5,500 BP)

Geologic evidence suggests that around 8,500 yBP, a warmer climate dried the Great Basin and lasted for several thousand years (Rosenthal et. al. 2007). The archaeological record also reflects this in the change of artifacts dated to this period. Narrower projectile points for smaller game, portable milling tools (e.g. manos and metates) for processing foraged materials such as nuts, seeds, and other vegetable matter are often the evidence used to argue that the Lower Archaic Period represents a period of seasonal resource exploitation and temporary encampment rather than the regional sedentism that occurs later in the Sacramento Valley (Bettinger et. al., 2005).

Middle Archaic Period (5,500-2,500 BP)

Methods to remove tannins from acorns appears in the Middle Archaic Period (Lindstrom 1989). Varying grinding artifacts such as mortars and pestles were added to metates and manos for grinding seeds and other vegetable material as foraging became a more centric dietary staple. Flaked stone tools became more refined and specialized, and bone tools were more common (Moratto 1984). In Sacramento Valley, the earliest recorded atlatls date to the Middle Archaic Period and are theorized to be an imported good (Rosenthal et. al. 2007). As such, it is thought that ranged foraging also brought more cultural interaction and trade between California tribes (Hildebrandt and McGuire 2013).

Upper Archaic Period (2,500-1,000 BP)

California likely experienced a population intensification in the Upper Archaic Period (Erlandson 1994). New immigrants who spoke a language of the Uto-Aztecan linguistic stock seem to have displaced or absorbed earlier populations of Hokan-speaking peoples who lived in Central California. Settlements seem to have become more concentrated, with central villages in a well-defined territory system, most of which spoke their own language or dialect (Kroeber 1925; Moratto 1984).

The Sacramento Valley bears evidence of cultural stratification from this period. Formalized cemetery areas—additional evidence of established moieties—often included the materials owned by the individual and varied greatly in quality and quantity such as side notched, stemmed projectile points (for bow hunting), hand-stones, milling slabs, and beads (Delacorte and Basgall 2006).

Late Period (Post 1,000 BP)

Large riverine villages represent the Late Period as one of more sedentary living. This is evidenced by a decrease in portable manos and metates in tandem with the establishment of large, multi-generational bedrock mortar sites (Rosenthal et. al. 2007). In Sacramento Valley, this tradition is classified as the "Windmiller Pattern" and is supported not only by archaeological evidence, but also robustly evidenced through ethnographic accounts (See Chapter 12: Tribal Cultural Resources).

Spanish Missionary Period (1542-1822 A.D.)

In 1542, Juan Rodriguez Cabrillo became the first Spanish maritime explorer to visit California. The Viceroy of New Spain (Mexico) sent Cabrillo north to look for the Northwest Passage. Cabrillo visited San Diego Bay, Catalina Island, San Pedro Bay, and the northern Channel Islands. The English adventurer Francis Drake visited the Miwok Native American group at Drake's Bay or Bodega Bay in 1579 (Castillo 1978).

The colonization of California began with the Spanish Portolá land expedition. The expedition, led by Captain Gaspar de Portolá of the Spanish army and Father Junipero Serra, a Franciscan missionary, explored the California coast from San Diego to the Monterey Bay in 1769. The purpose of the missions, presidios, and pueblos was to establish Spanish economic, military, political, and religious control over the Alta California territory (Cook 1958).

While the Spanish had made forays into the Central Valley since the mid eighteenth century, the earliest non-indigenous presence in the region occurred in 1808 when Capitan Gabriel Moraga led an expedition from Mission San Jose to the northern Sacramento Valley (Cook 1958). Early contact with the first Spanish explorers to enter California was limited to the peripheries of Nisenan territory; they occurred mainly to the south on lands of the Miwok which had been explored by José Canizares in 1776, with only ephemeral explorations into Nisenan lands. There are no records of Nisenan groups being removed to the missions. However, they received escapees from the missions, as well as pressure of displaced Miwok populations on their southern borders. The first known occupation by European-Americans was marked by American and Hudson Bay Company fur trappers in the late 1820s establishing camps in Nisenan territories (Wilson and Towne 1978).

Mexican Republic Period (1822-1848 A.D.)

Mexico won its independence from Spain and claimed all lands south of the 42nd parallel between the Pacific Coast and today's eastern boundary of Texas as territory of the Mexican Republic.

In 1827, American trapper Jedediah Smith traveled along the Sacramento River and into the San Joaquin Valley to meet other trappers of his company, but American trappers established no permanent settlements (Thompson and West 1880).

A deadly epidemic (possibly malaria) swept through the Sacramento Valley in 1833 and it had a devastating effect on Nisenan populations. Entire villages were lost and surviving Nisenan retreated into the hills. An estimated 75 percent of their population was wiped out, and only a handful were left to face the gold miners and settlers who were soon to follow (Cook 1955).

John Sutter, a European immigrant, built a fort at the confluence of the Sacramento and American rivers in 1839. In 1841, the Mexican governor of Alta California awarded Sutter a land grant called New Helvetia. Sutter built a flour mill and grew wheat near the fort (Bidwell 1971). Gold was discovered in the flume of Sutter's lumber mill at Coloma on the South Fork of the American River in January 1848 (Marshall 1971). The discovery of gold initiated the 1849 California Gold Rush, which brought thousands of miners and settlers to the Sierra Nevada foothills east and southeast of Sacramento (Stapp 2013).

American Period (1838 A.D.-)

The American Period began in 1848 with the conclusion of the Mexican-American War and the signing of the Treaty of Guadalupe Hidalgo. As a result, Alta California became ceded to the United States. In 1850, as thousands of gold seekers arrived to participate in the California Gold Rush, California became the 31st state. In the following decades, U.S. courts confirmed many Mexican land grants. Lands located outside land grants became federal public land and surveyed into sections, quarter-sections, and quarter-quarter sections under the Public Land Survey System. At general land offices, patentees purchased public lands at a low fixed prices or, after 1862, applied for homestead patents (Robinson 1948).

The mountain Nisenan groups encountered Europeans in their territory but were not adversely affected by the epidemics and early settlers. The discovery of gold, however, led to their territory being overrun within a matter of a few years. James Marshall's 1848 gold discovery was located in the middle of Nisenan territory, and thousands of miners were soon living in the area. This dynamic led to widespread killing, destruction, and persecution of the Nisenan and their culture. The few survivors were relegated to working in agriculture, logging, ranching, or domestic pursuits (Wilson and Towne 1978).

Carmichael Colony

Carmichael is a small community of 13.79 square miles in the unincorporated area of Sacramento County, bounded by Lincoln Avenue to the north, San Juan Avenue to the east, the American River and Deterding Ranch (now Ancil Hoffman Park) to the south and Fair Oaks Boulevard to the west. The community is part of the Greater Sacramento Metropolitan area and currently has a population of approximately 61,000 residents (Crawford 2018).

The colony is named after Daniel Carmichael, who in 1909 purchased approximately 2,000 acres from the original Rancho San Juan Mexican land grant made to Joel P. Dedmond in 1844, and an additional 1,000 acres from the Del Paso Rancho Mexican land grant originally deeded to Eliab Grimes in 1844 (Carmichael Chamber of Commerce, 2023).

Carmichael Colony in its early establishment, was known for its orchards and relatively small homesteading farms that cultivated a variety of trees including olives, almonds, and various citrus fruits, as well as attempts to grow high-water plants such as alfalfa (these plants were ultimately unsuccessful due poor soil conditions) (Stapp 2013).

Early families in the Carmichael area included the Deterding family, whose 425-acre ranch is now Ancil Hoffman Park. The Barretts, for whom Barrett Road is named, came in 1900 and became part of the Carmichael community. Thomas C. Mapel and family became real estate developers. Thomas and his wife, Winnona, brought their family from Sacramento to Carmichael in 1926. Mapel had worked in real estate in Sacramento and, in 1946, he purchased a 100-acre parcel to create the first tract housing in Carmichael, known as Mapel Grove. Mapel Lane is named for the family. Mapel served in the Carmichael Irrigation District and Mrs. Mapel was active in the local schools and community events (Muther 2004).

PROJECT SITE HISTORY

Indigenous lifeways in vicinity of the Project site were drastically impacted by the gold rush. While no known villages or former permanent occupation sites exist between Lincoln Avenue and Winding Way, the oak forests that once covered most of the rolling hills between the American and Sacramento Rivers were well travelled and utilized for hunting and gathering (Wilson and Towne 1978).

Edward O'Donnell and family purchased 160-acres intersecting the project site in 1898, prior to its incorporation into Carmichael. The majority of these lands were divided among

Edward's children and sold. Today much of the former homestead is part of Carmichael Park.

A former blacksmith, O'Donnell shifted his profession upon purchase and turned to farming, using his parcel to produce wheat. Together, the family maintained the single-family home built in 1874, which they named "Shelterwood". This home still exists on the southern portion of the project site (Crawford 2018). The 160-acre property supported wheat and/or barley farming until the 1950s; however, the acreage immediately around the homestead, which includes mature, heritage oak trees, was not farmed.

The O'Donnell family served the community in moderate capacity and are known mostly for their development of San Juan School, which existed within the northwest portion of the original 160-acre homestead. The school began to flourish as residents of the fast-growing Carmichael Colony began to send their children to the school. Edward O'Donnell served as a trustee of the school, donating time for its operation and improvement until a larger school was built in the Colony in 1917. One of his daughters, Della O'Donnell, served as a teacher in the San Juan grammar school and was appointed the first teacher of the newer school, later serving as its first principal. She also founded one of the first parent-teacher associations in Sacramento County in 1915 or 1916 (Crawford 2018).

When the third and final generation of the O'Donnell family inherited the land in the 1980s, the surrounding area had become suburban. The remaining five acres of Shelterwood (today's APN 247-0010-001-0000) was sold to Marc Turtletaub in 1985, who constructed the three-story addition to the original O'Donnell home built in 1874.

Regulatory Setting

Federal

Archaeological Resources Protection Act

The Archaeological Resources Protection Act establishes a clear, national legal policy that all types of archaeological, paleontological, and cultural resource site locations must be kept confidential in order to preserve them. (16 U.S.C. § 470hh.) The California Public Records Act recognizes the confidentiality principles of federal law. (Gov. Code, § 6254(k).)

Section 106 of the National Historic Preservation Act, 1966

Federal regulations for cultural resources are governed primarily by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. The ACHP's implementing regulations are the "Protection of Historic Properties" 36 Code of Federal Regulations (CFR) Part 800. The Federal agency first must determine whether it has an undertaking

that is a type of activity that could affect historic properties. Historic properties are those that meet the criteria for or are listed in the NRHP.

National Register of Historic Places

"Historic properties," as defined by the ACHP, include any "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the NRHP maintained by the Secretary of the Interior" (CFR Section 800.16(I)). Eligibility for inclusion in the NRHP is determined by applying the following criteria, developed by the National Park Service in accordance with the NHPA:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That 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. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (National Parks Service 2009). NRHP guidance further asserts that properties must have been completed at least 50 years before evaluation to be considered for eligibility. Properties with construction completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

State

California Environmental Quality Act and the California Register of Historical Resources

Under CEQA, lead agencies must consider the effects of their projects on historical resources. The California Environmental Quality Act (CEQA) defines a "historical resource" as a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources, and any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section

15064.5[a] of the Guidelines). Sacramento County does not currently have a local register. Public Resources Code (PRC) Section 5024.1 requires that any properties that can be expected to be directly or indirectly affected by a proposed project be evaluated for CRHR eligibility. According to PRC Section 5024.1(c)(1–4), a resource may be considered historically significant if it retains integrity and meets at least one of the following criteria. A property may be listed in the CRHR if the resource:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

To be considered eligible, a resource must meet one of the above stated criteria and also retain integrity. Integrity has been defined by the National Park Service as consisting of seven elements: location, design, setting, materials, workmanship, feeling, and association.

Impacts to historical resources that materially impair those characteristics that convey its historical significance and justify its inclusion or eligibility for the NRHP or CRHR are considered a significant effect on the environment (CEQA Guidelines 15064.5).

In addition to historically significant resources, which can include archaeological resources that meet the criteria listed above, an archeological site may meet the definition of a “unique archeological resource” as defined in PRC Section 21083.2(g):

> 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:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all

of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Public Resources Code Section 21083.2 (a), (b) and (c)). State CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Public Resources Code, Section 5097.5

Public Resources Code Section 5097 specifies the procedures to follow in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. Public Resources Code Section 5097.5 states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Public Resources Code, Section 5097.98

Public Resources Code Section 5097.98 states that whenever the NAHC receives notification of Native American human remains from a county coroner, the NAHC shall immediately notify the most likely descendant (MLD). The MLD may, with permission from the owner of the land in which the human remains were found, inspect the site and recommend to the owner or the responsible party conducting the excavation work a means for treating and/or disposing of the human remains and any associated grave goods. The MLD is required to complete their site inspection and make their recommendation within 48 hours of their notification from the NAHC.

Health and Safety Code, Section 7052 and 7050.5

Section 7052 of the Health and Safety Code states that the disturbance, mutilation, or removal of interred human remains is a felony if the remains are within a dedicated cemetery and a misdemeanor if interred outside of a dedicated cemetery. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner examines the find and determines whether the remains are subject to various laws, including recognizing whether the remains are or may be those of a Native American. If determined to be Native American, the coroner must contact the NAHC.

California Native American Graves Protection and Repatriation Act, Health and Safety Code Section 8010 through 8030

In the California Health and Safety Code, Division 7, Part 2, Chapter 5 broad provisions are made for the protection of Native American cultural resources. The Act sets the state policy to ensure that all California Native American human remains and cultural items are treated with due respect and dignity. The Act also provides the mechanism for disclosure and return of human remains and cultural items held by publicly funded agencies and museums in California. Likewise, the Act outlines the mechanism with which California Native American tribes not recognized by the federal government may file claims to human remains and cultural items held in agencies or museums.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act applies to both state and private lands. This law requires that if human remains are discovered, construction or excavation activity must cease and the County Coroner must be notified. If the remains are of a Native American, the coroner must notify the NAHC. The NAHC then notifies those persons most likely to be descended from the Native American whose remains were discovered. The California Native American Historical, Cultural, and Sacred Sites Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by the NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains, and items associated with Native Americans.

LOCAL

SACRAMENTO COUNTY GENERAL PLAN

CULTURAL RESOURCES

The *Sacramento County General Plan of 2005–2030* (Sacramento County 2011, as updated in 2017) Conservation Element, states under Section VI, Cultural Resources, the following goal and six objectives:

> Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socio-economic importance.
>
> 1. Comprehensive knowledge of archeological and historic site locations.
> 2. Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to Native American values.
> 3. Structures with architectural or historical importance preserved to maintain contributing design elements.
> 4. Known cultural resources protected from vandalism unauthorized excavation, or accidental destruction.
> 5. Properly stored and classified artifacts for ongoing study.
> 6. Public awareness and appreciation of both visible and intangible historic and cultural resources.

To implement the primary goal and the objectives, the Conservation Element contains the following policies relevant to the project:

- **Policy CO-150:** Utilize local, state and national resources, such as the North Central Information Center (NCIC), to assist in determining the need for a cultural resources survey during project review.
- **Policy CO-152:** Consultations with Native American tribes shall be handled with confidentiality and respect regarding sensitive cultural resources on traditional tribal lands.
- **Policy CO-164:** Structures having historical and architectural importance shall be preserved and protected.

SIGNIFICANCE CRITERIA AND METHODOLOGY

SIGNIFICANCE CRITERIA

CULTURAL RESOURCES

The significance criteria used to evaluate a project's impacts to cultural resources under CEQA are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to cultural resources would occur if the project would:

1. cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
2. cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
3. disturb any human remains, including those interred outside of formal cemeteries.

METHODOLOGY

Sacramento County requested a records search for the property at the North Central Information Center (NCIC) of the CHRIS at California State University-Sacramento on November 17, 2022 (NCIC search #SAC-20-161; Appendix CR-1). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project location, and whether previously documented indigenous or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. NCIC staff completed and returned the records search to Sacramento County on November 17, 2022.

In addition to the official records and maps for archaeological sites and surveys in Sacramento County, the following historic references were also reviewed:

- Built Environment Resource Directory (BERD; OHP 2020);
- Historic Property Data File for Sacramento County (OHP 2012);
- The National Register Information System (National Park Service [NPS] 2021); Office of Historic Preservation, California Historical Landmarks (CHL; OHP 2021); *CHL* (OHP 1996 and updates);
- California Points of Historical Interest (OHP 1992 and updates);
- Directory of Properties in the Historical Resources Inventory (1999);
- Caltrans Local Bridge Survey (California Department of Transportation [Caltrans] 2019);
- Caltrans State Bridge Survey (Caltrans 2018); and
- Historic Spots in California (Kyle 2002).

Other references examined include a RealQuest Property Search and historic General Land Office (GLO) land patent records (Bureau of Land Management [BLM] 2021). Historic maps reviewed include:

- 1871 BLM GLO Plat map for Township 9 North Range 6 East;
- 1893 USGS Sacramento, California topographic quadrangle map (1:250,000 scale);
- 1902 USGS Fair Oaks, California topographic quadrangle map (1:62,500 scale);
- 1951 USGS Citrus Heights, California topographic quadrangle map (1:24,000 scale);
- 1967 (photorevised 1969) USGS Citrus Heights, California topographic quadrangle map (1:24,000 scale)

Helix reviewed historic aerial photos taken in 1937, 1952, 1958, 1971, 1981, 1993, 1998, and 2002-2021 for any indications of property usage and built environment. Helix also conducted a search of the City of Fair Oaks historical registry (no historic registry exists for Carmichael).

Sacred Lands File Coordination Methods

The NAHC maintains a confidential Sacred Lands File (SLF) which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on May 26th, 2023 to request a search for known sacred lands within the project vicinity. The NAHC responded to the request on June 26, 2023 with positive results. Consultation with tribes who are traditionally and culturally affiliated with the geographic area associated with the Project site pursuant to Assembly Bill 52 and its relevant implementing regulations was exacted by the County of Sacramento on January 8th, 2021. Refer to Chapter 13, Tribal Cultural Resources of this Draft EIR for further information.

Field Methods

Helix subjected the project site to an intensive pedestrian survey and building evaluation on July 17, 2018 under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* (NPS 1983). A search for elements that related to the current use of the property as well as the previous use of the property as a 160-acre wheat farm in the late 1800s was undertaken. The survey included an examination of the area surrounding the main residential building and the various out buildings and structures on the grounds of the property. Additional examination of the property for any elements related to the former farming use was explored. Photographs were taken of the entire exterior of the current two-part residence; all exterior elevations were recorded. In addition, the interior of the residence was accessed, and interior photographs were taken of the main architectural details and key elements of the interior of the residence, both the old and new sections. These photographs, both interior and exterior, were used extensively to document any potential alterations, renovations, and additions to the residential building (Crawford 2018).

RESULTS

NCIC RECORDS SEARCH

The records search consisted of a review of previous research and literature, records on file with the NCIC for previously recorded resources, and historical aerial photographs and maps of the vicinity. Of the previous cultural studies conducted, 1 report occurs within 0.25 mile of the Project site. The non-confidential NCIC results did not disclose the name or authorship of this report. No studies directly intersect the Project site. No cultural or archaeological resources were been identified within 0.25 mile of the Project site.

OTHER RECORDS

ECORP consulted the Office of Historic Preservation's (OHP) Directory of Properties. The Historic Property Data File (dated April 5, 2012) did not include any resources within 0.5 mile of the project site (OHP 2012).

The National Register Information System (NPS 2021) failed to reveal any eligible or listed properties within the project site. The nearest National Register properties are located in downtown Folsom, at least three miles north of the project site.

Resources registered by the National Park Service as recognized Historic Places were reviewed on May 24th, 2023 and no eligible properties exist in vicinity of the project site. The nearest eligible property is Slocum House, approximately three miles southeast of the project site.

The Caltrans local and state bridge inventories (Caltrans 2018) did not list any historic bridges in the project site.

The Handbook of North American Indians (Wilson and Towne 1978) lists the nearest Native American villages as Yamankudu and Pichiku. The project site is located between these former settlements, well outside any known boundaries. No Native American resources are known to exist within the project Area. Additional information on Tribal Cultural Resources can be found in Chapter 13: Tribal Cultural Resources.

MAP REVIEW AND AERIAL PHOTOGRAPHS

Helix's review of historical aerial photographs and maps of the project site provide information on the past land uses of the property and potential for buried archaeological sites. This information shows that the 160-acre property that includes the 6-acre project site was initially farmed, but was subdivided and developed over time. Following is a summary of the review of historical maps and photographs referenced in Crawford 2018:

> The evolution of the subject property was reviewed on Historicaerials.com. Historic aerial photographs (1947, 1957, 1964, 1966, 1993, 1998, 2002, 2005, 2009, 2010, 2012, and 2014) and historic USGS quadrangle maps (1902, 1910, 1911, 1952, 1956, 1957, 1965, 1969,1977, 1978, 1980, 1984, 1997, 2012, and 2015) were reviewed for information related to the subject property. In addition, the online map

files provided by the Fair Oaks Historical Society were also reviewed for additional information regarding the subject property.

The 1947 aerial photograph shows the original 1875 residence in place at its current location. Surrounding the property on all sides are agricultural fields, clearly delineated. Orchards are present at some distance from the residence on the east side and may not be located on the O'Donnell property. The property is clearly a working, well established farm property.

The 1957 aerial photograph shows changes to the property. The property is still primarily agricultural, but some roads have been built through the general area. It appears that the 25 acres purchased by Thomas Mapel in 1949 now are the location of multiple single-family residences.

The 1964 aerial photograph no longer indicates agricultural use. The Shelterwood residence now appears as an island in the midst of new streets and extensive housing development in the surrounding area. By this time, 120 acres of the original property have been sold and developed with new housing tracts, additional streets, and significant landscaping.

The 1966 aerial photograph shows an intensification of infill development along the former O'Donnell acreage with additional streets and homes.

The 1993 and 1998 aerial photographs show the acceleration of the infill process with extensive and dense development of the area surrounding the original residence. The property, now owned by the Turtletaubs, is shown as an island with more vegetation in the midst of very dense infill development. The large addition built by the Turtletaubs in the mid-1980s is present in the photographs. However, the vegetation is dense, and it could not be determined which outbuildings were present on the property.

The remaining aerial photographs, from 2002-2014, show the same patterns on the property and surrounding area. Dense infill development was combined with increased vegetation which obscures much of the detail of the subject property, in addition to the surrounding area.

The USGS maps confirm the information seen on the historic aerial photographs. The original residence appears on the 1902 quadrangle map and remains in its current location through the entire series of maps. The area is agricultural with no roads appearing until the 1952 map. An unpaved road leads into the subject property and is seen on the maps up until the 1969 map when Mapel Lane has been added to the area. Originally the lane was spelled "Maple," not the current Mapel. The name was changed to the current spelling in 2012.

FIELD RESULTS

Helix performed an intensive pedestrian survey and literature review for Nicksam Properties LLC in support of the proposed project. The following are observations made by Crawford 2018 in relation to the building evaluation:

Shelterwood Residence

The building is basically rectangular shaped and has a symmetrical primary elevation, painted wood horizontal siding exterior, a large wrap around porch on the four elevations, and a hipped roof with wood shake shingles (not an original design), exposed rafters, and skylights. Air conditioning units are present on the roof. A chimney projects from the center of the roof area. The foundation of the building is wood piers. The front face of the area below the porch is faced with trellis siding. Simple wood steps lead to each of the elevations (Crawford 2018).

The west, or primary, elevation contains a large porch with a flat roof that is supported by pairs of wood, round, carved, columns with simple capitals and bases. The floor and ceiling of the porch are wood with dovetailed joining at the corners. Simple wood steps lead up to the front porch. Wood trellis type facing is present around the lower edge of the porch to hide the foundation elements. Non-historic ceiling lights have been added to the roof of the porch. The west elevation has undergone changes with the addition of what appears to an historic door, however, this door does not appear to be original to the home. The stained-glass transom window may also be non-original. The side entrance door is non-historic as the opening has been enlarged to accommodate the door (Crawford).

The primary elevation includes a centered entrance flanked by two pairs of large, wood framed, four-pane, double hung sash style windows. The main entrance includes a carved wood door with an oval stained-glass window in the center of the door. Brass hardware is present on the door and includes a small handle that turns and functions as the doorbell. A rectangular shaped, wood framed transom window is present above the front door. The transom contains a stained-glass window. Raised paneling is located on the side walls of the recessed entrance area. A decorative carved section with a tulip motif is present over the transom window and the other windows. This detail is repeated at various points around both the old and new sections of the residence. Small, metal lights are present on each side of the entrance door, likely a modern addition. The windows are in pristine condition, which is unlikely in a building that is 143 years old (Crawford 2018).

The north facing/south wall of the primary elevation forms an L-shape with the main portion of the façade and contains an additional entrance with a non-historic, carved wood door with stained glass inserts and sidelights. A small wood box structure with multiple compartments is present on the front porch, presumably to store shoes. This appears to be a non-historic addition (Crawford 2018).

The north, or side, elevation includes the same detailing as seen on the primary elevation –open porch with flat roof, pairs of round columns, horizontal siding, and wood framed,

multi-lite, double hung sash style windows. The west portion of the residence, both first and second floors, forms a block and includes the open porch that wraps around from the west elevation. The east half of the elevation steps back from this front section (Crawford 2018).

The second floor of the elevation is basically U-shaped as the center section steps back from the front of the façade. The second floor contains multiple non-historic window units that are wood framed, rectangular shaped, four-pane, double hung sash style windows. The ends of the building contain single windows; the center section contains two pairs of windows. The center of the wall contains a single window section which is located directly below a round window. A small, rectangular shaped, slider style window is present on the upper section of the north side wall. Carved detailing that matches the ground floor windows is present over the windows (Crawford 2018).

The ground floor includes a side entrance with a wood door with upper glass section. This door leads from the interior onto the porch. The major component of the east section of the ground floor of the side elevation is a large glass solarium structure which has been added to the north elevation and alters the original view of the porch. The glass walls are metal framed and are curved at the top of the walls to from a roof that attaches to the house walls. This glass structure encloses the east half of the original open porch area on the north elevation. Doors are present into the solarium area from the east and west ends; a short flight of simple wood steps leads to the east entrance area (Crawford 2018).

The second floor of the north elevation includes multiple windows and a balcony. The west portion of the second floor over the wrap around porch area includes three, large, rectangular shaped, casement style windows. These non-historic windows have semi-circular arched window sections directly over each window. They are placed in a contiguous row. The east half of the second floor, the area directly over the solarium, includes a balcony with a turned wood railing, a slanted shed roof, and a wood-framed, multi-lite French door which leads onto the balcony area. Air conditioning units and skylights are noted on the roof (Crawford 2018).

The east, or rear, elevation, contains the same open porch details with wood columns supporting the flat roof, wood horizontal siding, and multiple single wood and glass door entrances. Some of the entrance doors have decorative carved wood screen doors at each entrance. Simple wood steps lead to the porch area. The same rectangular shaped, four-pane, double hung sash style windows are present. The windows have the same carved wood detailing over the windows as seen on the other elevations. The ceiling of the porch contains non-historic ceiling lights (Crawford 2018).

The second floor of the residence steps back, leaving a wide, flat porch roof expanse. The second floor contains multiple wood framed windows. Two of the windows are rectangular in shape with arched, fan-light window sections above the main, multi-light window. The other window is the same as seen on the other portions of the house – wood framed, rectangular shaped, double hung sash style with four panes of glass and the carved decorative section over the window (Crawford 2018).

The south, or side, elevation is the location of the large addition constructed in 1985. Only a portion of the original south elevation remains as approximately half of the west end of the south elevation was removed to facilitate the construction of the addition. The remaining east half of the south elevation contains the same exterior siding and open porch details. An additional single wood and glass door entrance is present at the juncture of the old and new portions. Wood stairs with a wood railing lead to the porch area and door entrance area. A large, three-sided, wood framed, full height, fixed pane, multi-lite window section is present on the side wall of the house. Three large window sections comprise this window element, creating a quasi-bay window effect. This area provides a wide viewing area from the dining area on the interior of the house. Double hung sash style windows with the same four-pane configuration, and the carved wood detailing, are present on the south wall (Crawford 2018).

The second floor is L-shaped. Each section contains a rectangular shaped, multi-lite window with an arched, fan-light detail window over the lower portion. This L-shaped area attaches to the new addition on the upper floors (Crawford 2018).

Outbuildings

Two, small, rectangular shaped, one-story, out buildings are located on the south side of the residence. The buildings have wood shingle exteriors, shed style roofs, and metal framed windows that vary in size and shape. The buildings are in poor condition.

A group of eight, wood, one-story, rectangular shaped storage buildings are located at the southeast corner of the property. These buildings have wood walls, gabled roofs, and wood floors. The buildings are numbered from one to eight. The buildings appear to be in good condition.

A two-story building is located directly east of the residence, a short distance from the back-porch area. The building is rectangular in shape with wood exterior siding, a gambrel roof system, and a wood staircase leading to the second-floor area. A large open shed area is attached to the rear of the structure and is filled with outdoor equipment. The shed has a wood roof with wood supports and is open on three sides. The building appears to be in poor condition.

A small wood shed is located behind the two-story building. The one-story, rectangular shaped wood shed has a gabled roof and wood walls. The shed appears to be in good condition.

A tall, wood framed, hot tub structure is present to the north of the gambrel-roofed residence. The hot tub rests on a concrete slab. It is unclear if the hot tub is functional at this time. It appears to be in fair condition.

A small, one-story, rectangular shaped out building is present to the north of the hot tub in the area behind the original residence. The building has wood framed windows, a gable roof, red painted wood horizontal siding exterior and multiple entrances. The interior of the building contains mirrored walls, a pool table, and a disco ball hanging from the ceiling. The building has been altered extensively and is in fair condition.

An additional storage shed is located in the northeast area of the property behind the original residence. The wood shed is rectangular shaped, with a gable roof and wood walls. Large equipment is present in front of the shed. The shed appears to be in fair condition.

An additional storage shed, painted white, is present near the northeast corner of the house. This structure has wood walls, a gable roof and wood entrance doors. The building is in fair condition.

A fenced, wood structure that appears to have been used for chickens or other types of poultry is present behind the shed. The structure is in poor condition.

A circular, concrete foundation is present behind the house and is located near the rear elevation. The fountain has multiple levels of water basins. The fountain is encircled with curved concrete benches.

Impacts and Analysis

Section 15064.5(b)(1) of the State CEQA Guidelines provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource. State CEQA Guidelines Section 15064.5 defines a “substantial adverse change” in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be “materially impaired.” Section 15064.5(b)(2) of the State CEQA Guidelines (defines “materially impaired” for purposes of the definition of “substantial adverse change” as follows:

The significance of a historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to PRC Section 5020.1(k) or its identification in an historical resources survey meeting the requirements of PRC Section 5024.1(g), unless the

public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA. In accordance with Section 15064.5(b)(3) of the State CEQA Guidelines, a project that would have a potential material impact on a historic resource that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings is considered to have mitigated impacts on historic resources to a less than significant level.

IMPACT CR-1: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A HISTORICAL RESOURCE PURSUANT TO §15064.5.

The historical evaluation performed by Helix concluded that the Shelterwood homestead does not retain sufficient integrity to qualify as a historical resources under CEQA; nor is the property eligible as a rural landscape. The property does not include outbuildings (barns, stables, equipment sheds, etc.) typically associated with a working farm. Furthermore, the exterior of the home has been significantly altered, removing elements that may have identified it as a homestead or farmhouse within the rural landscape:

Due to the fact that the original acreage has been subsumed by other development, the spatial organization of Shelterwood is no longer considered preserved;

No elements of the original homestead connecting to the natural environment (such as irrigation canals, wells, footpaths) were observed during Helix's survey, which further degrades assessed integrity of the property;

No evidence was located to indicate that the subject property represented any specific cultural traditions, religious practices, ethnic identities, social customs, or trades and skills. If there were such elements, they were removed at an unknown time. No evidence remains that would connect this property to any significant cultural traditions;

No evidence was located to indicate that any type of circulation system is present on the property. The review of the historic maps and photographs did not reveal any indications that any type of system existed on the property or in its connections to the larger community environment. The property also lacks any evidence of previously existing boundary locations (if any) that may have defined the original homestead footprint;

The subject property, as it currently stands, appears to bear little resemblance to the property in earlier decades in terms of vegetation present on the land. Visual

observation and review of historic aerial photographs, maps, and documents indicate that the land has undergone a variety of steady changes over the decades. The trees that do exist on property are scattered, indicating they were not planted as a windbreak or orchard and are not cultural in origin;

The buildings, structures and objects that remain on the subject property are of non-historic construction dates or have lost all integrity due to extensive alterations. The original c. 1870s residence has been altered significantly with the large c. 1980s addition and thus, does not reflect any historic use of materials, methods of construction or design concepts. The outbuildings, sheds, and other elements such as the tennis court and basketball court were built post mid-1980s and, therefore, are of no historic significance. They do not reflect any historic use of materials, methods of construction or elements that tie them to the historic period of the property. They are generic, nondescript elements placed haphazardly on the property;

There are no clusters of buildings, structures, or elements that would reflect the historic period of occupation of the subject property. All original buildings and elements have been removed, with the exception of the much-altered original residence, and the elements that are now present have no historic significance. These elements do not convey any type of cluster effect as they were randomly constructed and sited on the property and;

No small-scale elements were located on the property. If they ever existed, they have been removed in the various changes that have taken place on the property over the last 140 years. No evidence of their existence was located in the review of historic documents, photographs or maps.

The property meets none of the established criteria for association with an important event, person, design and construction or information potential. Of the seven aspects of integrity, the subject property has retained only the location aspect of integrity; the other six aspects of integrity have not been met. Residential development on 155-acres of the original property, extensive alterations to the original residence, and the replacement of any original farm outbuildings with modern tennis courts and garages have irrevocably altered the original setting. Nothing remains that would suggest that the property was a working farm in the 19th and 20th centuries; therefore, the subject property is not considered to meet the criteria as an example of a rural historic landscape.

The property does not qualify as Historical Resource under CEQA or a Historic Property under the National Historic Preservation Act (NHPA); therefore, alteration of the undeveloped portions of the parcel would be a l***ess than significant*** impact.

IMPACT CR-2: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF AN ARCHAEOLOGICAL RESOURCE PURSUANT TO §15064.5.

No archaeological resources were identified in the Archaeological Resources Assessment prepared for the project site. As a result, no resources were analyzed for significance in accordance with PRC Section 5024.1(c)(1–4).

State and Federal law require a Lead Agency to address unanticipated cultural resource discoveries during project construction. If a discovery is made, earthmoving activities must halt until a qualified archaeologist may evaluate the resource encountered. With implementation of Mitigation Measure CR-1, environmental impacts to potentially undiscovered, sensitive historical resources are considered ***less than significant.***

IMPACT CR-3: DISTURB ANY HUMAN REMAINS, INCLUDING THOSE INTERRED OUTSIDE OF DEDICATED CEMETERIES.

Archival research did not reveal the presence of burials or graves in the Project site, nor did pedestrian survey within the Project site reveal features of concern. As a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

California PRC Section 5097.98, as amended by Assembly Bill 2641, protects cultural resources on public lands and provides procedures in the event human remains of Native American origin are discovered during project implementation and are required to address the Project's potential impacts to human remains. With the implementation of Mitigation Measure CR-2, environmental impacts to potential human remains are considered ***less than significant.***

MITIGATION MEASURES

MITIGATION MEASURE CR-1: INADVERTENT CULTURAL RESOURCE DISCOVERY.

In the event of an inadvertent discovery of cultural resources (historical, archaeological or tribal resources, excluding human remains) during construction, all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

a. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist and/or tribal monitor conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.

b. If a potentially-eligible resource is encountered, then the archaeologist and/or tribal monitor, Planning and Environmental Review Division staff, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the County Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

MITIGATION MEASURE CR-2: INADVERTENT DISCOVERY OF HUMAN REMAINS.

Pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code, and Section 7050.5 of the State Health and Safety Code, if a human bone or bone of unknown origin is found during construction, all work is to stop and the County Coroner and Planning and Environmental Review Division (PER) shall be immediately notified. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission within 24 hours, and the Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the deceased Native American. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposition of, with appropriate dignity, the human remains and any associated grave goods. Additional mitigations are to be followed should the remains be identified as Native American (See Chapter 11: Tribal Cultural Resources, MM TCR-1).

CUMULATIVE IMPACTS

HISTORIC RESOURCES

Although the Shelterwood home dates to the late 19th century, and the family was involved in the early development of the Carmichael Colony area, the building was not found to maintain both historical significance and integrity to be a qualified Historical Resource under CEQA. The proposed project will not impact historical resources; therefore, cumulative impacts to historic resources is ***less than significant***.

ARCHAEOLOGICAL RESOURCES

Although research indicates that the likelihood of archaeological impacts are low, there is a there remains a potential to encounter unanticipated resources during ground disturbing

activities. Implementation of mitigation measures MM CR-1 through MM CR-2 will ensuring the proper identification, treatment, and preservation of any unanticipated resources, reducing impacts to less than significant levels. Because potential impacts to archaeological resources are primarily through ground disturbing activities, it is not anticipated that additional impacts will occur once the project is complete. Therefore, cumulative impacts to archaeological resources would be ***less than significant***.

Human Remains

Within the project area, construction and ground disturbing activities are unlikely to uncover human remains; furthermore, mitigation measure CR-2 will ensure compliance with state and federal law in the event that human remains are inadvertently discovered. Because potential impacts to human remains may occur through ground disturbing activities, it is not anticipated that additional impacts will occur once these activities have ceased and project is complete. Therefore, cumulative impacts to archaeological resources would be ***less than significant***.

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13 TRIBAL CULTURAL RESOURCES

INTRODUCTION

This chapter describes the environmental and regulatory setting for tribal cultural resources (TCRs) in the project area, identifies and analyzes impacts to TCRs from implementation of the O'Donnell Estates project (proposed project), and, if necessary, recommends mitigation measures to reduce or eliminate significant impacts. TCRs are separate and distinct from cultural resources, which are discussed in Chapter 12, Cultural Resources.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 12, 2022. On October 31, 2022, United Auburn Indian Community (UAIC) provided comments indicating the significance of the mature oak trees located within the Project site, and requested further analysis in consideration of their testimony of mature native oak species as potential TCRs. Responses received on the NOP are included as Appendix PD-1 and other public comment received prior to the NOP release date are included as Appendix PD-2.

TCRs include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either listed on or determined to be eligible for inclusion on the California Register of Historic Resources (CRHR) or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. TCRs provide the backdrop to:

- religious understanding;
- traditional stories;
- knowledge of resources, such as varying landscapes, bodies of water, animals and plants; and,
- self-identity.

TCRs may contain physical cultural remains or may be places within a landscape. A cultural landscape that meets these criteria is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be TCRs if they meet these criteria.

ENVIRONMENTAL SETTING

Refer to the California Indigenous History section of Chapter 12, *Cultural Resources,* of this EIR for a an overview on Pre-Contact Native American history and subsequent land use history of the Project site. The following information contains the oral and

ethnographic accounts of Indigenous culture as well as the means and methods by which TCRs are recognized and accounted.

Ethnographic Context

When the first European explorers entered the regions between 1772 and 1821, an estimated 100,000 people, about one third of the state's native population, lived in the Central Valley (Moratto 1984). Anthropologists have most commonly grouped the native peoples of California by the known roots of their spoken language on the theory that language is relatively straight forward, and because peoples speaking the same language tend to have other cultural traits in common (Anderson 2005). However, the bonds between people that share a language are often less important than those created by other sorts of relationships. This was especially true in most of Native California, where the nature of trade, warfare, cooperation, and almost every other kind of interaction depended on whether the individuals involved belonged to the same sociopolitical group, not whether they spoke a common language (Anderson 2005). At least seven distinct languages of Penutian stock were spoken among these populations: Wintu, Nomlaki, Konkow, River Patwin, Nisenan, Miwok, and Yokuts (Kroeber 1925). Common linguistic roots and similar cultural and technological characteristics indicate that these groups shared a long history of interaction (Rosenthal et al. 2007). The Central area (as defined by Kroeber 1925) encompasses the Project Area and includes the Nisenan or Southern Maidu (ECORP 2021).

Ethnographically, the Project site falls within the southwestern portion of the territory occupied by the Penutian-speaking Nisenan. Nisenan inhabited the drainages of the Yuba, Bear, and American rivers, and also the lower reaches of the Feather River, extending from the east banks of the Sacramento River on the west to the mid to high elevations of the western flank of the Sierra Nevada to the east (Wilson and Towne 1978). The territory extended from the area surrounding the current City of Oroville on the north to a few miles south of the American River in the south. The Sacramento River bounded the territory on the west and, in the east, it extended to a general area located within a few miles of Lake Tahoe (ECORP 2021).

Prior to contact, many language groups, particularly in north central California, were subdivided into politically and economically independent groups consisting of several unrelated families that collectively owned and defended a specific tract of land. Alfred Kroeber called these groups "village communities" or "tribelets". Nisenan (meaning "from among us" or "of our side") are members of the Maiduan Family of the Penutian stock and are generally divided into three groups based on dialect differences: the Northern Hill (mountain) Nisenan in the Yuba River drainage; the Valley Nisenan along the Sacramento River; and the Southern Hill (foothills) Nisenan along the American River (Beals 1933; Kroeber 1925; Wilson and Towne 1978). Individual and extended families owned hunting and gathering grounds, and trespassing was discouraged (Kroeber 1925; Wilson and Towne 1978). Residence was generally patrilocal, but couples maintained choice in the matter (Wilson and Towne 1978).

Tribelet chiefs tend to be hereditary, with the chieftainship being the property of a single patrilineage within the tribelet. Tribelet populations of Valley Nisenan were as large as 500 persons (Wilson and Towne 1982), while foothill and mountain tribelets ranged between 100 persons and 300 persons (Levy 1978; Littlejohn 1928). Each tribelet owned a bounded tract of land and exercised control over its natural resources (Littlejohn 1928). Beals (19331) estimated that Nisenan tribelet territories averaged approximately 10 miles along each boundary, or 100 square miles, with foothill territories tending to encompass more area than mountain territories. Littlejohn (1928) noted that in many instances, these boundaries were indicated by piles of stones. Regardless, Nisenan groups tended to stay within their village areas except during the summer season when groups of people would sojourn into the mountains to hunt and gather (Littlejohn 1928).

The basic social and economic group for the Nisenan was and is the family or household unit. The nuclear and extended family usually lived in proximity to each other as a group. These family units were combined into distinct village or hamlet groups, each largely composed of consanguine relatives (Beals 1933; Littlejohn 1928). Lineage groups were important political and economic units that combined to form tribelets, which were the largest socio-political unit identified for Nisenan (Wilson and Towne 1978). Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief (ECORP 2021).

Indigenous Lifeways

Nisenan practiced seasonal migration, a subsistence strategy involving moving from one area or elevation to another to harvest plants, fish, and hunt game across contrasting ecosystems that were in relatively close proximity. Valley Nisenan generally did not range beyond the valley and lower foothills, while foothill and mountain groups ranged across a more extensive area that included jointly shared territory whose entry was subject to traditional understandings of priority of ownership and current relations between the groups (d'Azevedo 1963).

During most of the year, Nisenan usually lived in permanent villages located below about 2,500 feet elevation that generally had a southern exposure, were surrounded by an open area, and were located above, but close to watercourses (Littlejohn 1928). The rather large uninhabited region between the 3,000-foot contour and the summit of the Sierra Nevada was considered open ground which was only used by communities living along its edge (Littlejohn 1928:20). Beals (1933) noted that permanent villages in the foothills and mountains were usually located on high ground between rivers. Valley villages were also usually located on raised areas to avoid flooding. Littlejohn (1928) stated that at one time or another there were settlements located on every small stream within Nisenan territory, but permanent villages were not located in steep, dark, narrow canyons of large rivers, or at altitudes where deep snows persisted throughout the winter. In fact, permanent occupation sites above 3,500 feet elevation were only located in protected valleys (Littlejohn 1928).

Nisenan built residential dwellings, ceremonial structures, semi-subterranean sweat lodges, and menstruation huts (Wilson and Towne 1978). The typical hill-and-mountain

dwelling was the conical bark house made by overlapping three or four layers of bark with no interior support. A thatched house was used at lower elevations, consisting of a conical framework of poles that was covered by brush, grass, or tules. Semi-subterranean earth lodge roundhouses were also built by hill and mountain groups and used for ceremonial gatherings, assemblies, local feasts, and for housing visitors (Beals 1933; Levy 1978).

Flaked-stone and groundstone tools were common among the Nisenan and included knives, arrow and spear points, club heads, arrow straighteners, scrapers, rough cobble and shaped pestles, bedrock mortars, grinding stones (metates), pipes, charms, and short spears (Barrett 1917; Beals 1933; Voegelin 1942; Wilson and Towne 1978). Beals (1933:341) also noted that certain colored stone points were considered *lucky*, and could be traded for four or five other projectile points. In addition, obsidian was highly valued and imported. Nisenan informants stated that obsidian only came from a place to the north, outside of Nisenan territory (Littlejohn 1928:32). Littlejohn (1928) also noted that soapstone was used for bowl mortars, although informants of Wilson and Towne (1978) claimed that neither they nor their ancestors made mortars (ECORP 2021).

Wood was used for a variety of tools and weapons, including both simple and sinew-backed bows, arrow shafts and points, looped stirring sticks, flat-bladed mush paddles, pipes, and hide preparation tools (Wilson and Towne 1978). Cordage was made from plant material and used to construct fishing nets and braided and twined tumplines. Soaproot brushes were commonly used during grinding activities to collect meal or flour. Specialized food processing and cooking techniques included the grinding and leaching of ground acorn and buckeye meal; burning of umbelliferae, a plant with cabbage-like leaves, to obtain salt; and roasting various foods in earth ovens (d'Azevedo 1986; Wilson and Towne 1978). Both hill and valley groups used the bedrock mortar and pestle (both rough cobble and shaped) to grind acorns, pine nuts, seeds, other plant foods, and meat. A soaproot brush was used to sweep ground meal into mortar cups and collect flour. Fist-sized, heated stones were used to cook or warm liquid-based foods, such as acorn gruel and pine nut meal. Whole acorns were stored in granaries, and pine nuts were stored in large pine bough-covered caches (Wilson and Towne 1978).

Nisenan used baskets for a variety of tasks, including storage, cooking, traps, cradles, hats, cages, serving and processing foods, seed beaters, and winnowing trays. Basket manufacturing techniques included both twining and coiling, and baskets were decorated with a variety of materials and designs. Other woven artifacts include material made of tule, milkweed, sage fibers, or wild hemp (Wilson and Towne 1978).

Ecology and People

The first European explorers and American trappers entering the Sacramento Valley described the landscape as one providing nourishment through mild gathering and easy hunting with "game aplenty" (Cronise 1868), and the availability of resources influenced the location of Nisenan permanent villages, since they acquired a proportion of their food resources from the surrounding general area (Littlejohn 1928; Wilson and Towne 1978). Juan Jose Warner, who traveled through the San Joaquin Valley during the winter of 1832-33 noted, "The banks of the Sacramento and San Joaquin, and the numerous

tributaries of these rivers, and the Tule Lake [probably Tulare Lake], were at this time studded with Indian villages…the population of this extensive valley was so great that it caused surprise, and required a close investigation into the nature of a country that without cultivation, could afford the means of subsistence to so great a community."

In actuality, the productive and diverse landscape were part the outcome of sophisticated and complex harvesting and management practices (Anderson 2005). The Nisenan protected and tended favored plant species and habitats, harvested plant and animal products at carefully calculated frequencies and intensities, and practiced an array of horticultural techniques. Through coppicing, pruning, harrowing, sowing, weeding, burning, digging, thinning, and selective harvesting, they influenced desired characteristics increased populations of useful plants, and altered the structures and compositions of plant communities (Anderson 2005).

Nisenan groups managed many wild plants, primarily by controlled burning which removed underbrush and encouraged growth of edible grasses, seed-producing plants, and other useful plant resources (e.g., basketry materials) (Blackburn and Anderson 1993). The use of fire for environmental modification and as an aid in hunting is frequently mentioned in the ethnographic literature relating to the Nisenan. Littlejohn (1928) noted that the lower foothills in the valley oak zone were thickly covered with herbaceous vegetation that was annually burned by the Nisenan to remove and limit its growth while facilitating the growth of oaks for harvesting acorns. The annual fires destroyed seedlings but did not harm established oak trees. Beals (1933) also noted that the Nisenan regularly burned the land, primarily for the purpose of driving game, and consequently created much more open stands of timber than currently exist in the area. Beals (1933:363) informants stated that before their traditional burning regimes were halted by European-Americans, "it was often a mile or more between trees on the ridges." In addition to removing underbrush, improving travel conditions, and facilitating plant growth, burning may also have improved areas of deer forage, potentially altering migratory patterns of deer populations by lessening their need to seek fresh forage on a seasonal basis (Matson 1972).

Communally organized Nisenan task groups exploited a wide variety of resources. Communal hunting drives were undertaken to obtain deer, quail, rabbits, and grasshoppers. Bears were hunted in the winter when their hides were at their best condition. Runs of salmon in the spring and fall provided a regular supply of fish, while other fish such as suckers, pike, whitefish, and trout were obtained with snares, fish traps, or with various fish poisons such as soaproot (Beals 1933; Faye 1923; Wilson and Towne 1978). Birds were caught with nooses or large nets and were also occasionally shot with bow and arrow. Game was prepared by roasting, baking, or drying. In addition, salt was obtained from a spring near modern-day Rocklin (Wilson and Towne 1978).

Acorns were gathered in the fall and stored in granaries for use during the rest of the year. Although acorns were the staple of the Nisenan diet, they also harvested roots like wild onion and Indian potato, which were eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use (Wilson and Towne 1978). Buckeye, pine nuts, hazelnuts, and other edible nuts further supplemented the diet. Key resources such as

acorns, salmon, and deer were ritually managed through ceremonies to facilitate successful exploitation and equitable distribution (Beals 1933; Swezey 1975; Swezey and Heizer 1977).

Trade was important, with goods traveling between the coast and valleys into the Sierra Nevada, and beyond to the east. Coastal items like shell beads, salmon, salt, and Foothill pine nuts were traded for resources from the mountains and farther inland, such as bows and arrows, deer skins, and sugar pine nuts. In addition, obsidian was imported from the north (Wilson and Towne 1978).

The Nisenan had two types of doctors or shamans, curing and religious, both of whom performed their rituals publicly in the village dance house (Wilson and Towne 1978). The curing shamans were not relegated by sex or gender, and possessed certain charms and medicines. They diagnosed feeling and sucked out the area of pain to remove the offending object (such as dead fly, a small bone, a blood clot), which was displayed, and then buried immediately. Curing shamans were only paid if they cured the afflicted patient (Wilson and Towne 1978). The religious shaman, or *oshpe*, represented the supernatural and was a dominant figure in dance house rituals. He gained control over spirits by dreams or esoteric encounters, and it was believed he could conjure up spirits and voices of the deceased (Wilson and Towne 1978).

Nature was considered fully alive and sensate: every rock, hill, valley, wind, plant, and animal was inhabited by spirit forces. Many cultural rules existed to keep humans from offending these spirits, who might otherwise react emotionally and cause lightning, thunder, whirlwinds, or earthquakes. Taboos were rigidly observed concerning diet and the physical body (Anderson 2005). While gathering or hunting, a belief centric to Indigenous Californians was to 1. Leave some of what is gathered for the other animals and 2. Do not waste what you have harvested. Some acorns were always left on oak trees, some berries on bushes, and some tubers in the ground for “the birds and squirrels and other animals”, attested Marie Potts, a Maidu elder (Anderson 2005).

The rituals that surrounded the act of harvesting, hunting, or fishing were as important as the act itself. How one approached a plant or animal—with what frame of mind and heart—was very significant. A personal connection was often made by saying a silent prayer, leaving an offering, and thanking the plant or animal for the gift of its life (Anderson 2005). Straying from this common practice was understood to result in the diminishment of plant and animal numbers. A prominent Pomo basket weaver explained this personal connection place and to the plants:

> “When you come to dig these basket roots, you don’t rush there and run all over, you don’t do that. My mother always approached this grass very slowly. She’d come and stand and say a prayer. She also had a cane, and she’d touch this grass with it very slowly. She didn’t go in there and just start digging. She’d come to a certain bed and try it; then she’d go on to another one and try there. Before she ever sat down, she’d do this three or four times. Then she’d sit down. She always asked the Sprit to give her plenty of roots. Then she’d says, “Thank you, Father,” before she dug. And after she’d finished and had got what she wanted, she said a

prayer, which is like saying, “That’s good, you gave me enough. Amen, Father.” (Anderson 2005).

Table TCR-1: Traditional Natural Resources Utilized in Central Valley, California

Common Name	Type	Scientific Name	Used For
Bear Grass or White Grass	Herbaceous Plants	Xerophyllum tenax	Baskets
Brodiaeas	Herbaceous Plants	Brodiaea; Dichelostemma; Triteleia	Food
Canary Grasses	Herbaceous Plants	Phalaris sp.	Food
Cattails	Herbaceous Plants	Typha sp.	Unspecified
Clarkias or Farewell-to-Spring	Herbaceous Plants	Clarkia sp.	Food
Clovers	Herbaceous Plants	Trifolium sp.	Food, Regalia
Dandelions	Herbaceous Plants	Taraxacum sp.	Medicine
Dogbane or Indian Hemp	Herbaceous Plants	Apocynum cannabinum	Cordage
Goosefoots	Herbaceous Plants	Chenopodium sp.	Food
Ithuriel’s Spear or Grass-Nut	Herbaceous Plants	Triteleia laxa	Food
Mariposa Lillies	Herbaceous Plants	Calochortus sp.	Food
Milkweeds	Herbaceous Plants	Asclepias sp.	Cordage, Medicine, Food
Miner’s Lettuce	Herbaceous Plants	Claytonia perfoliata	Food
Monkeyflower	Herbaceous Plants	Mimulis guttatus	Food, Medicine
Native Barley	Herbaceous Plants	Hordeum intercedens	Food
Nightshades	Herbaceous Plants	Solanum sp.	Food, Medicine
Red Maids	Herbaceous Plants	Calandrinia cillata	Food
Sedges	Herbaceous Plants	Carex sp.	Food
Soap Plant	Herbaceous Plants	Chlorogalum pomeridianum	Medicine, Food, Poison, Soap
Tarweeds	Herbaceous Plants	Madia, Hemizonia, and Blepharizonia sp.	Food, Building Material
Toloache or Jimson Weed	Herbaceous Plants	Datura wrightii	Medicine, intoxicant
Tules or Bulrushes	Herbaceous Plants	Schoenoplectus sp.	Building Material, Basketry, Clothing, Regalia, Boats, Food
Turkey Mullein	Herbaceous Plants	Ermocarpus setigerus	Poison
Wild Oats	Herbaceous Plants	Avena sp.	Food

Wild Onions	Herbaceous Plants	Allium sp.	Food
Wild Strawberries	Herbaceous Plants	Fragaria sp.	Food
Wild Sunflowers	Herbaceous Plants	Helianthus sp.	Food
Wild Tobaccos	Herbaceous Plants	Nicotiana sp.	Intoxicant, Medicine
California Maiden-Hair Fern	Mosses and Ferns	Adlantum jordanii	Basketry
Big-leaf Maple	Trees and Shrubs	Acer macrophyllus	Building Material, Clothing, Food Preservation
Black Oak	Trees and Shrubs	Quercus kelloggii	Food, Building Material, Fuel, Tools, Weapons
Blue Oak	Trees and Shrubs	Quercus douglasii	Food, Building Material, Fuel, Tools, Weapons
California Bay or Laurel	Trees and Shrubs	Umbellularia californica	Medicine, Weapons
California Blackberry	Trees and Shrubs	Rubus ursinus	Food
California Buckeye	Trees and Shrubs	Aesculus californica	Food, Tools
California Hazel	Trees and Shrubs	Corylus cornuta	Food, Basketry, Weapons
California Wild Grape	Trees and Shrubs	Vitis californica	Food, cordage, cooking
Canyon Live Oak	Trees and Shrubs	Quercus chrysolepis	Food, Building Material, Fuel, Tools, Weapons
Currants and Gooseberries	Trees and Shrubs	Ribes sp.	Food
Elderberries	Trees and Shrubs	Sambucus sp.	Food, Musical Instruments, Tobacco Pipes
Foothill Pine or Gray Pine	Trees and Shrubs	Pinus sabiniana	Food, Fuel, Building Material, Basketry, Medicine
Incense-Cedar	Trees and Shrubs	Calocedrus decurrens	Building Material, Boats, Pigment, Flavoring
Interior Live Oak	Trees and Shrubs	Quercus wislizenii	Food, Building Material, Fuel, Tools, Weapons
Manzanitas	Trees and Shrubs	Arctostaphylos sp.	Medicinal Food, Fuel, Tools
Mountain Dogwood	Trees and Shrubs	Cornus nuttallii	Medicine

Oregon Oak	Trees and Shrubs	Quercus garryana	Food, Building Material, Fuel, Tools, Weapons
Ponderosa Pine	Trees and Shrubs	Pinus ponderosa	Food, Building Material, Fuel, Basketry
Skunkbush	Trees and Shrubs	Rhus trilobata	Medicine
Sugar Pine	Trees and Shrubs	Pinus lambertiana	Food, Building Material
Toyon	Trees and Shrubs	Heteromeles arbutifolia	Food
Valley Oak or White Oak	Trees and Shrubs	Quercus lobate	Food, Building Material, Fuel, Tools, Weapons
Western Redbud	Trees and Shrubs	Cercis occidentalis	Basketry
White Fir	Trees and Shrubs	Abies concolor	Poison
Willows	Trees and Shrubs	Salix sp.	Basketry, Cordage, Building Material, Fuel, Clothing, Weapons
Wormwoods or Mugworts	Trees and Shrubs	Artemisia sp.	Medicine
Yerba Santa or Mountain Balm	Trees and Shrubs	Eriodictyon californicum	Medicine
Turtles	Amphibians and Reptiles	Testudines	Food
Western Rattlesnake	Amphibians and Reptiles	Crotalus viridis	Poison
Chinook or King Salmon	Anadromous Fishes	Oncorynchus tshawytscha	Food
Pacific Lamprey	Anadromous Fishes	Lampetra tridentate	Food
Rainbow Trout	Anadromous Fishes	Oncorynchus mykiss	Food
Sturgeons	Anadromous Fishes	Acipenser sp.	Food
Crayfish	Crustaceans/Water Invertebrates	Astacidae sp.	Food
Hardhead	Freshwater Fishes	Mylophardon conocephalus	Food
Sacramento Perch	Freshwater Fishes	Archoplites interruptus	Food
Sacramento Splittail	Freshwater Fishes	Pogonichthys macrolepidotus	Food
Sacramento Sucker	Freshwater Fishes	Catostomus occidentalis	Food

Steelhead	Freshwater Fishes	Onocorynchus irideus	Food
Thicktail Chub	Freshwater Fishes	Gila crassicauda	Food
Angleworms or Earthworms	Insects/Terrestrial Invertebrates	Lumbricus sp.	Food
Ants	Insects/Terrestrial Invertebrates	Formicae sp.	Food
California Gall Wasp	Insects/Terrestrial Invertebrates	Andricus quercuscalifornicus	Medicine
Caterpillars	Insects/Terrestrial Invertebrates	Lepidoptera	Food
Ceanothus Silk Moth and Polyphemus Moth	Insects/Terrestrial Invertebrates	Hyalophora euryalus and Antheraea Polyphemus	Musical Instruments
Grasshoppers	Insects/Terrestrial Invertebrates	Caelifera sp.	Food
Honeybee	Insects/Terrestrial Invertebrates	Apis mellifera	Food
Horsefly	Insects/Terrestrial Invertebrates	Tabanidae sp.	Food
Salmon Fly	Insects/Terrestrial Invertebrates	Plecoptera sp.	Food
Yellowjacket Larvae	Insects/Terrestrial Invertebrates	Vespula dolichovespula	Food
American Coot	Marine Birds	Fulica Americana	Food, Blankets
Ducks	Marine Birds	Anatidae sp.	Food, Basketry
Geese	Marine Birds	Anatidae sp.	Food
Grebes	Marine Birds	Podicipedidae sp.	Food
Loons	Marine Birds	Gaviidae sp.	Food
Rails	Marine Birds	Rallidae sp.	Food, Blankets
Freshwater Clams	Shellfish	Sphaeriidae	Food, Regalia
Freshwater Pearl Mussel and Western Ridged Mussel	Shellfish	Margaritifera margaraitifera and Gonidea angulate	Food, Tools, Time
Band-Tailed Pigeon and Mourning Dove	Terrestrial Birds	Patagionenas fasciata and Zanaida macroura	Food, Weapons
California Quail	Terrestrial Birds	Callipepla californica	Food, Basketry, Regalia
Crows and Ravens	Terrestrial Birds	Corvidae sp.	Regalia
Dusky Grouse	Terrestrial Birds	Dendragapus obscurus	Weapons, Musical Instruments, Clothing

Falcons	Terrestrial Birds	Falconidae sp.	Regalia
Golden Eagle	Terrestrial Birds	Aquila chrysaetos	Regalia, Musical Instruments
Greater Roadrunner	Terrestrial Birds	Geococcyx californianus	Food, Regalia, Weapons
Hawks	Terrestrial Birds	Accipitridae sp.	Regalia, Weapons, Fans
Jays	Terrestrial Birds	Corvidae sp.	Food, Regalia
Owls	Terrestrial Birds	Tytonidae and Strigidae sp.	Regalia
Woodpeckers	Terrestrial Birds	Picidae sp.	Food, Regalia
Yellow-Billed Magpie	Terrestrial Birds	Pica nuttallii	Regalia
Bears	Terrestrial Mammals	Ursus sp.	Food, Clothing, Blankets, Regalia
Black-tailed Deer or Mule Deer	Terrestrial Mammals	Odocoileus hemionus columbianus	Food, Weapons, Tools, Musical Instruments, Leather, Clothing, Blankets, Sinew
Chipmunks	Terrestrial Mammals	Tamias amoenus and minimus	Food
Foxes	Terrestrial Mammals	Vulpes and Urocyon sp.	Food, Leather
Gophers	Terrestrial Mammals	Geomyidae sp.	Food
Hares and Rabbits	Terrestrial Mammals	Leporidae sp.	Food, Regalia, Blankets, Clothing
Pronghorn	Terrestrial Mammals	Antilocapra Americana	Food, Clothing, Blankets, Leather, Containers (Horn)
Squirrels	Terrestrial Mammals	Sciuridae sp.	Food
Tule Elk	Terrestrial Mammals	Cervus elaphus nannodes	Food, Armor
Woodrats	Terrestrial Mammals	Neotoma sp.	Food
Basalt	Rocks and Minerals	Basalt	Tools, Weapons
Chert	Rocks and Minerals	Chert	Tools
Clay	Rocks and Minerals	Clay	Food Additive, Pigment, Pottery
Hematite	Rocks and Minerals	Hematite	Pigment
Magnesite	Rocks and Minerals	Magnesite	Currency
Obsidian	Rocks and Minerals	Obsidian	Tools, Weapons
Salt	Rocks and Minerals	Sodium chloride	Unspecified

Soapstone	Rocks and Minerals	Steatite	Tools, Utensils, Weapons

Source: NAHC Digital Atlas

ORAL TRADITIONS

Oral histories, explanatory stories, and cautionary tales were, and continue to be integral aspects of native Californian culture. Stephen Powers, an anthropologist, once wrote:

> "The boundaries of all tribes…are marked with the greatest precision, being defined by certain creeks, canyons, boulders, conspicuous trees, springs, etc., each of which has its own individual name. Accordingly, [they] teach these things to their children in a kind of sing song…Over and over, time and again, they rehearse all these boulders, etc., describing each minutely and by name, with its surroundings. Then, when the children are old enough, they take them around…and so faithful has been their instruction, that [the children] generally recognize the objects from the descriptions given them previously by their mothers." (Anderson 2005).

Nisenan groups had a holistic epistemology; a theorem of holistic knowledge in which any subject is a composite of all other subjects, and every aspect of knowledge is interconnected. The Nisenan world contained many ineffable supernatural beings and spirits, and all natural objects were endowed with potential supernatural powers (Beals 1933).

STORY-TELLING AND DANCE

Stories about world creation and human origins vary amongst different ethnographic accounts as well as amongst different groups. Some expressed the idea that the world has always existed, but in different forms; some told that everything was made by someone, and that all birds and animals were once human; others told of a flood that killed the first people because they were bad (Kroeber 1929). In creation stories there was a culture hero, usually who created earth, and Coyote the trickster, who introduced death and conflict to a once utopian existence (Beals 1933; Kroeber 1929).

Kuksu, god-impersonation in the form of dance, was a Central Californian tradition and the Nisenan practiced it in various forms. Membership was reserved for initiated few, who danced disguised as the spirits of deities (Heizer 1962). Other religious ceremonies included a mourning ceremony, an annual ritual for the dead performed in the fall in which dancers covered their faces with ash and wailed and cried around a central brush pyre (Gifford 1927). This ceremony was observed and documented among mountain groups but little is known about whether valley and foothills groups performed similar rites (Wilson and Towne 1978). Other ceremonial dances included a *Kamin* dance celebrated in late March to mark the beginning of spring; the *Weda* or Flower dance of late April; a *Dappe* or Coyote Dance; and a *Nemulsa* or *Big Festival* to which people came from a distance to celebrate (Gifford 1927:233-238).

Regional and Project Site Accounts

Nisenan groups in the valley tended to define themselves by stream systems and native communication often followed these waterways. The Nisenan recognized several political divisions within their territory (Wilson and Towne 1978). The Hill Nisenan, located between the Consumnes River and the South Fork of the American River near Placerville, formed a tribelet with strong affiliations with Valley Nisenan, who lived in the lower drainages of the American River and on ridges that lay along the South Fork of the American River.

The project area comprises an area marginal to both the cultures of the Valley and Hill groups. As an area situated generally perpendicular to Carmichael Creek, the project area falls several miles between the purported locations of the former Pichiku village to the north, and Yamankudu village to the south (Wilson and Towne 1978). The nearest seasonal occupation sites of the Nisenan occur south of the American River and outside the project area.

Natural vegetation that would have been considered a tribal cultural resource occur both within and in vicinity of the Project site. Blue Oak (Quercus douglassi), interior live oak (Q. wislizenii), and assorted grasses and forbs are found in less disturbed portions of the Project site. While the general area supports a variety of wildlife, woodlands, and shrubs, additional species have likely been removed during the intensive development in vicinity of the Project site.

The Indigenous lifeways known along the north bank of the American River were drastically impacted by the gold rush. Much of what was known of Nisenan culture and their history was destroyed.

Project Site Native Heritage Trees

The proposed project requests the removal of 32 native oak trees from the project footprint. Native oak species are major contributors to local indigenous history and lifeways. They continue to play a significant role as a spiritual contributor to the landscape for Nisenan descendants today. On the significance of California Heritage Trees, the United Auburn Indian Community (UAIC) of the Auburn Rancheria provided the following narrative to address the tree resources:

> The United Auburn Indian Community are a Tribe of Miwok and Maidu (Nisenan) people with deep spiritual, cultural, and physical ties to their land. Their world view does not make clear distinctions between the “natural” and “cultural” resources of a place, as one does not exist without the other.
>
> Heritage trees are typically over 100 years old and hold historical significance in addition to providing many benefits to communities and landscapes. These trees have born witness to history and human interactions and are thought to hold a collective memory that is remembered and passed down from generation to

generation. These resources also provide continuity between the past, present, and future.

Heritage trees are no longer common due to persistent and ongoing development in the Tribe's traditional territory. These trees represent an important part of a landscape and cultural heritage that were once a part of the Tribe's social, economic, and religious wellbeing.

For example, the Tribal values of large oak trees go beyond tangible attributes, such as acorn production. They also provide aesthetics to the landscape, are symbolic, and hold religious and historic values by retaining a sense of the cultural heritage that contributes to the character of the landscape.

Furthermore, it should be noted that heritage trees necessitate increased conservation priority because they often provide exponentially more cultural and biological value than the same proportion of non-heritage trees. For example, traditional land stewardship often used cultural fire to preserve and increase the prevalence of heritage oak trees because they provided more acorns and cultural materials, associated biodiversity, resilience to disturbance, and other benefits than younger trees. Certain trees were tended by multiple generations of Indigenous peoples and held deep familial ties for this reason.

Heritage trees are living archives of the environmental conditions they experienced. Documented within the trunks of these trees is the history and important stewardship legacy of Indigenous peoples. Indeed, heritage trees act simultaneously as archives, habitat, legacy bearers, gathering places for people and food, genetic repositories, ancestral touchstones, and more.

Heritage trees not only provide important ecological functions, but they also play an important role in UAIC's social and cultural identity. Unfortunately, these Tribal values are often not taken into consideration in planning and administration of conservation policies and management guidelines.

Bringing awareness of heritage trees as an integral part of Tribal identity and cultural heritage is essential when addressing the issue of their decline within the Tribe's area of traditional and cultural affiliation. Tribal values of heritage trees must be considered in all conservation plans, developments, landscape policies, or other related management tools. When Tribal values are included, conservation outcomes are enhanced through the increased protection of ecological, social, and cultural values.

REGULATORY SETTING

FEDERAL

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT, 1966

Federal regulations for cultural resources are governed primarily by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. The ACHP's implementing regulations are the "Protection of Historic Properties" 36 Code of Federal Regulations (CFR) Part 800. The Federal agency first must determine whether it has an undertaking that is a type of activity that could affect historic properties. Historic properties are those that meet the criteria for or are listed in the NRHP.

TRADITIONAL CULTURAL PROPERTIES

Traditional Cultural Properties (TCPs) are resources eligible for the NRHP based on cultural significance derived from the "beliefs, customs, and practices of a living community of people that have been passed down through the generations" ([NPS] 1998:1). TCPs embrace a wide range of historic properties, such as the location associated with a Native American group's origin or the origin of the world (cosmogony), or an urban neighborhood that is the traditional home of a particular cultural group and that still reflects and is associated with their beliefs and practices. Other examples include places where traditional people historically have gone and continue to visit for ceremonial practices. These examples are not intended to be exhaustive, but instead to illustrate the range of possible TCPs. The NPS National Register Bulletin 38 defines a historical property as a place that is eligible for NRHP inclusion "because of its association with cultural practices or beliefs of a living community that (a) are rooted in the community's history and (b) are important in maintaining the continuing cultural identity of the community" (NPS 1998:1). The identification and evaluation of TCPs can be conducted only by consultation with members of the relevant group of people that ascribe value to the resource, or through other forms of ethnographic research.

EVALUATION OF TCPS

Federal agencies must evaluate TCPs for eligibility for listing in the NRHP to determine if they are historic properties subject to management as required under Section 106 of the NHPA. Evaluation of TCPs requires two major steps: first the Federal agency evaluates the integrity of the resource as a TCP, then evaluates the resource for eligibility listing on the NRHP under the process for assessing significance and integrity of historic properties. As with any resource that is evaluated for listing in the NRHP, the TCP must be a tangible district, site, building, structure, or object (NPS 1998:11). This consideration requires merely that the TCP be a physical place or tangible object, in the broadest sense, rather than the intangible beliefs or values alone.

INTEGRITY OF TCPS

The TCP must have integrity, like any property eligible for listing in the NRHP. For traditional cultural resources, this means that they must have "integrity of relationship" and "integrity of condition" (NPS 1998:11–12). Integrity of relationship means simply that the specific place is integral and necessary to a traditional cultural group's beliefs or specific practices (NPS 1998:11). National Register Bulletin 38 gives the example of two different cultures, one that believes that baptism at a specific river is necessary to accept individuals as members, and another that simply requires baptism in any body of water. For the first example, the river is integrated into beliefs and practices of a traditional culture and thus has integrity of relationship.

Integrity of condition requires simply that the TCP has not been altered in such a way that it no longer can serve its function for the traditional cultural group. For example, a pilgrimage route to a sacred site would no longer have integrity of condition if modern construction had physically interrupted the route and thus made it unusable. This requirement does not mean that the TCP must be completely intact without any changes to the setting or features of the resource; rather, the test is whether the resource can still function for traditional cultural purposes or whether the presence of new elements disrupts the function. National Register Bulletin 38 offers an example of a resource that has integrity despite changes to the setting. If the TCP has integrity of relationship and integrity of condition, evaluation progresses to the second step of evaluating the resource for eligibility for listing in the NRHP, as described above.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires public agencies to consider the effects of their actions on historical resources, unique archaeological resources, and tribal cultural resources (TCRs). Under Public Resources Code Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Under Public Resources Code Section 21084.2, a "project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

TRIBAL CULTURAL RESOURCES

CEQA requires lead agencies to consider whether projects will affect TCRs. TCRs may or may not manifest as archaeological sites. In some cases, TCRs are viewsheds, plant gathering areas, or other sacred spaces that are not readily identifiable to non-tribal members. In many cases, TCRs also include an archaeological component, such as artifacts, features, and sites (with or without human remains). Public Resources Code Section 21074 states the following:

(a) "Tribal cultural resources" are either of the following:

(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.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "non-unique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

Assembly Bill AB 52

AB 52 (effective July 1, 2015) added Public Resources Code Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to CEQA, relating to consultation with California Native American tribes, consideration of "tribal cultural resources," and confidentiality. AB 52 provides procedural and substantive requirements for lead agency consultation with California Native American tribes and consideration of effects on tribal cultural resources, as well as examples of mitigation measures to avoid or minimize impacts to tribal cultural resources. AB 52 establishes that if a project may cause a substantial adverse change in the significance of a tribal cultural resource, that project may have a significant effect on the environment. Lead agencies must avoid damaging effects to tribal cultural resources, when feasible, and shall keep information submitted by tribes confidential.

AB 52 requires a lead agency to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation. Section 21080.3.1(d) states that within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project location and its location, the lead

agency contact information, and a notification that the California Native American tribe has 30 days to requests consultation pursuant to this section.

LOCAL

SACRAMENTO COUNTY GENERAL PLAN

The *Sacramento County General Plan of 2005–2030* (Sacramento County 2011, as updated in 2017) Conservation Element, states under Section VI, Cultural Resources, the following goal and six objectives:

Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socio-economic importance.

1. Comprehensive knowledge of archeological and historic site locations.

2. Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to Native American values.

3. Structures with architectural or historical importance preserved to maintain contributing design elements.

4. Known cultural resources protected from vandalism unauthorized excavation, or accidental destruction.

5. Properly stored and classified artifacts for ongoing study.

6. Public awareness and appreciation of both visible and intangible historic and cultural resources.

To implement the primary goal and the objectives, the Conservation Element contains the following policies relevant to the project and TCRs:

- **Policy CO-150:** Utilize local, state and national resources, such as the NCIC, to assist in determining the need for a cultural resources survey during project review.
- **Policy CO-152:** Consultations with Native American tribes shall be handled with confidentiality and respect regarding sensitive cultural resources on traditional tribal lands.
- **Policy CO-159:** Request a Native American Statement as part of the environmental review process on development projects with identified cultural resources.

Significance Criteria and Methodology

Significance Criteria

Based on Appendix G of the CEQA Guidelines, a project may have a significant impact on TCRs if it would:

> Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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:
>
> i) 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
>
> ii) 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Methodology

The analysis of tribal cultural resources provided in this section is based on a cultural resources records search through the California Historical Resources Information System North Central Information Center (NCIC) and a Sacred Lands File (SLF) search through the Native American Heritage Commission (NAHC). In addition, Crawford Historic Services reviewed available Sanborn Maps, historic aerials, and conducted an intensive pedestrian survey for the Project site. The County also submitted notification and request to consult letters to all interested Native American individuals and organizations on the County's AB-52 Notification List and conducted follow-up Native American consultation, as requested, pursuant to AB-52.

Impacts and Analysis

Impact TCR-1: Would The Project Cause A Substantial Adverse Change In The Significance Of A Tribal Cultural Resource

No indigenous sites or TCRs have been recorded within the Project site or half-mile radius. While there are numerous reports supporting the likelihood that Nisenan traversed the area and benefitted from TCRs that once flourished in present-day Carmichael, no preserved evidence of their use has been identified.

The County was notified by the NAHC that the Project Site and vicinity are considered sensitive for potential TCRs; however, the UAIC indicated in a response to a request for consultation that specific TCRs were not known on the project site. Thus, the UAIC declined to consult on the proposed project. The response provided by the UAIC to the NOP regarding the potential for tree resources to also be TCRs was included in the regulatory framework discussion above.

No other requests for consultation were received. UAIC did request that a measure be included for unanticipated discoveries of TCRs during project implementation. Based on the information gathered, the proposed project would not result in impacts to known TCRs. Mitigation Measure TCR-1 is included for proper treatment of TCRs if discovered during project implementation. With mitigation, impacts to TCRs are ***less than significant***.

Refer to Section Chapter 12 of this Draft EIR for mitigation that addresses impacts to the inadvertent discovery of pre-contact archaeological resources. Mitigation Measures CR-1 and CR-2 are provided therein and include procedures to follow should such unknown resources be encountered during construction activities.

MITIGATION MEASURES

MITIGATION MEASURE TCR-1 UNANTICIPATED DISCOVERIES:

If any suspected TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a TCR (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment as necessary. When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs under CEQA and UAIC protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by UAIC or by the California Native American Tribe that is traditionally and culturally affiliated with the project area. The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil. Work at the discovery location

cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB-52, have been satisfied.

Cumulative Impacts

As explained by the UAIC, the continued removal of native heritage oak species is considered a destruction of the overall cultural landscape that not only speaks to the history of pre-contact Sacramento Valley, but also impacts contemporary Nisenan residents on a spiritual level. Trees evaluated in the Project site as a century or older likely had names, and their loss is recognized as more than just the removal of a resource. As such, the County has provided recommendations under Chapter 3: Alternatives, and existing treatment requirements under CEQA and the Sacramento County General Plan can be found in the mitigations provided under Chapter 11: Biological Resources. The removal of native oak trees as a TCR is ***potentially significant.***

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14 CLIMATE CHANGE

INTRODUCTION TO CLIMATE CHANGE AND GLOBAL WARMING

The principal greenhouse gases (GHGs) that enter the atmosphere because of human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. From 1750 to 2004, concentrations of CO2, CH4, and N2O have increased globally by 35, 143, and 18 percent, respectively. Other greenhouse gases, such as fluorinated gases, are created and emitted solely through human activities. (EPA 2012) Carbon dioxide is the gas that is most commonly referenced when discussing climate change because it is the most commonly emitted gas. While some of the less common gases do make up less of the total greenhouse gases emitted to the atmosphere, some have a greater climate-forcing effect per molecule and/or are more toxic than carbon dioxide.

This chapter addresses the potential climate change impacts associated with the proposed project, which involves the creation of nine-lot, single-family residential subdivision in the Carmichael community of unincorporated Sacramento County.

CLIMATE CHANGE ENVIRONMENTAL SETTING

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Anthropogenic (e.g., human caused) emissions of GHGs lead to atmospheric levels in excess of natural ambient concentrations and have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change.

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. Some variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2021).

Global surface temperature has increased by approximately 1.96 degrees Fahrenheit (°F) over the last 140 years (IPCC 2021); the likely total human-caused global surface

temperature increase is 1.93°F. The rate of increase in global average surface temperature has not been consistent; the last four decades have warmed at a much faster rate per decade (IPCC 2021).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2021).

Principal Greenhouse Gases and Sources

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (human-caused) sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; volcanic activity; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes. The following are the principal GHG pollutants that contribute to climate change and their primary emission sources:

- Carbon Dioxide (CO_2): Natural sources of CO_2 include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.
- Methane (CH_4): CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N_2O): N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.
- Fluorinated gases: These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes called High Global Warming Potential (High GWP) gases. These High GWP gases include:
    - Chlorofluorocarbons (CFCs): These GHGs are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants.

- Perfluorinated Chemicals (PFCs): PFCs are emitted as by-products of industrial processes and are also used in manufacturing.

- Sulfur hexafluoride (SF_6): This is a strong GHG used primarily as an insulator in electrical transmission and distribution systems.

- Hydrochlorofluorocarbons (HCFCs): These have been introduced as temporary replacements for CFCs and are also GHGs.

- Hydrofluorocarbons (HFCs): These were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are GHGs emitted as by-products of industrial processes and are also used in manufacturing.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which result in changes to the climate and environment.

Global Warming Potential

GWP is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere (its "atmospheric lifetime"). The GWP of each gas is measured relative to CO_2. Therefore, CO_2 has a GWP of 1. GHGs with lower emissions rates than CO_2 may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). For example, SF_6, while comprising a relatively small fraction of the total GHGs emitted annually worldwide, has a GWP of 22,800, meaning that 1 ton of SF_6 has the same contribution to the greenhouse effect as approximately 22,800 tons of CO_2. The concept of CO_2 equivalence (CO_2e) is used to account for the different GWP potentials of GHGs. GHG emissions are typically measured in terms of pounds or tons of CO_2e and are often expressed in MT CO_2e.

Climate change is a global issue because GHGs can have global effects, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern (see Chapter 8 "Air Quality"). Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years), or long enough to be dispersed around the globe.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The IPCC's 2021 Synthesis Report indicated that warming of the climate system is unequivocal and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include

warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2021).

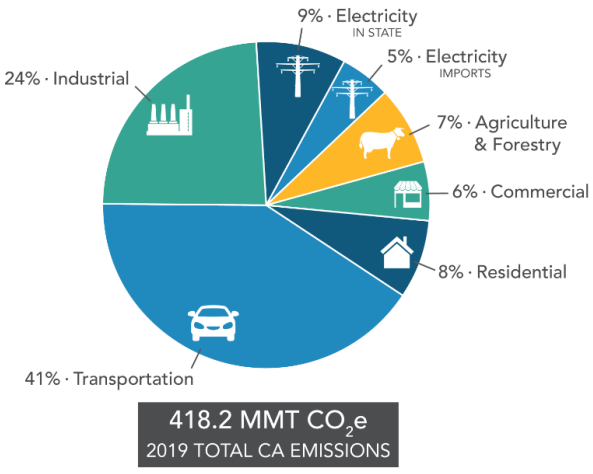
Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. As noted in the Sacramento Valley Regional Report of the California's Fourth Climate Change Assessment, climate change is expected to make the Sacramento region hotter, drier, and increasingly prone to extremes like megadroughts, flooding, and large wildfires. These changing conditions are likely to affect water and energy availability, agricultural systems, plants and wildlife, public health, housing, and quality of life.

In Sacramento County, potential hazards (or exposures) related to climate change have also been analyzed as part of the Climate Change Vulnerability Assessment for the Sacramento County Climate Action Plan: Communitywide Greenhouse Gas Reduction and Climate Change Adaptation (Communitywide CAP) (County of Sacramento County, 2022). The direct, or primary, effects of climate change analyzed for Sacramento County include: increased temperature, changes in precipitation patterns, and sea level rise. Secondary consequences, which could occur as result of one or a combination of these primary effects, are also analyzed. These include: increased frequency, intensity, and duration of extreme heat days and heat waves/events; loss of snowpack and decreased water supplies; increased wildfire; and increased flooding.

State Greenhouse Gas Emissions Inventory and Trends

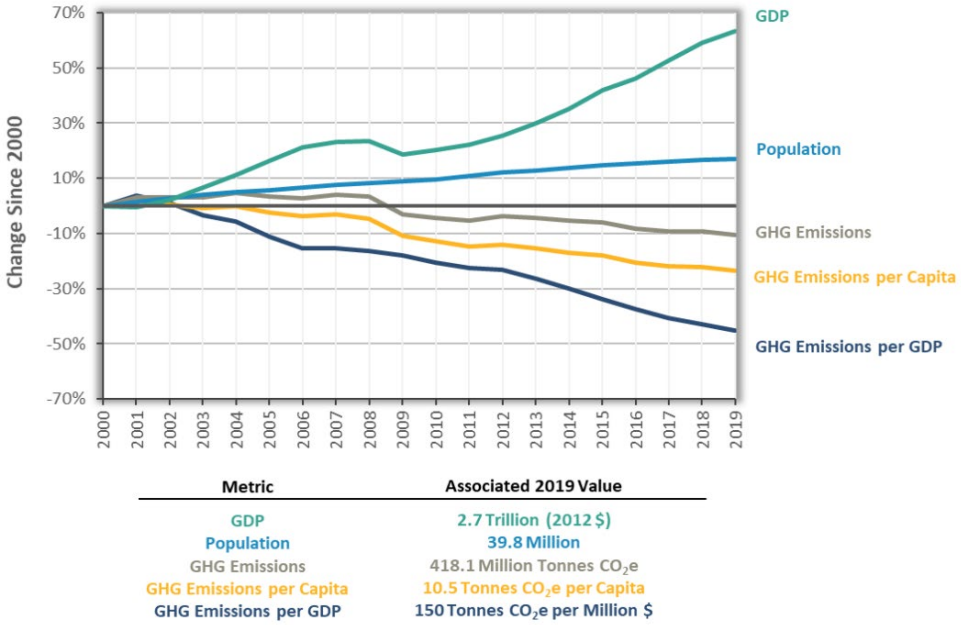
The CARB prepares an annual inventory of statewide GHG emissions. GHGs are typically analyzed by sector, a term that refers to the type of activity. As shown in Plate CC-1, 418.2 million MT CO_2e were generated in 2019. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for 41 percent of total GHG emissions. Transportation was followed by industry, which accounted for 24 percent, and then the electric power sector (including in-state and out-of-state sources), which accounted for 14 percent of total GHG emissions (Plate CC-1) (CARB 2021).

Plate CC-1: California Emissions - 2019



California has implemented several programs and regulatory measures to reduce GHG emissions. Plate CC-2 demonstrates California's progress in reducing statewide GHG emissions. Since 2007, California's GHG emissions have been declining, even as population and gross domestic product have increased. Per-capita GHG emissions in 2019 were 25 percent lower than the peak per-capita GHG emissions recorded in 2001. Similarly, GHG emissions per million dollars of gross domestic product have decreased by 47 percent since the peak in 2001 (CARB, 2021).

Plate CC-2: Trends in California Greenhouse Gas Emissions (2000-2019)



Metric	Associated 2019 Value
GDP	2.7 Trillion (2012 $)
Population	39.8 Million
GHG Emissions	418.1 Million Tonnes CO_2e
GHG Emissions per Capita	10.5 Tonnes CO_2e per Capita
GHG Emissions per GDP	150 Tonnes CO_2e per Million $

Local Greenhouse Gas Emissions Inventory

As described below, under "Sacramento County Climate Action Plan," the County of Sacramento is in the process of developing the County's Climate Action Plan (CAP). The Revised Final Draft CAP includes a baseline and forecasted GHG emissions inventory for the community and government operations.

GHG emissions associated with wastewater conveyance/pumping were included the 2015 inventory of GHG emissions for Sacramento County, and estimated based on wastewater pumping energy use data provided by SacSewer and Regional San as well as total wastewater treatment volumes also provided by Regional San. Emissions were scaled to the unincorporated County population (community inventory) (Table CC-1).

Based on modeling conducted, wastewater generation in 2015 resulted in emissions of approximately 27,253 MTCO2e, less than one percent of total emissions, primarily from fugitive CH4. Wastewater emissions were estimated in two components: (1) pumping-related energy for wastewater conveyance from the source to the treatment facility, and (2) wastewater treatment process emissions (Table CC-2).

Table CC-1: 2015 Unincorporated Sacramento County Community Greenhouse Gas Inventory

Sectors	2015 (MTCO2e/year)	Percent of Total
Residential Energy	1,193,311	25%
Commercial/Industrial Energy	890,603	18%
Building Total	***2,083,914***	***43%***
On-Road Vehicles	1,671,596	34%
Off-Road Vehicles	196,769	5%
Transportation Total	***1,868,365***	***39%***
Solid Waste	352,909	7%
Agriculture	254,899	5%
High-GWP Gases	251,085	5%
Wastewater	27,253	<1%
Water-Related	15,222	<1%
Total	**4,853,647**	**100%**

Notes: Totals may not add due to rounding. $MTCO_2e$ = metric tons of carbon dioxide equivalent; NA = Not applicable

Table CC-2: 2015 Unincorporated Sacramento County Community Wastewater Emissions

Wastewater Emission Type	(MTCO2e/year)
Wastewater Conveyance (SacSewer)	2,088
Wastewater Treatment	25,166
Total Wastewater Emissions	**27,253**

Notes: Totals may not add due to rounding. MT = metric tons; CO_2e = carbon dioxide equivalent.

REGULATORY SETTING

STATE

EXECUTIVE ORDER S-3-05

Executive Order S-3-05 was the precursor to Assembly Bill 32 (AB 32 is described in the next section) and was signed by Governor Schwarzenegger in June 2005. The Executive Order states that California is "particularly vulnerable" to the impacts of climate change, and that climate change has the potential to reduce Sierra snowpack (a primary source of drinking water), exacerbate existing air quality problems, adversely impact human health, threaten coastal real estate and habitat by causing sea level rise,

and impact crop production. The Executive Order also states that “mitigation efforts will be necessary to reduce greenhouse gas emissions”. To address the issues described above, the Executive Order established emission reduction targets for the State: reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020 and to 80% below 1990 levels by 2050. Currently only the 2020 and 2030 targets have been adopted by the State through legislation (see Assembly Bill and Senate Bill 32, below). As a result, all of the impact discussions, mitigation, and strategies are based on meeting the 2030 target, not the longer-term 2050 target.

Renewable Portfolio Standard (RPS)

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, 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 choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. In 2015, SB 350 was signed into law by Governor Jerry Brown. This bill extended the State’s RPS program by requiring that publicly owned utilities procure 50 percent of their electricity from renewable energy sources by 2030. This bill was further modified by SB 100 in 2018 to establish a 60 percent RPS target by 2030.

It should be noted that SMUD was the only large California utility to meet the statewide goal of supplying 20 percent of its power from renewables in 2010. In fact, SMUD exceeded the statewide goal and their own goal of 23.8 percent by supplying more than 24 percent of its retail sales with renewable energy in 2010. SMUD has chosen to meet or exceed the State requirements of 33 percent by 2020 and is developing strategies to meet the 2030 goal of 60 percent renewable energy. SMUD has also adopted a Climate Emergency Declaration that establishes a policy goal for SMUD electricity generation to be carbon neutral by 2030. That plan was presented to the SMUD Board of Directors in March 2021.

Assembly Bill 32

In September 2006, Assembly Bill (AB) 32 was signed by Governor Schwarzenegger of California. AB 32 requires that California GHG emissions be reduced to 1990 levels by the year 2020, just like Executive Order S-3-05. However, AB 32 is a comprehensive bill that requires ARB to adopt regulations requiring the reporting and verification of statewide greenhouse gas emissions, and it establishes a schedule of action measures. AB 32 also requires that a list of emission reduction strategies be published to achieve emissions reduction goals.

Senate Bill 375

On September 30, 2008, Senate Bill (SB) 375 was signed by Governor Schwarzenegger. SB 375 combines regional transportation planning with sustainability strategies in order to reduce greenhouse gas emissions in California’s urbanized areas. Existing law requires each regional transportation planning agency, which in Sacramento County’s case is the Sacramento Area Council of Governments (SACOG), to adopt a Metropolitan Transportation Plan. SB 375 required the California Air

Resources Board (CARB) to set performance targets for reduction of passenger vehicle emissions per capita in each of 16 Metropolitan Planning Organizations (MPOs) in the state for 2020 and 2035. For the SACOG MPO, these targets were set at 7% below 2005 per capita emissions for 2020 and 16% below 2005 per capita emissions for 2035. MPOs are not required to meet the greenhouse gas emission targets established by ARB, but if they conclude it is not feasible to do so, they must prepare an Alternative Planning Scenario to demonstrate what further land use and/or transportation actions would be required to meet the targets. SB 375 also requires that the Metropolitan Transportation Plan for each MPO include a Sustainable Communities Strategy (SCS) that integrates the land use and transportation components, and amends CEQA to provide incentives for housing and mixed use projects that help to implement an MTP/SCS that meets the CARB targets.

Senate Bill 32

On September 8, 2016 Senate Bill (SB) 32 was signed by Governor Jerry Brown. SB 32 builds upon previous GHG reduction goals by requiring that the CARB ensures that statewide GHG emissions are reduced by 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 Assembly Bill 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.

Endangerment Finding

On December 7, 2009, the U.S. EPA made an Endangerment Finding and a Cause or Contribute Finding related to greenhouse gases. The U.S. EPA Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – in the atmosphere threaten the public health and welfare of current and future generations (endangerment). The Administrator also found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare (Cause or Contribute).

Local

Sacramento County General Plan

The Land Use Element of the Sacramento County General Plan contains the following applicable policy:

LU-115. It is the goal of the County to reduce greenhouse gas emissions to 1990 levels by the year 2020. This shall be achieved through a mix of State and local action.

SACRAMENTO COUNTY CLIMATE ACTION PLANNING

In November of 2011, Sacramento County approved the Phase 1 Climate Action Plan Strategy and Framework document (Phase 1 CAP), which is the first phase of developing a community-level Climate Action Plan. The Phase 1 CAP provides a framework and overall policy strategy for reducing greenhouse gas emissions and managing our resources in order to comply with AB 32. It also highlights actions already taken to become more efficient, and targets future mitigation and adaptation strategies. This document is available at:

http://www.green.saccounty.net/Documents/sac_030843.pdf

The Phase 1 CAP contains policies/goals related to agriculture, energy, transportation/land use, waste, and water.

Goals in the section on agriculture focus on promoting the consumption of locally-grown produce, protection of local farmlands, educating the community about the intersection of agriculture and climate change, educating the community about the importance of open space, pursuing sequestration opportunities, and promoting water conservation in agriculture. Actions related to these goals cover topics related to urban forest management, water conservation programs, open space planning, and sustainable agriculture programs.

Goals in the section on energy focus on increasing energy efficiency and increasing the usage of renewable sources. Actions include implementing green building ordinances and programs, community outreach, renewable energy policies, and partnerships with local energy producers.

Goals in the section on transportation/land use cover a wide range of topics but are principally related to reductions in vehicle miles traveled, usage of alternative fuel types, and increases in vehicle efficiency. Actions include programs to increase the efficiency of the County vehicle fleet, and an emphasis on mixed use and higher density development, implementation of technologies and planning strategies that improve non-vehicular mobility.

Goals in the section on waste include reductions in waste generation, maximizing waste diversion, and reducing methane emissions at Kiefer Landfill. Actions include solid waste reduction and recycling programs, a regional composting facility, changes in the waste vehicle fleet to use non-petroleum fuels, carbon sequestration at the landfill, and methane capture at the landfill.

Goals in the section on water include reducing water consumption, emphasizing water efficiency, reducing uncertainties in water supply by increasing the flexibility of the water allocation/distribution system, and emphasizing the importance of floodplain and open space protection as a means of providing groundwater recharge. Actions include metering, water recycling programs, water use efficiency policy, water efficiency audits, greywater programs/policies, river-friendly landscape demonstration gardens, participation in the water forum, and many other related measures.

The Phase 1 CAP is a strategy and framework document. The County adopted the Phase 2A CAP (Government Operations) on September 11, 2012. Neither the Phase 1

CAP nor the Phase 2A CAP are "qualified" plans through which subsequent projects may receive CEQA streamlining benefits.

Sacramento County began work on an updated communitywide CAP (Phase 2B CAP) in 2016. The County released the draft Phase 2 CAP for public review in March of 2021. Based on the inventory and GHG reductions identified in the Phase 2 CAP, the County has set a goal of achieving a 4.0 metric tons of carbon dioxide equivalent per capita ($MTCO_2e$/capita) for 2030, resulting in an emissions limit of 3,674,904 $MTCO_2e$ (Sacramento County 2021). As allowed under CEQA Guidelines Section 15183(b), lead agencies may choose to analyze and mitigate significant GHG emissions in a plan for the reduction of GHG emissions or similar document. At the time this Draft EIR was prepared, the CAP remains in draft form and has not been formally adopted by the County. As such, the CAP is not yet qualified for use in CEQA review.

Significance Criteria And Methodology

Significance Criteria

GHG emissions have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the global climate system. Therefore, impacts are analyzed within the cumulative context of the project's potential contribution to the significant impact of global climate change.

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project would result in a cumulatively considerable contribution to the significant impact of climate change if it would:

1. generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or
2. conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

CEQA Guidelines section 15064.4 states that an agency should make a "good faith effort . . . to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project". It is left to the lead agency's discretion to use a quantitative or qualitative approach. Factors that should be considered when determining significance are:

- The extent to which the project may increase or decrease greenhouse gas emissions compared to the baseline;
- Whether the project exceeds any applicable significance threshold; and
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The guidelines do not include a numeric significance threshold, but instead defer to the lead agency to determine whether there are thresholds which apply to the project. With regard to the third item, statewide plans include AB 32 and SB 375, as described in the Regulatory setting. The underlying strategy and assumptions of the AB 32 Scoping Plan were used to develop County thresholds. AB 32 requires emissions be reduced to 1990 levels by the year 2020, which is estimated in the AB 32 2008 Scoping Plan to be 15% below *existing (2005) emissions*. The text is emphasized to note that the goal is not 15% below what is known as "business-as-usual" conditions or unmitigated project emissions; it is 15% below the emissions which were existing in California in the year 2005. In the AB 32 2017 Scoping Plan, emissions need to be reduced to 40% below 1990 levels by 2030.

In April 2020, SMAQMD adopted an update to their land development project operational GHG threshold, which requires a project to demonstrate consistency with CARB's 2017 Climate Change Scoping Plan. SMAQMD's technical support document, "Greenhouse Gas Thresholds for Sacramento County", identifies operational measures that should be applied to a project to demonstrate consistency.

All projects must implement Tier 1 Best Management Practices (BMP) to demonstrate consistency with the Climate Change Scoping Plan. After implementation of Tier 1 BMPs, project emissions are compared to the operational land use screening levels table (equivalent to 1,100 metric tons of CO_2e per year). If a project's operational emissions are less than or equal to 1,100 metric tons of CO_2e per year after implementation of Tier 1 BMPs, the project will result in a less than cumulatively considerable contribution and has no further action. Tier 1 BMPs include:

- BMP 1 – no natural gas: projects shall be designed and constructed without natural gas infrastructure.
- BMP 2 – electric vehicle (EV) Ready: projects shall meet the current CalGreen Tier 2 standards (Multi-family dwellings = 20% of total parking spaces to be EV Capable), except all EV Capable spaces shall be instead EV Ready.
    - EV Capable requires the installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s).
    - EV Ready requires all EV Capable improvements plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations.

For large or inefficient projects (exceed screening levels), additional analysis is required to assess GHG impacts and projects must implement Tier 2 BMP:

BMP 3 – Residential projects shall achieve a 15% reduction in VMT per resident, and office projects should achieve a 15% reduction in VMT per worker compared to existing average VMT per capita for the county, or for the city if a more local SB 743 target has been established. Retail project should achieve no net increase in total

VMT, as required to show consistency with SB 743. These reductions can be achieved by many strategies, such as:

Located in an area that already has low VMT due to location, transit service, etc.

Adopt CAPCOA measure

Join a Transportation Management Association

Incorporate traffic calming measures

Incorporate pedestrian facilities and connections to public transportation

Promote electric bicycle or other micro-mobility options

SMAQMD's GHG construction and operational emissions thresholds for Sacramento County are shown in Table CC-3. The County of Sacramento adopted the SMAQMD thresholds on December 16, 2020 by Resolution #2020-0855.

Table CC-3: GHG Thresholds

Land Development and Construction Projects		
	Construction Phase	**Operational Phase**
Greenhouse Gas as CO_2e	1,100 metric tons per year	1,100 metric tons per year
Stationary Source Only		
	Construction Phase	**Operational Phase**
Greenhouse Gas as CO_2e	1,100 metric tons per year	10,000 metric tons per year

METHODOLOGY

SMAQMD has established recommended thresholds that ensure that 90 percent of emissions from projects in the region are reviewed to determine the need for additional mitigation. According to SMAQMD's methodology, a land use development project with operational emissions that are less than 1,100 metric tons (MT) of carbon dioxide equivalent (CO_2e) per year will not result in a significant impact and will not require additional mitigation. SMAQMD assumes that projects with operational emissions below 1,100 MT of CO_2e per year will not exceed their construction GHG threshold of significance as long as the project does not include buildings that are more than four stories tall, significant trenching, demolition activities, a compact construction schedule, significant cut and fill operations, or significant truck activity.

SMAQMD has established an Operational Screening Levels table, which shows the size of development, by land use type, that SMAQMD has determined would not exceed the operational GHG emissions thresholds. Projects that are smaller than those listed in the table and, which meet the construction parameters listed above, and commit to Tier 1 BMPs, are considered to have a less than significant impact related to Climate Change. For large and inefficient projects or cannot meet Tier 1 BMPs, SMAQMD recommends the use of CalEEMod to quantify the GHG emissions that would be generated by the project.

IMPACTS AND ANALYSIS

IMPACT CC-1: GENERATE GREENHOUSE GAS EMISSIONS THAT MAY IMPACT THE ENVIRONMENT

The proposed project will contribute to incremental increases of GHG emission that are associated with global climate change, primarily attributed to mobile sources (vehicle) and area sources (utility usage and landscaping). The project will result in a total of nine lots and eight new single-family dwelling units (one existing home to remain). According to the GHG Operational Screening Levels table, residential projects with fewer than 56 dwelling units are not expected to generate over 1,100 MT CO_2e in operational emissions. Further, if the project is below the screening threshold for GHG operational emissions, then it is assumed the project will not exceed GHG construction emissions threshold of 1,100 MT CO_2e.

CONSTRUCTION-GENERATED GREENHOUSE GAS EMISSIONS

GHG emissions associated with the project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. The project is within the screening criteria for construction related impacts related to air quality. Therefore, construction-related GHG impacts are considered ***less than significant***.

OPERATIONAL PHASE GREENHOUSE GAS EMISSIONS

The project will implement BPM 1 and BMP 2 in its entirety. As such, the project can be compared to the operational screening table. The operational emissions associated with the project are less than 1,100 MT of CO_2e per year. Mitigation has been included such that the project will implement BMP 1 and BMP 2 (Mitigation Measure CC-1 below). The impacts from GHG emissions are ***less than significant with mitigation***.

IMPACT CC-2: CONFLICT WITH PLANS, POLICIES, OR REGULATIONS ADOPTED TO REDUCE GREENHOUSE GAS EMISSIONS

As shown in the impacts section above, the project will not exceed screening thresholds set by the SMAQMD to meet State policies of meeting 2030 emission reductions. Executive Order S-3-05 requires the State to reach 80% below 1990 levels by the year 2050. At this time, it is not possible to quantify the emissions savings from future regulatory measures, as they have not been developed. Nevertheless, it can be anticipated that operation of the proposed project would benefit from the implementation of current and potential future regulations (e.g., improvements in vehicle/engine emissions renewable electricity portfolios, Title 24 Green Building Code, etc.) that are enacted to meet this goal.

The proposed project would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions, including Title 24, AB 32, and SB32. Project impacts are ***less than significant***.

MITIGATION MEASURES

CC-1 The project is required to incorporate the Tier 1 Best Management Practices or propose Alternatives that demonstrate the same level of GHG reductions as BMPs 1 and 2, listed below. At a minimum, the project must mitigate natural gas emissions and provide necessary wiring for an all-electric retrofit to accommodate future installation of electric space heating, water heating, drying, and cooking appliances.

Tier 1: Best Management Practices (BMP) Required for all Projects

- BMP 1: No natural gas: Projects shall be designed and constructed without natural gas infrastructure.
- BMP 2: Electric vehicle ready: Projects shall meet the current CalGreen Tier 2 standards, except all EV Capable spaces shall instead be EV Ready.
  - EV Capable requires the installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s)
  - EV Ready requires all EV Capable improvements plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations

CUMULATIVE IMPACTS

The proposed project currently generates and will continue to generate greenhouse gases (GHG) emissions that would contribute to climate change. The project site contains one single-family dwelling and emissions associated with this development constitute the baseline analysis for this analysis. However, the proposed project when added to the baseline would not add considerable GHG emissions to the County emission inventory.

Pursuant the SMAQMD "Greenhouse Gas Thresholds for Sacramento County" guidance, projects that implement Tier 1 Best Management Practices, and have operational emissions less than 1,100 MT $CO2_e$ would not be considered cumulatively considerable. Cumulative impacts associated with climate change are ***less than significant***.

REFERENCES

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15 HAZARDOUS MATERIALS

INTRODUCTION

This chapter describes the hazardous materials and waste in the project area resulting from past and ongoing uses of the property, includes a description of applicable federal, state and local regulations and policies that influence hazardous materials and waste, and identifies potential impacts to future residents and workers relating to exposure to hazardous materials and waste.

ENVIRONMENTAL SETTING

The project site has been used for residential purposes as single-family with a rural residential home located on a large oak woodland remainder parcel. There is no history of contamination associated with hazardous materials on the project site or within the project vicinity, due to the residential nature of the project area. The rural residential home, a structure dating over 50 years old, will remain on the property and will be incorporated with the project. The project site is located approximately 0.1 mile east of John Barrett Middle School, and approximately 0.4 mile south of Del Campo High School and Will Rogers Middle School.

REGULATORY SETTING

DEFINITIONS

The term “hazardous substances” refers to both hazardous materials and hazardous wastes. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state or local regulatory agency, or if it has characteristics defined as hazardous by such an agency. A “hazardous material” is defined in the Code of Federal Regulations (CFR) as “a substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> “Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

The definition of a hazardous waste, as regulated by the California Environmental Protection Agency, Department of Toxic Substances Control (CAL-EPA, DTSC), is found in the California Health and Safety Code Section 25141 (b), as follows:

> "…as hazardous waste because of its quantity, concentration, or physical, chemical, or infectious characteristics: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed."

A hazardous waste is a "solid waste" that exhibits hazardous characteristics. The Federal Environmental Protection Agency (EPA) has defined the term "solid waste" to include the following: any gaseous, liquid, semi-liquid, or solid material that is discarded or has served its intended purpose, unless the material is excluded from regulation. Such materials are considered wastes whether they are discarded, reused, recycled, or reclaimed. The EPA classifies a waste as hazardous if it (1) is listed on the EPA's list of hazardous waste and/or (2) exhibits one or more of the following properties: ignitability (including oxidizers, compressed gases, and extremely flammable liquids and solids), corrosivity (including strong acids and bases), reactivity (including materials that are explosive or generate toxic fumes when exposed to air or water), or toxicity (including materials listed by the EPA as capable of inducing systemic damage in humans or animals).

Lead

Lead is commonly found in paint, dust, and soil. In 1978 the Federal government banned the use of lead-based paint in housing. Many structures built before 1978 have lead-based paint. If the paint is in good condition it is usually not a hazard. However, if lead-based paint is dry scrapped, dry sanded, or heated, lead dust can form. This lead dust can get on surfaces and objects that people touch and settled lead dust can re-enter the air when people vacuum, sweep, or walk through it. Lead can settle in soil from flaking or chipped exterior lead-based paint. Lead was also used to be a gasoline additive. The Clean Air Act Amendments of 1990 mandated the elimination of lead from all U.S. motor fuel by January 1, 1996. This represented the final step in a gradual reduction of lead in gasoline since the early 1970s.

Lead poisoning, especially in children, can cause damage to the brain and nervous system, behavior and learning problems, hearing problems and headaches. Adults are also susceptible and can have difficulties during pregnancy, high blood pressure, nerve disorders, muscle and joint pain, and memory and concentration problems, to name a few (US EPA, 2007).

Asbestos

Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the California Air Resources

Board (ARB) in 1986. Asbestos poses a health risk only when it becomes friable, such as through disturbance or damage. Once airborne, asbestos fibers may be inhaled into the lungs where they can cause serious health problems (US EPA, 2008). All types of asbestos are hazardous and may cause lung disease and cancer. Historically, asbestos was commonly used as an acoustic insulator and in thermal insulation (fire proofing and other building materials).

U.S. EPA issued a final rule banning most asbestos-containing products in July 1989; however, this regulation was overturned in 1991, by the Fifth Circuit Court of Appeals in New Orleans. The Courts ruled that the US EPA ban shall remain for specific asbestos-containing products. These banned products are flooring felt; rollboard; and corrugated, commercial, or specialty paper. The regulation continues to ban the use of asbestos in products that have not historically contained asbestos, otherwise referred to as "new uses" of asbestos.

Federal Plans, Policies, Regulations, and Laws

The federal government adopted laws, generally known as the Resource Conservation and Recovery Act (RCRA), to provide for the regulation of hazardous wastes and substances. The RCRA requires any business, institution, or other entity generating hazardous waste to identify and track such waste from its generation until it is recycled, reused, or disposed. The RCRA, subsequently amended in 1984 by the Hazardous and Solid Waste Act, extended the “cradle-to-grave” tracking system to hazardous substances, specifically prohibiting certain techniques of disposing specified hazardous substances.

The U.S. EPA was given primary responsibility for implementation of the RCRA. Individual states may implement their own hazardous substance management programs, if approved by the EPA, with regulations at least as strict as the RCRA. In August 1992, the Cal EPA received authorization to implement California’s RCRA program, called the Hazardous Waste Control Act (HWCA). The HWCA and associated regulations are similar to RCRA but have a broader definition of “hazardous material” and, as a consequence, regulate more chemicals. Cal EPA DTSC is the responsible agency for the implementation of the HWCA. The DTSC has the authority to delegate enforcement responsibility to local jurisdictions that enter into an agreement with the State agency for the generation, transport and disposal of hazardous substances under HWCA.

State of California Plans, Policies, Regulations, and Laws

California regulations governing hazardous materials are as stringent as (and in some cases, more stringent than) federal regulations. The state has been granted primacy (primary responsibility for oversight) by the EPA to administer and enforce hazardous waste management programs. State regulations also have detailed planning and management requirements to ensure that hazardous materials are handled, stored, and disposed of properly to reduce human health risks. California regulations pertaining to hazardous waste management are published in the California Code of Regulations (CCR), previously called the California Administrative Code. The CCR is updated yearly

and incorporates all legislation and final regulations enacted during the year, as well as specifying the agencies responsible for enforcing the various regulations.

- Department of Toxic Substances Control. 22CCR gives the DTSC responsibility for regulating hazardous waste management at the state level. The DTSC regulates the treatment, storage, and disposal of hazardous waste in accordance with 22 CCR and the RCRA. The DTSC administers the state and federal Superfunds for cleanup of major hazardous waste contamination sites.

- Regional Water Quality Control Board (RWQCB). 23 CCR charges the nine RWQCBs with responsibility for overseeing water quality control. The RWQCBs are responsible for protecting actual or potential beneficial uses of water, including municipal, industrial, and agricultural water supplies and recreation. Each RWQCB has authority to supervise hazardous waste cleanup at sites referred by local agencies and in cases where water quality is affected or threatened. Either the DTSC or the RWQCB may be responsible for cleanup of sites of significant contamination by hazardous wastes. The two agencies often work together to ensure that their requirements are consistent and are implemented as intended.

- California Occupational Safety and Health Administration (Cal-OSHA). Health and safety regulations applying to the investigation and cleanup of sites contaminated with hazardous waste are enforced by Cal-OSHA under 8 CCR and the adopted federal regulations (29CFR 1910).

LOCAL

ENVIRONMENTAL MANAGEMENT DEPARTMENT

Sacramento County is responsible for enforcing the state regulations, both in the incorporated cities and unincorporated areas of Sacramento and the County, governing hazardous waste generators, hazardous waste storage, and underground storage tanks (including inspections, enforcement and removals). The Sacramento County Environmental Management Department (EMD) regulates the use, storage and disposal of hazardous materials in Sacramento County by issuing permits, monitoring regulatory compliance, investigating complaints, and other enforcement activities. EMD oversees remediation of certain contaminated sites resulting from leaking underground storage tanks.

SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan Hazardous Materials Element provides a hazardous materials policy plan to manage hazardous materials and minimize their effects on humans and the environment. The General Plan policies include measures to educate and inform the public about hazardous waste management, implement public health and safety programs, and coordinate with other agencies to enforce hazardous materials regulations. The General Plan also provides details on emergency response plans for responding to hazardous material spills and other emergency actions.

The Sacramento County General Plan policies that are pertinent to Hazardous Materials are policies HM-1 through HM-15. These policies are intended to support the stated objectives of the Hazardous Materials Element of the General Plan. As presented in the element the objectives are as follows:

> County-wide public awareness of all available hazardous material informational and disposal programs;
>
> Protect the residents of Sacramento County from the effects of a hazardous material incident via the implementation of various public health and safety programs;
>
> Coordinated efforts by the applicable regulatory agencies, thereby facilitating effective long-term hazardous materials management;
>
> Enforce all federal, state, and local regulations and if necessary prosecute those cases involving the mismanagement of hazardous materials; and
>
> The availability of reliable and solvent funding sources to augment hazardous materials management.

The policies in the Hazardous Materials Element most applicable to the Project are as follows:

> HM-4. The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
>
> HM-10. Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

Sacramento County Evacuation Plan

The Sacramento County Evacuation Plan is developed as an Annex to the Sacramento County 2008 All-Hazards Emergency Operations Plan. The purpose of this evacuation plan is to document the agreed upon strategy for the County's response to emergencies that involve the evacuation of persons from an impacted area to a safe area. This involves coordination and support for the safe and effective evacuation of the general population, and for those who need additional support to evacuate. Focus areas within this evacuation plan include public alert and warning, transportation, and care and shelter.

Primary evacuation routes are established for each of the seven County Sheriff Districts. These include major interstates, highways and prime arterials within Sacramento County. Local jurisdictions work with the county, and especially the Operation's Section, Law Enforcement Branch and the Evacuation Movement Unit to identify and update evacuation routes and evacuation transfer points. The primary evacuation routes will usually be major interstates and other highways, and major roadways within and out of

the county - unless otherwise determined by the County DOT. During an evacuation, County DOT traffic engineers calculate traffic flow capacity and decide which of the available traffic routes should be used to move people in the correct directions.

Significance Criteria and Methodology

Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Relative to hazards and hazardous materials, a project will normally have a significant effect on the environment if it will:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

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. Specific conditions which may contribute to the potential for significant impacts include:

    - Location within 1,000 feet of a known contamination site
    - Location within 2,000 feet of a known “border zone property” (i.e., “Superfund” site) or a hazardous waste property subject to corrective action pursuant to applicable health and safety codes
    - Excavation at a Department of Toxic Substances Control closed site that could disturb contaminated soils
    - Location on or near an active or former landfill
    - Location on properties historically developed with industrial or commercial uses that involve dewatering in association with major excavation in an area of high groundwater

3. Result in hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

4. 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 create a significant hazard to the public or the environment;

5. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

6. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

The determination of significance based on the above criteria also depends on the probable frequency and severity of consequences to people who might be exposed to the health hazard, and the degree to which Project design or existing regulations would reduce the frequency of or severity of exposure. For instance, household cleaners are classified as hazardous, but one would not conclude that the presence of household cleaners at an office building would pose a risk to a school located within ¼-mile.

Issues Not Discussed Further

The project is not 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 not create a significant hazard to the public or the environment.

The development of eight (8) single-family homes, in an infill parcel within an established community, will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project is consistent with, and has been conditioned to implement, the appropriate standards and regulations to ensure appropriate access and circulation.

The project is located within an urbanized area of the unincorporated County, and as a result, would not create a significant risk of loss, injury, or death to people or structures associated with wildland fires.

Methodology

A database search was performed of the project site and adjacent properties for hazardous materials records using the following databases:

- *Envirostor Database*. California Department of Toxic Substances Control.
- *GeoTracker Database*. California State Water Resources Control Board.
- *Master List of Facilities*. Sacramento County Environmental Management Department.

There is no history of contamination associated with hazardous materials on the project site or within the project vicinity.

IMPACTS AND ANALYSIS

IMPACT HZ-1: WOULD THE PROJECT CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH THE ROUTINE TRANSPORT, USE, OR DISPOSAL OF HAZARDOUS MATERIALS?

The project would not result in operational impacts as it relates to hazards and hazardous materials. The potential impacts associated with the project would occur during the construction phase. Therefore, the impact analysis focuses on the potential for impacts during construction.

The project would not transport hazardous material, but construction activities associated with future development would temporarily increase the regional transport, use, storage, and disposal of petroleum products (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals) that are commonly used at construction sites. Hazardous waste generated during construction may consist of welding materials, fuel and lubricant containers, paint and solvent containers, and cement products containing strong basic or acidic chemicals. Release of these materials into the environment would be a potentially significant impact.

Pursuant to 40 CFR 112, the Project would be required to prepare a spill prevention and treatment plan for rapidly, effectively, and safely cleaning up and disposing of any spills or releases that may occur during construction. As required under state and federal law, notification and evacuation procedures for site workers and local residents would be included as part of the plan in the event of a hazardous materials release during on-site construction. In addition to 40 CFR 112, SWRCB Construction General Permit (2009-0009 DWQ) requires spill prevention and containment plans to avoid spills and releases of hazardous materials and wastes into the environment. Inspections would be conducted to verify consistent implementation of general construction permit conditions and best management practices (BMPs) to avoid and minimize the potential for spills and releases, and of the immediate cleanup and response thereto. BMPs include, for example, the designation of special storage areas and labeling, containment berms, coverage from rain, and concrete washout areas. In addition, workplace rules administered by the California Occupational Safety and Health Administration (enacted by the California Code of Regulations) ensure that the hazards of all chemicals are evaluated and that information concerning chemical hazards is transmitted to employees. This is accomplished through container labeling and other warnings, Material Safety Data Sheets, and employee training. Compliance with the aforementioned regulations ensure that the risk of a spill or accidental release of hazardous materials during construction is ***less than significant***.

IMPACT HZ-2: WOULD THE PROJECT CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THOUGH REASONABLY FORESEEABLE

UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT?

The project would not result in operational impacts as it relates to hazards and hazardous materials. The potential impacts associated with the project would occur during the construction phase. Therefore, the impact analysis focuses on the potential for impacts during construction.

Potential impacts associated with the use of hazardous materials are discussed in the section above. In addition to routine use of materials addressed in the previous section, construction crews may be exposed to release of materials that are existing in the environment as outlined below.

Asbestos Exposure Through Renovation or Demolition of Existing Structures that Contain Asbestos

The renovation or demolition of existing structures constructed prior to 1989 can pose an exposure risk to workers from asbestos-containing material if the material is chipped away or sanded, becoming friable and then is inhaled. When an applicant applies for a demolition or renovation permit through the County Building Department, the applicant will be required to get a permit from the Sacramento Municipal Air Quality Management District. As part of the permit process, the applicant will need to show compliance with Federal regulations and Air District Rule 902, which require a survey for asbestos prior to demolition. Any asbestos found would require abatement.

Lead Exposure Through Renovation of Existing Structures That Contain Lead-Based Paint

The renovation or demolition of existing structures constructed prior to 1978 can pose an exposure risk of workers to lead-based paint if the paint were chipped away and then accidentally ingested, or if the paint became an airborne dust and was inhaled. Also, lead can deposit on exposed soil, which can then be tracked into a structure.

Exposure to and containment of lead is regulated by Cal EPA's DTSC and the California Code of Regulations Title 8 and Title 22. As stipulated by the law, workers are required to be informed about the potential exposure to lead and that employers must have a Lead Compliance Plan in place that provides a protocol for worker safety, transport, and disposal of the hazardous material.

Release of hazardous materials into the environment Impacts

The existing house on the project property is proposed to remain, but may undergo renovations as a result of project implementation. There are several accessory structures located onsite that would be demolished as a result of the project. The exact age of these structures is not known and may contain lead and/or asbestos. Existing rules and regulations are in place to ensure the health and safety of workers during construction. With compliance with existing regulation, environmental impacts resulting from asbestos and lead exposure are ***less than significant***.

IMPACT HZ-3: WOULD THE PROJECT RESULT IN HAZARDOUS EMISSIONS OR HANDLE HAZARDOUS SUBSTANCES, OR WASTE WITHIN ONE-QUARTER MILE OF AN EXISTING OR PROPOSED SCHOOL?

The project is located approximately 0.1 mile east of John Barrett Middle School, and approximately 0.4 mile south of Del Campo High School and Will Rogers Middle School. The project would not result in operational impacts as it relates to hazards and hazardous materials. The potential impacts associated with the project would occur during the construction phase. As discussed in the prior sections, potential hazardous material onsite is limited to lead and/or asbestos potentially contained in older buildings onsite. Disruption of these materials would be limited to areas onsite and would not impact nearby schools. Existing rules and regulations are in place to ensure the safe handling of these materials. Therefore, impacts to surrounding schools would be ***less than significant.***

MITIGATION MEASURES

None recommended.

CUMULATIVE IMPACTS

Most impacts in this category are existing hazardous conditions which have the potential to impact projects, but which are not exacerbated by projects. The only impact discussed in this chapter to which the project could cumulatively contribute is increases in the transport, use, and disposal of hazardous materials due to project construction. There are no potential operational impacts associated with the project. As concluded for the Project, all of the cumulative developments would be required to implement and comply with federal, state, and local hazardous materials regulations and codes monitored by the state and/or local jurisdictions, and as such would not create a cumulatively significant hazard; impacts are ***less than significant.***

REFERENCES

None.

LIST OF ACRONYMS

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ADT	Average Daily Traffic
AG	Agriculture and Forestry
ANSI	American National Standard Institute
AQMD	Air Quality Management Districts
ARB	California Air Resources Board
BACT	Best Available Control Technology
BCECP	Basic Construction Emission Control Practices
BenMAP	Environmental Benefits Mapping and Analysis Program
BERD	Built Environment Resource Directory
BFE	Base Flood Elevation
BMPs	Best Management Practices
CalEEMod	California Emissions Estimator Model
Cal EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
CalRecycle	The California Department of Resources Recycling and Recovery
CAP	Climate Action Plan
CAPs	Criteria Air Pollutants
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CGP	State's General Stormwater Permit for Construction Activities
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CHL	California Historical Landmarks
CH_4	Methane
CNPS	California Native Plant Society

CO	Carbon Monoxide
Communitywide CAP	Communitywide Greenhouse Gas Reduction and Climate Change Adaptation
CO_2	Carbon Dioxide
CO_2e	CO_2 equivalence
CPAC	Carmichael Community Planning Advisory Council
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibels
dbh	Diameter at breast height
DHS	California Department of Health Services
DRAC	Design Review Advisory Committee
DTSC	State Department of Toxic Substances Control
DWMR	Sacramento County Department of Waste Management and Recycling
EIR	Environmental Impact Report
EMD	Sacramento County Environmental Management Department
EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
EV	Electric Vehicle
FAR	Floor Area Ratio
FHA	Federal Highway Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FIRM	Federal Insurance Rate Map
FRAP	California Department of Forestry and Fire Protection's Fire and Resource Assessment Program
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GLO	General Land Office
GSP	Groundwater Sustainability Plan
GWP	Global Warming Potential
HCFCs	Hydrochlorofluorocarbons
HCP	Habitat Conservation Plan
HFCs	Hydrofluorocarbons

High GWP	High Global Warming Potential
HOA	Home Owner Association
HSC	Health and Safety Code
HWCA	Hazardous Waste Control Act
Hz	Hertz
IPCC	Intergovernmental Panel on Climate Change
ISA	International Society of Arboriculture
KOP	Key Observation Points
LDR	Low Density Resdential
LID	Low Impact Development
LNG	Liquefied Natural Gas
LOS	Level of Service
LU	Land Use
MBTA	Migratory Bird Treaty Act
MGD	Million Gallons per Day
MLD	Most Likely Descendent
MPH	Miles Per Hour
MPOs	Metropolitan Planning Organizations
MT	Metric Ton
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NOA	Naturally Occurring Asbestos
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen Oxides
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System Permit
NPS	National Park Service
N_2O	Nitrous Oxide
OHL	Office of Historical Preservation
OHP	Office of Historic Preservation
O_3	Ozone
PER	Office of Planning and Environmental Review
PFCs	Perfluorinated Chemicals
PG&E	Pacific Gas and Electric
PH	Population and Housing
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter 2.5 microns or less in Diameter
PM_{10}	Particulate Matter 10 microns or less in

	Diameter
PPM	Parts Per Million
PPV	Peak Particle Velocity
PRC	Public Resources Code
RCRA	Resource Conservation and Recovery Act
Regional San	Sacramento Regional County Sanitation District
Regional Water Board (RWQCB)	Central Valley Regional Water Quality Control Board
RMS	Root Mean Square
ROG	Reactive Organic Gasses
RPS	Renewable Portfolio Standard
SacDOT	Sacramento County Department of Transportation
SACOG	Sacramento Area Council of Governments
SacRT	Sacramento Regional Transit District
SacSewer	Sacramento Area Sewer District
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SCC	Sacramento County Code
SCOE	Sacramento County Office of Education
SCS	Sustainable Communities Strategy
SFNA	Sacramento Federal Nonattainment Area
SF_6	Sulfur hexafluoride
SGM	Sustainable Groundwater Management
SGMA	Sustainable Groundwater Management Act
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Quality District
SMUD	Sacramento Municipal Utility District
SNFA	Sacramento Federal Nonattainment Area
SQDM	Sacramento Region Stormwater Quality Design Manual
SRWTP	Sacramento Regional Wastewater Treatment Plant
SSHCP	South Sacramento Habitat Conservation Plan
SSQP	Sacramento Stormwater Quality Partnership
SWA	Solid Waste Authority
SWAC	Solid Waste Advisory Committee
SWPPP	Stormwater Pollution Prevention Plan
TAC	Toxic Air Contaminants
TCP	Traditional Cultural Property

TCR	Tribal Cultural Resource
TMP	Sacramento Regional Transit District's Transit Master Plan
UAIC	United Auburn Indian Community
UPA	Urban Policy Area
USB	Urban Services Boundary
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
Vdb	Vibration Decibels
VMT	Vehicles Miles Traveled
VOC	Volatile Organic Gasses
WSA	Water Supply Assessment
$\mu g/m^3$	Micrograms per Cubic Meter
µin/sec	microinch per second

Appendix PD-1

From:	Mike Blondino
To:	PER-CEQA
Cc:	Gutierrez. Kimber; Boschee. Rebecca; James Perry
Subject:	O"Donnell Estate Project-CEQA
Date:	Wednesday, October 26, 2022 2:34:36 PM

EXTERNAL EMAIL: If unknown sender, do not click links/attachments.

Hello!

Thank you for giving me time to talk today at the Scoping Meeting for the O'Donnell Estate Project PLNP2020-00101.

I would like to follow up with what I had mentioned on the Zoom call. The Carmichael Recreation and Park District (CRPD) would not want to see a gates/entrance directly from the proposed project into O'Donnell Park. From my 30+ years in the park and recreation profession having such an entrance has always been against best practices and denied in the planning stage from law enforcement. Also, from a liability standpoint, CRPD would not want an entrance from the project directly into the park.

Thank you again for the invite to the meeting and allowing our feedback.

Take care.

Mike Blondino
District Administrator
NEW OFFICE NUMBER (916) 807-9461
(916) 485-0805 fax
mblondino@carmichaelpark.com

Parks Make Life Better!

SMUD®

Sent Via E-Mail

November 9, 2022

Joelle Inman
Environmental Coordinator
Sacramento County
827 7th Street, Room 225
Sacramento, CA 95814
ceqa@saccounty.net

Subject: **O'Donnell Estates / NOP / 2022100236**

Dear Ms. Inman:

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Notice of Preparation (NOP) for the O'Donnell Estates (Project, SCH 2022100236). SMUD is the primary energy provider for Sacramento County and the proposed Project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed Project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

We have no comments to offer at this time but would appreciate if the County of Sacramento would continue to keep SMUD facilities in mind as environmental review of the Project moves forward. Please reroute the Project analysis for SMUD's review if there are any changes to the scope of the Project.

If you have any questions regarding this letter, please do not hesitate to contact me at 916.732.5063, or by email at Kim.Crawford@smud.org.

Sincerely,

K. Crawford

Kim Crawford
Environmental Services Specialist
Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817

cc: Entitlements

10 November 2022

Joelle Inman
Sacramento County Planning
827 7th Street, Suite 225
Sacramento, CA 95814
inmanj@saccounty.net

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, O'DONNELL ESTATES PROJECT, SCH#2022100236, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 12 October 2022 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the O'Donnell Estates Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of

Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will

require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter Minkel

Peter Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

From: Anna Starkey
To: PER-CEQA
Subject: O"Donnel Estates (PLNP2020-00101) NOP
Date: Monday, October 31, 2022 11:55:48 AM
Attachments: Heritage Trees_Tribal Significance.pdf
Oak Woodlands_Sac County.pdf

EXTERNAL EMAIL: If unknown sender, do not click links/attachments.

On behalf of the United Auburn Indian Community, Tribal Historic Preservation Department, thank you for the notification and opportunity to comment on the NOP for the O'Donnel Estates Project. We've reviewed the NOP and noted that there are plans to remove heritage trees that are located in the proposed building envelopes. I would like you to consider designing around the healthy heritage trees rather than removing them. UAIC holds significance to native heritage trees and we consider them to be a tribal cultural resources. Per the Sacramento County Planning Department, these oaks trees should be preserved and incorporated into the design of the parcel. Therefore, a complete analysis of the heritage trees as Tribal Cultural Resources should be included in the EIR.

Thank you,
Anna

UAIC PRESERVATION

Anna M. Starkey, M.A., RPA
Cultural Regulatory Specialist
Tribal Historic Preservation Department| UAIC
10720 Indian Hill Road
Auburn, CA 95603
Direct Line: (916) 251-1565 | Cell: (530) 863-6503
astarkey@auburnrancheria.com |www.auburnrancheria.com

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Appendix PD-2

California Wildlife Foundation/California Oaks, 201 University Avenue, Berth H-43 Berkeley, CA 94710, (510) 763-0282

March 17, 2021

Carmichael-Old Foothills Farms Community Planning Advisory Council
5605 Marconi Avenue
Carmichael, CA 95608-4411

Transmitted via email: CPAC-Carmichael-OFF@saccounty.net

RE: O'Donnell Estates, Parcel Number: 247-0010-001, 4434 Maple Lane, Carmichael, CA 95608-1925

Dear members of the Carmichael-Old Foothills Farms Community Planning Advisory Council:

The California Oaks program of California Wildlife Foundation (CWF/CO) works to conserve oak ecosystems because of their critical role in sequestering carbon, maintaining healthy watersheds, providing wildlife habitat, and sustaining cultural values. Janet Bates, a concerned member of the community, reached out to CWF/CO regarding the impacts of the project on the oak trees on the site.

PROJECT IMPACTS ON OAK WOODLANDS

Section 19.12.090, Decision Criteria, of Sacramento County's tree ordinance requires that the approving body shall ascertain whether or not the tree cannot or should not be retained prior to the issuance of a tree removal permit. Criteria to be used in the determination include:

> 3. The approximate age of the tree compared with the average life span for that species;
>
> 4. Age of tree with regard to whether or not removal of the tree would encourage healthier, more vigorous growth of younger similar trees in the area;
>
> 5. The number of existing trees in the area and the effect of the tree removal upon public health, safety, prosperity, beauty and general welfare of the area;
>
> 6. The number of healthy trees that a given parcel of land will support, with and without the proposed development;
>
> 9. Present and future shade potential with regard to solar heating and cooling;
>
> 10. Whether or not there are any alternatives that would allow for the preservation of the tree…

CWF/CO urges the members of the Planning Advisory Council to carefully consider the scope and scale of the proposed oak removals by using the criteria above.

The supplemental application form for the Special Development Permit submitted to Sacramento County's Office of Planning and Environmental Review states: "g. The proposed development will not be materially detrimental to the environment or to the health, safety, or general welfare of the residents of the development and the County as it will mitigate for significant impacts to the environment…" However, the document described as a "Tree Removal and Mitigation Plan" that is included in the packet for the meeting simply identifies that trees that would be removed and trees that would potentially be impacted if the project were to proceed. It is unclear how this could be construed as mitigation.

California Public Resources Code (CPRC) §21083.4 (2004, Senate Bill 1334) requires that when a county is determining the applicability of the California Environmental Quality Act (CEQA) to a project, it must determine whether that project "may result in a conversion of oak woodlands that will have a significant effect on the environment." If such effects (either individual impacts or cumulative) are identified, the law requires that they be mitigated for the removal of oaks that are not commercial species, which are five inches or more in diameter as measured at a point 4.5 feet (breast height) above natural grade level. CPRC §21083.4 further specifies: "acceptable mitigation measures include, but are not limited to, conservation of other oak woodlands through the use of conservation easements and planting replacement trees, which must be maintained for seven years.

It is laudable that the proposed development includes an undisturbed parcel. A portion of oak woodland retention cannot, however, be considered to be sufficient to mitigate the impacts to the overall site. Sacramento County's General Plan's Conservation Element provides specific guidance on mitigating oak tree impacts. The preservation of twenty percent of the parcel is insufficient. Conservation Objective (CO) 140 of the General Plan states:

> For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:
>
> - An adopted habitat conservation plan.
> - Ensure no net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.
> - Removal of native oaks shall be compensated with native oak species with a minimum of a one to one dbh replacement.
> - A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary.
> - If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees that cannot be accommodated may be paid to the County's Tree Preservation Fund or another appropriate tree preservation fund.
> - If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in

perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be used as a suitable site for replacement tree plantings required by ordinances or other mitigations.
o Equal or greater in area to the total area that is included within a radius of 30 feet of the dripline of all trees to be removed;
o Adjacent to protected stream corridor or other preserved natural areas;
o Supports a significant number of native broadleaf trees; and
o Offers good potential for continued regeneration of an integrated woodland community.

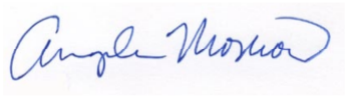
CO-141. Specifies: "In 15 years the native oak canopy within on-site mitigation areas shall be 50 percent canopy coverage for valley oak and 30 percent canopy coverage for blue oak and other native oaks."

Another concerning aspect of the proposed project is the possible impacts to quite a few oaks, as identified in the map that details removals. Oaks should have no disturbance within the root protection zone (RPZ), which is the area that extends beyond the dripline to a distance that is half the distance between the trunk and the dripline. *Care of California's Native Oaks*, is downloadable from http://californiaoaks.org/oak-tree-care/ and provides further information. If the project is approved, security payments should be made for both trees that are removed as well as trees that may be impacted by the project.

We welcome your inquiry should additional input be helpful in ensuring that the project reaches the no-net-loss standard required by the county.

Sincerely,





Janet Cobb
Executive Officer
California Wildlife Foundation

Angela Moskow
Manager
California Oaks Coalition

cc: Janet Bates, jhbates@comcast.net
Kimber Gutierrez, Associate Planner, County of Sacramento, gutierrezk@saccounty.net
Tim Vendlinski, life scientist, tvendlinski@icloud.com
Zarah Wyly, Director of Urban Ecology/Restoration Ecologist, Sacramento Tree Foundation, zarah@sactree.com

From: andrew goforth
To: apexpropertymgmt@att.net
Cc: Gutierrez. Kimber
Subject: PLNP2020-00101
Date: Friday, July 2, 2021 5:10:26 PM

EXTERNAL EMAIL: If unknown sender, do not click links/attachments.

Hello

I am a homeowner on Woodfair Way in Carmichael and I believe I missed the public hearing on this development. I would prefer the acreage be annexed and made part of O'donnell Park so we don't have increased traffic on our nice quiet street. However, since it looks like this development will go forward anyway I was hoping you could create a Kitty Walk or some kind of access to Mapel LN. and connect the neighborhoods so there is more mobility to get to Barret MS and other areas without kids having to travel down Winding Way.

Sincerely
Andrew Goforth
916-990-6197

From:	Clerk of the Board Public Email
To:	Gutierrez. Kimber
Subject:	FW: Regarding Proposal for Bike Pathway for O"Donnell Estates Development, Control Number PLNP 2020-00101
Date:	Friday, March 12, 2021 11:34:32 AM

From: Jean Marcy <ubermarcy@att.net>
Sent: Wednesday, March 10, 2021 6:02 PM
To: Clerk of the Board Public Email <BoardClerk@saccounty.net>
Cc: CPAC-Carmichael-OFF <CPAC-Carmichael-OFF@saccounty.net>; Mejia. Manuel <MejiaM@saccounty.net>; Holsworth. Meredith <HolsworthM@saccounty.net>; cindystorelli@gmail.com
Subject: Regarding Proposal for Bike Pathway for O'Donnell Estates Development, Control Number PLNP 2020-00101

EXTERNAL EMAIL: If unknown sender, do not click links/attachments.

Regarding comment from Rick Wiesner to add a bike path/pedestrian walkway thru or around O'Donnell Estates. This is an off agenda item for consideration at the CPAC meeting scheduled for March 17, 2021.

This is a horrible idea that will only annoy those of us that live adjacent to the property under development by adding more trash and noise at all hours to this area, and making our properties less secure.

Jim Uber
Jean Marcy

6705 Lakeview Drive
Carmichael

To: Carmichael – Old Foothills Farms Community Planning Advisory Council
CC: Kimber Gutierrez (Lead Planner, County of Sacramento Office of Planning and Environmental Review)
From: Philip Salzman and Janet Bates
Date: July 5, 2020, revised November 20, 2020
Re: O'Donnell Estates Subdivision Project (PLNP2020-00101)

Additional concerns have been added to our July 5, 2020 letter and are based on review of the "Final Plan Set" document dated November 2, 2020 posted on the County Planning website. The additional concerns are shown underlined. All previous concerns are still pending.

We are writing to express our concerns about the application to create a new subdivision in the current single-family property located at 4434 Mapel Lane in Carmichael (PN 247-0010-001). Our property at 4501 Woodfair Way is directly adjacent to this proposed development. We have reviewed the new documents posted through the end of June 2020 on the Sacramento County Planning Website. Although we do not entirely object to the development of this property to create new homes, we have multiple concerns about the adverse effects of this project on our property and our neighborhood. Many of our neighbors share these concerns.

Our concerns include but may not be limited to the points outlined below. These concerns may change as additional information is provided by the developer and the County.

Summary of key concerns:

1. **Surface water runoff:** The project currently appears to direct a portion of its drainage onto our property and onto Woodfair/Rappahannock Ways. This is unacceptable. The Drainage Plan does not provide any calculations to estimate the stormwater volume and flow rate to be managed. The County must ensure that runoff is fully managed on the project site and not allowed to drain onto adjacent parcels and/or public streets. A detailed drainage plan that addresses these concerns shall be completed prior to approval.
    a) Detailed drainage plan with calculations not submitted for review.
    b) Basin C looks OK in 2 dimensions but detained water would need to flow uphill to exit the proposed orifice (i.e. existing grade slopes from east to west) So the basin would either need to be steeper or wider than shown - and it already is encroaching on the heritage oaks' drip line.
    c) We do not reject this approach out of hand, but what is to prevent Basin C from becoming additional mosquito habitat? Has this approach been approved by Sacramento County Mosquito & Vector Control? Please refer to Item 4 below.

2. **Preservation of heritage oaks and our property's visual amenities:** The County and the developer shall assure that all heritage oak trees not specifically identified for removal on the preliminary arborist report will be preserved during and after construction and occupancy. Also, if the site is suitable for dry wells for storm drainage mitigation, the wells shall be sized and shown on the project drawings prior to approval and recorded in the covenants, conditions, and restrictions for each parcel to assure no unexpected impacts on oak trees. Finally, to preserve the heritage oak trees and the visual amenities that our home currently provides, only a single-story house construction shall be allowed on Lot 1 and a minimum setback of 15 feet shall be required along the Lot 1 North property line.

3. **Construction and maintenance issues:** Construction duration must be limited and defined prior to approval and construction work hours must be limited to 8AM to 6PM, Monday through Friday. The County's broad work hours are reasonable in a commercial setting but not in a quiet established residential neighborhood. Also, the full lengths of Woodfair Way and Rappahannock Way must be repaved as part of the approved project. The roads are in poor condition and will crumble under construction vehicle traffic. Finally, no information detailing how the common facilities in the development (such as the private road, drainage swales, and open space) will be maintained into the future. Detailed documentation must be provided for review prior to project approval.
    a) <u>The proposed new sidewalk on Woodfair Way is located outside the County ROW and on my property. The proposed roadway curve must be reconfigured as I have no plans to sell a portion of my property.</u>

4. **Storm drain routing and inadequate outflow channel:** Comprehensive storm drainage improvements must also address standing water and removal of mosquito habitat in the storm drainage ditch that would receive the discharge from the proposed development. This is an existing public health concern that will be made worse by the water flowing in from the new development.

5. **Proposed development access point and increase in Woodfair Way/Rappahannock traffic:** The vehicle entrance to the subdivision should be on Mapel Lane, as the property has historically been accessed. The residents of the Woodfair/Rappahannock Way neighborhood purchased their homes in good faith with the knowledge and understanding of local traffic volumes and patterns and have a reasonable expectation of the enjoyment of their quiet street with a low volume of traffic. Directing the vehicles from 8 of the 9 new parcels to our neighborhood is not an equitable solution.

Additional detail regarding our concerns is provided below.

1. Surface water runoff

We have previously expressed concerns regarding surface runoff which will need to be addressed by the County and the developer as part of the proposed development. There is a problem with the existing drainage which will be made worse by the proposed development and it needs to be addressed, with full design and documentation included as a condition of development of the site. The following reiterates the existing issue:

In addition to street flooding, our property at 4501 Woodfair Way is subject to significant water runoff from the adjacent 4434 Mapel Lane parcel during the winter months. As we are down-slope, water both flows over the ground surface and through the saturated soil. The water develops into a surprisingly large creek-like flow. This flow can be damaging to our property and landscaping.

The hard surface areas that will be created by the proposed subdivision will further increase the peak water runoff rate and increase the risk of property damage due to increased water velocity and depth as it passes through our yard. Both the County and the developer must be made aware of this ongoing issue, and a mitigation plan must be a criterion for any development approval going forward.

In addition, the submitted Drainage Plan calculation uses a contributing area of only 0.85 acres for a 5 acre site. The Plan appears to assume that all other storm drainage on the site will be managed by

dry wells or directed to adjacent parcels or the public street. The Plan does not provide any calculations to estimate the stormwater volume and flow rate to be managed and provides no geological information to establish that the site is actually suitable for the use of dry wells. If the site is suitable for dry wells, the wells need to be sized and shown on the approved drawings and recorded in the covenants, conditions, and restrictions for each parcel. Further, routing new subdivision drainage to adjacent parcels and/or public streets does not comply with County development standards.

Also note that the submitted plan assumes a water depth of 1 ft in the proposed drainage swales, however the drawings do not appear to show the additional 1 ft of freeboard required by County storm drainage design standards.

2. Preservation of heritage oaks and our property's visual amenities

It appears that the developer plans to cut down 3 of the 7 heritage oaks located in proposed Lot 1, located adjacent to our property. This action is at odds with the County General Plan relative to oak tree preservation and through this action our property will lose a significant visual amenity. We find the loss acceptable provided that certain items are included in the approved documents to prevent additional negative impacts to the use and enjoyment of our property. These items are as follows:

A. Only a single-story house construction will be allowed on Lot 1 and a minimum setback of 15 feet shall be required along the Lot 1 North property line. These items shall be recorded in the covenants, conditions, and restrictions for the parcel.

B. As noted in Item 1 above, if the site is suitable for dry wells, the wells need to be sized and shown on the project drawings and recorded in the covenants, conditions, and restrictions for each parcel. This will assure no unexpected impacts on the oak trees.

C. The Heritage Blue Oaks #414 and #415 must be protected and preserved during construction, with strict adherence to the Sacramento County Tree Preservation and Protection Ordinance (Chapter 19.12). The 2 Heritage Blue Oaks located immediately south of #414 and #415 (indicated but not numbered) must not be impacted or modified by the Project.

3. Construction and Maintenance Issues

The following are construction and maintenance-related issues developed after review of the May 4 plan set.

A. *Construction Duration and Work Hours:* Based on our recent experience with development of the property located at 4514 Mapel Lane, we desire that the construction time window and work hours be clearly defined and enforced. The single-family home at the split lot that created 4514 Mapel Lane took over 2 years to build, with the developer/owner working mostly nights and weekends to complete the construction. Early morning, late night, and weekend noise were a continual annoyance for over 2 years. This is a residential neighborhood and not an industrial zone. Peace and quiet in our homes is something that we all expect and deserve as County taxpayers. A fixed time must be established for the work to be completed and working hours must be limited to 8 AM to 6 PM, Monday through Friday.

B. *Road Repair:* The full lengths of Woodfair Way and Rappahannock Way need to be repaved as part of this development project. The road surfaces are in very poor condition. The roads are

actually green with new grass growth in early spring. These roads will experience significant additional deterioration with the large truck traffic that will be routed to and from the site during construction. It is not reasonable to allow the developer to do its work and leave existing residents with a broken-up road full of potholes. Repaving of Woodfair Way and Rappahannock Way to County Standards should be included as part of the Developer's work and shown and detailed on the approved documents.

C. *Future maintenance of common facilities in the subdivision:* No information is provided in the posted documents that details how the common facilities in the development, including but not limited to the private road, drainage swales, and open space, will be maintained into the future. A detailed document that details the scope and legal requirements of each homeowner in the subdivision must be provided for review prior to project approval.

4. Storm drain routing and inadequate outflow channel

We have previously expressed concerns regarding the existing storm drainage system that will take all surface runoff from this development and a resulting exacerbation of mosquito issues. These need to be addressed by the County and by Sacramento-Yolo Mosquito & Vector Control.

Runoff flowing into the storm drains at Woodfair Way and Rappahannock from the proposed development is routed into an outflow pipe that runs under the north side of our property and discharges at the rear of our property into an open ditch that then cuts across the property at 4520 Mapel Lane. Sacramento County Water Resources has recently completed modifications to improve the outflow from this pipe from our property, but moist soil and water pools still regularly form in the earthen drainage ditch. In summer, water that flows from neighbors' sprinkler irrigation runoff goes into this drain and then pools in the ditch, resulting in a mosquito problem from standing water. We have had several visits from Sacramento County Vector Control to try to mitigate the mosquito problem. We and some of our neighbors are older and are concerned about contracting West Nile Virus. Additional periodic irrigation runoff from the proposed new homes will increase the quantity of mosquito habitat and increase our risk of exposure to the virus. This is an unacceptable public health hazard that must be comprehensively addressed as a part of any planning that goes forward on this project.

5. Proposed development access point and increase in Woodfair Way/Rappahannock traffic

We see that since the initial application of 2019, the number of houses with vehicle access to Woodfair/Rappahannock has been reduced from 10 to 8, with the total number of lots reduced to 9. Despite this reduction, our concerns relative to traffic impacts on these streets still need to be addressed by the County.

The street address of the property to be subdivided is Mapel Lane and its current entrance is located on that street. The proposed subdivision, however, includes a primary entrance/exit serving eight houses to be located at the intersection of Woodfair Way and Rappahannock. Since the historical entrance to the property has been on Mapel Lane, we feel that any development of the property should maintain that historical access point. Arbitrarily changing the property entrance unfairly penalizes the residents living on Woodfair and Rappahannock and will adversely impact the character of this neighborhood and quality of life for current residents who have purchased and maintained their homes in good faith with the knowledge and understanding of local traffic volumes and patterns. Like other neighbors, we chose to purchase property on a quiet street with a low volume

of traffic. The creation of this new street with eight additional single-family homes will substantially increase the volume of resident and service vehicles traveling on our streets. Increased traffic would also impact O'Donnell Heritage Park (adjacent parcel on Rappahannock) with its popular, recently developed child play area.

The subject property has a Mapel Lane address, and the primary vehicular entrance has always been via Mapel Lane. Therefore, street access to any new subdivision should also be from Mapel Lane. Directing the vehicles from 8 of the 9 new parcels to our neighborhood is not an equitable solution.

To: Carmichael-Old Foothills Farms Community Planning Advisory Council
CC: Kimber Gutierrez (Lead Planner, County of Sacramento Office of Planning and Environmental Review)
From: Philip Salzman and Janet Bates
Date: March 9, 2021
Re: O'Donnell Estates Subdivision Project (PLNP2020-00101) Review Comments

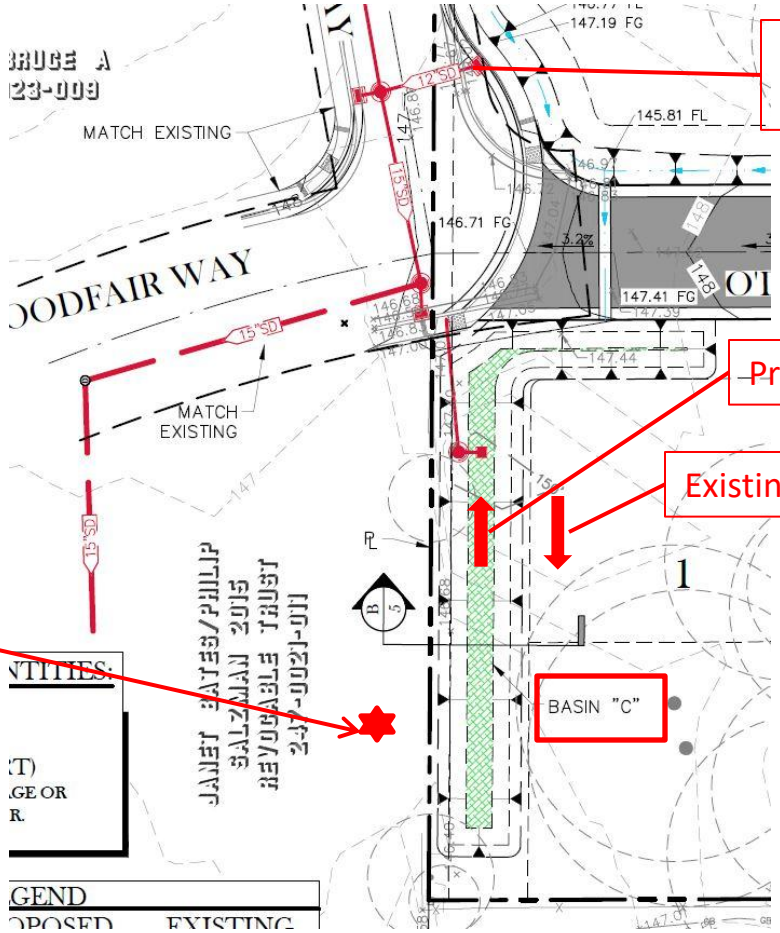
We have previously submitted detailed comments on the Project to CPAC in letters dated July 5, 2020 and November 20, 2020. Please refer to those documents for additional background and explanation. Below is a brief summary of our comments on the currently proposed project. Please see attached figures with additional detail.

1 – Surface Water Runoff:
(**A**) The developer shall submit a revised drainage plan to allow verification of how drainage system elements were sized and how they function both routinely and during the design storm event.
(**B**) Proposed Basin C has the potential to be a mosquito generator, to be an odor generator, to be much larger than currently shown on the plans, and to negatively impact our existing trees and low-water plants. Please provide a response to these concerns.
(**C**) Confirm that the 3 new DIs will be Type B to prevent the chronic flooding seen with existing leaf-blinded Type C DIs.

2 – Preservation of Heritage Oaks & Visual Amenities/Privacy:
(**A**) The County must require that the developer's proposed "allowable building footprint area" be recorded in the covenants, conditions, and restrictions for the parcels to avoid additional damage to Heritage Oaks by those who purchase the lots. Any proposed "dry wells" or similar features must also be shown on the plans and recorded.
(**B**) In order to preserve our property's visual amenities and privacy we request that a minimum 15 foot setback be provided along the north property line of Lot 1 and only a single story house be allowed to be constructed in Lot 1.

3 – Construction and Maintainance Issues:
(**A**) Peace and quiet in our homes is something we expect and deserve as County taxpayers. A fixed time must be established for all construction work to be completed and working hours must be limited to 8AM to 6PM, Monday through Friday.
(**B**) Woodfair Way and Rappahannock Way are in very poor condition and will be significantly damaged by the heavy trucks and construction vehicles Woodfair and Rappahannock must be completely repaved as part of the project.
(**C**) Information must be provided on how common facilities including roads, open space, and drainage basins will be maintained and there must be enforceable financial penalties for noncompliance.

1 – Surface Water Runoff: (**A**) A revised drainage plan has not been submitted and is required to verify how system elements were sized and how they function both routinely and during the design storm event. (**B**) Proposed Basin C has the potential to be a mosquito generator and odor generator. Lawn sprinkler drainage will likely keep it wet throughout the year. Also, a quick calculation shows that the current basin geometry does not take into account existing grade, with the proposed slope drainage running opposite the existing grade, and will need to be much wider than shown if 3:1 side slopes are maintained. An additional concern is what impacts seepage from the basin could have on our existing trees and low-water landscape plants (**C**) Confirm that the 3 new Drain Inlets (DI) will Type B to prevent the chronic flooding we have seen with existing leaf-blinded Type C DIs.



Confirm new Type B DI (3 DIs total)

Proposed slope to drain

Existing Grade

Our bedroom window located here

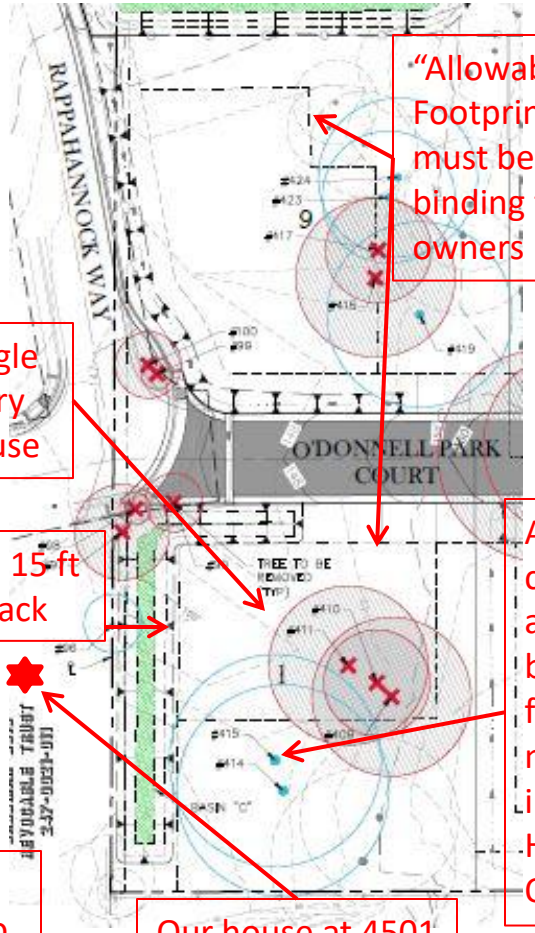
2 – Preservation of Heritage Oaks & Visual Amenities/Privacy: The developer's plan includes cutting down 44 trees, including at least 27 oak trees – many of which are Heritage Oaks (>19" dia.) (**A**) The County must require that the developer's proposed "allowable building footprint area" be recorded in the covenants, conditions, and restrictions for the parcels to avoid additional damage to Heritage Oaks by those who purchase the lots. Any proposed "dry wells" or similar features must also be shown on the plans and recorded. (**B**) In order to preserve our property's visual amenities and privacy we request that a minimum 15 foot setback be provided along the north property line of Lot 1 and only a single story house be allowed to be constructed in Lot 1.



411, 410, 409 Oaks to be cut down

Current view from our backyard - looking South to proposed Lot 1

415 & 414 Heritage Oaks to be preserved



"Allowable Building Footprint Area" must be legally binding for property owners

Single story house

Min. 15 ft setback

A small change in allowable building footprint can negatively impact these Heritage Oaks

Our house at 4501 Woodfair

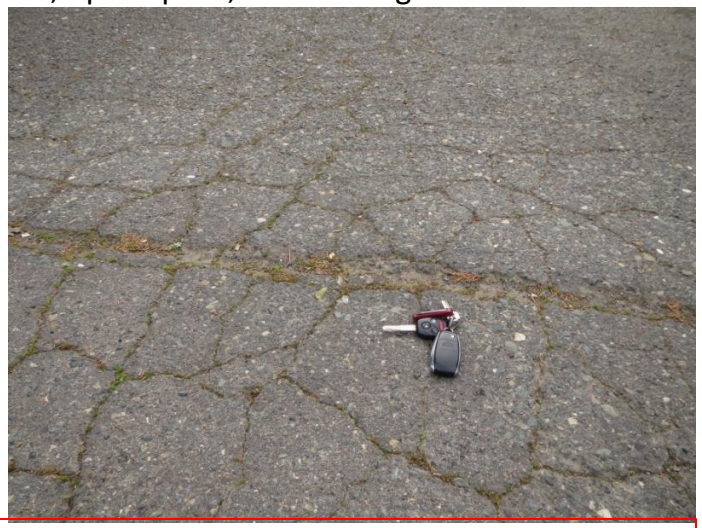
3 – Construction and Maintainance Issues: (**A**) Peace and quiet in our homes is something we expect and deserve as County taxpayers. A fixed time must be established for all construction work to be completed and working hours must be limited to 8AM to 6PM, Monday through Friday. (**B**) Developer proposed 860 CY of export = 86 dump truck loads = 172 times damaged roads will be pounded by heavy dump trucks alone, not to mention trucks loaded with materials and the many trips by trade worker vehicles. Woodfair and Rappahannock must be repaved as part of the project. (**C**) Information must be provided on how common facilities including roads, open space, and drainage basins will be maintained and there must be legal penalties for noncompliance.

Similar relative position of our bedroom window to proposed Lot 1





Hours of work and duration of construction must be limited for project in residential community



Woodfair Way – typical photo showing alligator'd pavement with grass growing in cracks. Woodfair and Rappahannock must be repaved as part of the project.



Drainage Basin can be mosquito habitat if not maintained

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From:	Mike Y
To:	Clerk of the Board Public Email; Gutierrez. Kimber
Subject:	Meeting Comment for **** Carmichael/Old Foothill FarmsCommunity Planning Advisory Council (CPAC)Wednesday, March 17, 2021 at 6:30 PM
Date:	Thursday, March 11, 2021 8:03:25 PM

EXTERNAL EMAIL: If unknown sender, do not click links/attachments.

Good evening,

I live down the street from this development. First off, my household has not been able to voice or opinions on this development. The upcoming meeting only has 15 minutes for comments. I have no faith in being able to speak.

The developer plan mentioned that there was a survey that was conducted in 2019. I was never part of this survey.

The plan for development is not to my interest - the plan gives nothing back to the community. Originally, a lot of that land used to be parkland, and was sold privately because it was not to be used.

The land was obtained from the Money Store owners (which destroyed the California economy). Do we have to re-live the privatisation of our wealth? The profits that created this were ill-gotten, and now the people suffer twice.

I live on the Woodfair Way side of the development. There is currently no road usage to the housing. The current plan for the road is private, and offers no access to existing homeowners in the area.

This plan does nothing but help the developer, and it gives nothing back to the existing community.

There has not been enough time to vocalize opinions, and this County needs to give this development more oversight.

This does not help the housing crisis. This is cramming expensive homes into a small area, that utilizes private roads that don't match the surrounding area, and that is on land that has a history of being obtained at the expense of the people.

If there is to be building, the road should match, the park land that was taken years ago for the O'Donnel park should be given back to Carmichael, and there should be more effort to help existing land owners.

The current plan is nothing but profits - and it is an investment - and should be seen so. These are luxury homes that do not help the housing crisis. Aside from this, since it is an investment, that means that there should be investor arguments; how does this help my investment?

In short, there is no oversight to this project, the community has not been able to vocalize their opinion, this is putting private profits before the community, the development does not match the neighborhood (I am not against building), and it does not help the housing crisis.

The plan needs to restore the land purchased years ago to the park district. The plan should have normal size streets, and the plan should have two roads, one that connects on both sides, and does not favor Mapel or Woodfair Way.

Aside from this, the plan in general; why not sell the large mansion to a non-profit? There are different ways to utilize this property. Again - this is showing the investment nature of the property.

This is no pro-community. This is pro-investor.

Thank you,

Michael Yosgott (son and also on behalf of parents who live at the same address).
4517 Woodfair Way
Carmichael, CA 95608
916-719-4950

Appendix HY-1

O'DONNELL ESTATES

CARMICHAEL, CA

PRELIMINARY HYDROLOGIC AND HYDRAULIC REPORT

VERTICAL DATUM: NAVD88

Submittal: September 22, 2021

Prepared For:

O'Donnell Estates Subdivision
4434 Mapel Lane
Carmichael, CA 95608

Prepared By:

TSD Engineering, Inc.
785 Orchard Drive, Suite 110
Folsom, CA 95630

REGISTERED PROFESSIONAL ENGINEER
THOMAS N. JONES
C 67270
EXP 9/30/22
CIVIL
STATE OF CALIFORNIA

9/22/21

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I. INTRODUCTION

This report presents hydrologic and hydraulic analyses for the O'Donnell Estates Subdivision (Project) by Nicksam Properties, LLC, located in the City of Carmichael, Sacramento County, CA (see Appendix – A for Vicinity Map). This report estimates storm flow hydrology and hydraulics as outlined in the *County of Sacramento Improvement Standards – Section 9* (Reference 1, hereinafter referred to as the *Manual*). Additionally, this report presents Low Impact Development (LID) measures as prescribed in the Storm Water Quality Design Manual – Sacramento Region (Reference 2, hereinafter referred to as the *SQDM*).

This report analyzes the Project's proposed storm drain system, outfall locations, flood control and LID characteristics. The Project is not required to provide "hydromodification" as it lies within an exempt area per the County's Hydromodification Management Plan (HMP) – Applicability Map. The proposed Project is also under the threshold of 20-acres for runoff treatment; thus, is not included as part of this report.

II. PROJECT LOCATION AND DESCRIPTION

The Project is located at 4434 Mapel Lane, roughly 1/10 of mile south of Winding Way and east of Barrett Road, in Carmichael. The site is bordered by Woodfair Way & Rappahannock Way to the north, along with existing residential properties. Existing residential properties line the project site to the west and south along with existing Mapel Lane. The Carmichael Recreation/Park District property (O'Donnell Heritage Park) lies immediately adjacent to the Project's proposed Open Space lot, to the east (See Topographic Survey – Appendix C).

The Project encompasses approximately 6.13-acres of primarily undeveloped property, with exception to an existing single-family residence, paved driveways and paved sport courts. The development is proposed as a 9-lot residential subdivision including roadway improvements, underground utilities and buildable residential lots (see Tentative Subdivision Map – Appendix D). The Project's proposed improvements generally consist of the following:

- 9-Single Family Residential Lots;
- A single cul-de-sac (Private court) to serve the subdivision;
- On-Site private roadside ditches, driveway culverts and roadway cross culverts;
- Offsite (Frontage) Improvements along portions of Woodfair Way & Rappahannock Way
    - Pavement Widening for County standard street elbow,

    - Concrete Sidewalk and Curb & Gutter
- Onsite & Offsite (Frontage) Underground Utilities;
- Dedication of 1.09± acres of Open Space (APN: 247-0010-008);
- Onsite Residential Lot LID Features; and,
- Drainage Basin "A" (LID Bio-Retention & Runoff Mitigation).

III. HYDROLOGY

METHODS

The methodology contained in this study is in compliance with the procedures presented in the *Manual*. A hydrologic analysis was completed to estimate storm runoff from the proposed Project. Drainage sheds and flow patterns for the Project's existing and developed conditions were determined from existing topography and the proposed grading plan. Both the Existing Shed Map and Developed Shed Map can be seen in Appendix – D.

Design Runoff for the Project site was estimated using the Nolte and Sacramento Methods. These methods were exercised through the use of Sacramento County's Hydrologic Calculator (Sac-Calc), as well as XPStorm software by Innovyze, further described as follows:

Nolte Method:

- Nolte Design Runoff (pipe flow) – To analyze the capacity of existing/proposed underground storm drain within Woodfair Way & Rappahannock Way.
- Sac-Calc used to generate runoff estimates based on individual drainage shed data.
- Nolte Method used to estimate the Post Project condition runoff only.

Sacramento Method:

- Sacramento Method 10 & 100-Year Design Runoff – To analyze capacities of existing/proposed roadside ditches, on-site property line swales, proposed driveway culverts, roadway cross culverts, proposed detention basins (Basin "A"), overland release routes, 10-year & 100-year storm event water surface elevations within receiving channels (Mapel Ditch).
- XPStorm drainage model used to generate runoff hydrographs from individual drainage sheds and route the hydrographs through drainage conveyances.
- Sacramento Method used to estimate both Pre and Post Project condition runoff.

EXISTING SITE CONDITIONS AND HYDROLOGY

The entire Project site consists of approximately 6.13-acres of primarily undeveloped property with exception to an existing single-family residence, paved driveways and paved sport courts. The existing residence is situated atop a hill breaking the site into two main watersheds: **Northern and Southern Watersheds** (see Existing Shed Map – Appendix D).

Existing topography in the **Northern Watershed** shows that about 52% of the site's runoff (Sheds A1 & A2) combines with runoff from portions of the O'Donnell Heritage Park (Shed A3). This runoff flows towards an existing 15-inch storm drain system at the intersection of Woodfair Way/Rappahannock Way. Here, Shed A runoff combines with developed flows from approximately 3.44-acres of residential area and existing streets, denoted as Shed B (see Existing Shed Map – Appendix D). Existing Drainage Sheds A & B represent an area (8± acres) tributary to the existing 15-inch storm drain. The existing 15-inch storm drain system conveys developed flow from Sheds A & B to an existing drainage ditch, northwest of the Project site. The existing ditch (Mapel Ditch – see Shed Maps – Appendix D) flows from south to north within the rear yards of existing residences on Mapel Lane. At the outfall of the 15-inch storm drain (rear yards of 4501 Woodfair Way & 4514 Mapel Lane), another 11% of the Project Site's runoff (Shed C2) contributes flow to the Mapel Ditch, as well as, 5.3±-acres of off-site residential area (Sheds C1.1 & C1.2). Existing Sheds A, B & C are conveyed to the northwest via the Mapel Ditch, eventually connecting to a roadside swale near 4530 Mapel Lane.

The **Southern Watershed** makes up the remainder of the Project Site (37%) and shown as Shed M (see Existing Shed Map – Appendix D). Runoff from Shed M sheet flows to the south towards the neighboring properties. Existing depressions, yard swales and minor drainage ways convey Shed M runoff to Mapel Lane's southbound flowing roadside ditch.

The Project Site's hydrologic soil group classification was obtained from the U. S. Department of Agriculture Natural Resources Conservation Service (NRCS). The on-site soils are entirely defined as Type-D soils, as well as the surrounding off-site watersheds areas.

The FEMA Flood Insurance Rate Map, included in Appendix B, shows that the Project is outside the 0.2% annual chance floodplain (area of minimal flood hazard). Accordingly, the development will not require changes to the FEMA designations.

The elevation of the Project site ranges from 147.0-feet to 162.0-feet relative to the

National American Vertical Datum 1988 (NAVD 88). This study uses topography based on the following:

- LiDAR data collected by the California Department of Water Resources (DWR) Central Valley Floodplain Evaluation and Delineation (CVFED) Program in 2008.
- Field topographic survey performed in July of 2018, by TSD Engineering, Inc.
- Field topographic survey performed in July of 2020, by TSD Engineering, Inc.

Reference Topographic Survey Map – Appendix C.

DEVELOPED SITE CONDITIONS AND HYDROLOGY

In developing the preliminary Grading & Drainage Plan for the Project site, TSD has maintained drainage patterns similar to existing conditions. As stated above, the existing site is divided into two major drainage areas, the Northern and Southern Sheds. Under proposed conditions, drainage sheds "A" and "C" will continue to drain to the north and shed "M" to the south (see Developed Shed Map – Appendix D). The western portion of the O'Donnell Heritage Park will continue to drain through the site, similar to existing conditions. Potential runoff increases due to the developed areas within Shed A are proposed be mitigated through drainage Basin "A". Developed runoff from Sheds "C" and "M" and a portion of Shed "A" (Lot 9 – Shed A1.2) will be individually mitigated through the use of private lot LID features.

The proposed grading of the Project Site is limited to the necessary cuts/fills to construct a single cul-de-sac, associated roadside ditches, property line cut-off swales, drainage Basin "A" and the individual lot LID features. The developed residential parcels are intended to be left non-graded with future home construction incorporating the natural terrain, to the extent practicable. Proposed elevations of the Project site consist of elevations ranging from 147.0-ft to 162.0-ft (NAVD 88), consistent with existing land contour elevations.

Reference Preliminary Grading Plan – Appendix D.

Existing condition watershed boundaries were utilized as the outer extent of the proposed (developed) watershed boundaries. The proposed grading of the site's cul-de-sac and roadside ditches closely mimic the existing watershed break lines.

Existing on-site drainage sheds A1, C2 & M1 (see Existing Shed Map – Appendix D) are redefined under the developed conditions as drainage sheds "A1.1", "A1.2", "C2.1", "C2.2",

"M1.1" and "M1.2" (see Developed Shed Map – Appendix D). These proposed Sheds are further described, as follows:

- Shed – A1.1: Consists of proposed Lots 2, 3, 6, 7, and 8. Combines with existing Sheds A2 & A3 at proposed Basin "A", where developed runoff is regulated prior to discharging to proposed underground storm drain in Rappahannock Way.
- Shed – A1.2: Consists of proposed Lot 9. Flows to proposed individual lot LID feature, where developed runoff is treated/regulated prior to sheet flowing to Rappahannock Way and a proposed drainage swale along its street frontage (proposed cul-de-sac).
- Shed – C2.1: A portion (55%±) of proposed Lot 1. Flows to proposed individual lot LID feature, where developed runoff is treated/regulated prior to discharging to a proposed drainage swale along its northern property line.
- Shed – C2.2: A portion (45%±) of proposed Lot 1. Flows to proposed individual lot LID feature, where developed runoff is treated/regulated prior to discharging to a proposed drainage swale along its street frontage (proposed cul-de-sac).
- Shed – M1.1: Consists of proposed Lot 4. Flows to proposed individual lot LID feature, where developed runoff is treated/regulated prior to discharging to a proposed drainage swale along its western property line. Flows from Shed M1.1 (Lot 4) will pass through Lot 5 prior to draining to an existing roadside ditch on Mapel Lane.
- Shed – M1.2: Consists of proposed Lot 5. Flows to proposed individual lot LID feature, where developed runoff is treated/regulated prior to discharging to a proposed drainage swale along its southern property line. Shed M1.2 will discharge to an existing roadside ditch on Mapel Lane.

Runoff from existing Shed B joins developed flows from Shed "A" at the existing 15-inch storm drain in the intersection of Woodfair Way/Rappahannock Way. This combined runoff is conveyed via the 15-inch storm drain to the Mapel Ditch, similar to existing conditions.

Runoff from Existing Shed M2 (Open Space) continues to drain towards the southeast, as per existing conditions. Runoff from Existing Sheds C1.1 & C1.2 continue to drain to the Mapel Ditch, as per existing conditions.

RUNOFF ESTIMATES

Table 1 below provides a summary of the estimated runoff for both existing and developed conditions for the Drainage Sheds analyzed in this report. Reference the Existing Shed Map and Developed Shed Map in Appendix – D for Shed locations.

Table 1

	Shed I.D.	Existing Flows		Proposed Flows	
		10-yr Flow (cfs)	100-yr Flow (cfs)	10-yr Flow (cfs)	100-yr Flow (cfs)
Northern Watershed	Shed A	12.55	21.46	7.55	12.86
	Shed B			5.66	9.65
	Sheds A1.2 & C2.2			1.27	2.16
	DP#1 (MH-2)			**14.48**	**24.67**
	Shed C1.1	3.69	6.31	3.69	6.31
	Shed C1.2	4.98	8.49	4.98	8.49
	Shed C2	1.07	2.06		
	Shed C2.1			0.47	0.81
	Shed C	**9.74**	**16.86**	**9.14**	**15.61**
Southern Watershed	Shed M1.1	3.33	5.72	0.74	1.26
	Shed M1.2			1.29	2.20
	Shed M1			**2.03**	**3.45**
	Shed M2	0.37	0.72	0.37	0.72

IV. HYDRAULICS

Drainage Modeling

XPStorm:
This model was developed for the Project to analyze both existing (Pre-Project) and developed (Post-Project) conditions. As mentioned previously, design runoff for the 10-yr & 100-yr storm events were determined by the Sacramento Method within XPStorm. This estimated runoff was routed through the Project site, existing/proposed underground storm drain, overland release paths and the existing drainage swale (Mapel Ditch) to consider the following:

- Off-Site watersheds being routed through the Project site (Sheds A2 & A3).
- The hydraulic dynamics of proposed drainage Basin "A".
- The overland release street flow generated at the Woodfair Way/Rappahannock Way intersection (street elbow) that is conveyed through proposed Lot 1 (Pre & Post Project) to the Mapel Ditch, further discussed below under "Overland Release".
- The effect on the water surface elevations of the Mapel Ditch as it reaches Mapel Lane's roadside ditch (4530 Mapel Lane).

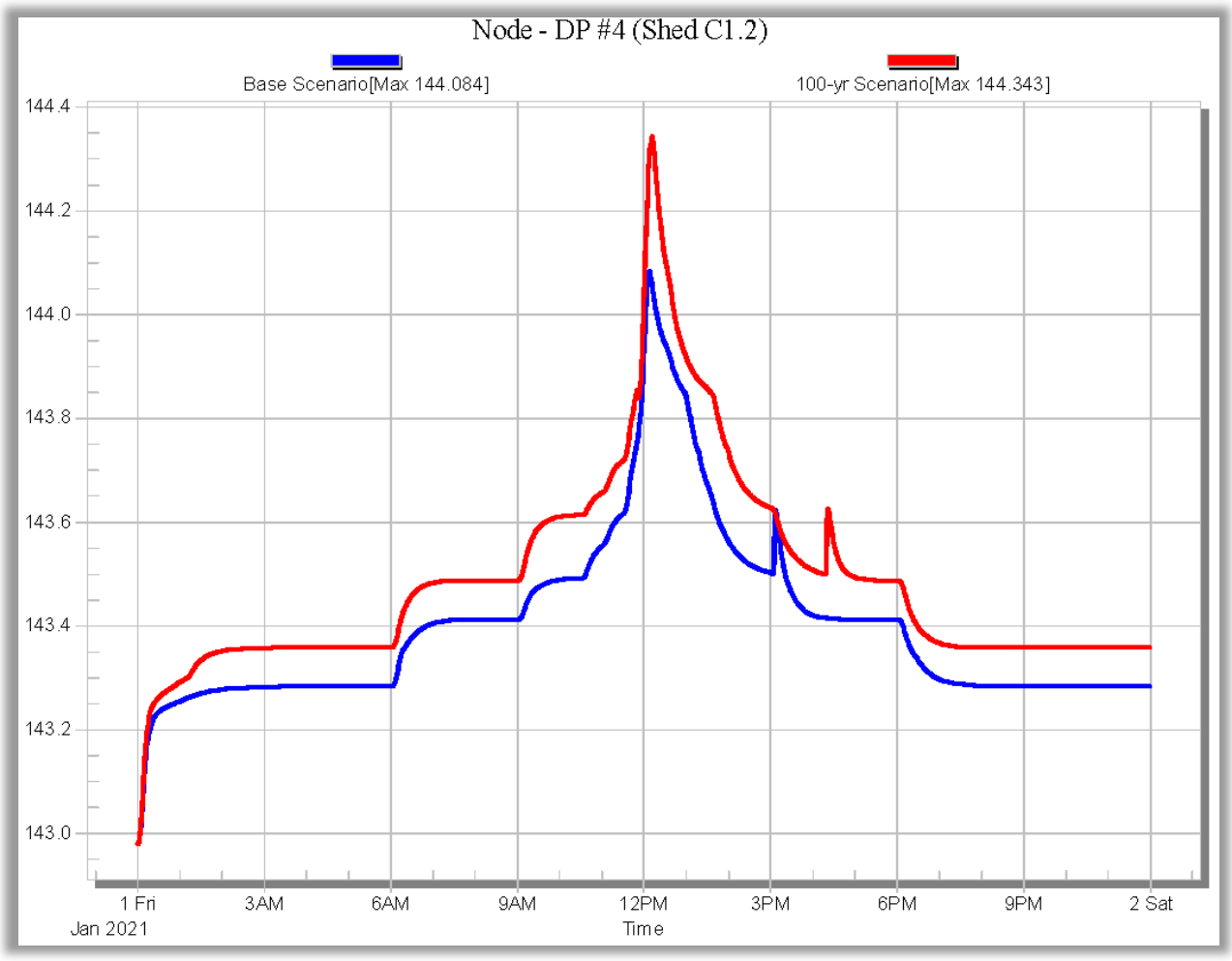
StormCAD:
Peak flow runoff through the existing and proposed underground storm drain system was analyzed using Bentley StormCAD software, for pipe capacity and hydraulic grade line.

Only the steady-state Nolte Method design runoff was used in the StormCAD model, determined with the Sac-Calc program. The hydraulics of the storm drain system are further discussed below.

Tailwater Conditions

In order to analyze the Post-Project (developed condition) hydraulics of the existing and proposed storm drain, a 10-year storm event tailwater surface elevation needed to be established at its outfall location to the Mapel Ditch. This location is shown as Design Point 4 (DP #4) on the Existing & Developed Sheds Maps – Appendix D. The XPStorm model was used to determine a Tailwater Elevation of 144.08-ft for the 10-year storm event. Figure 1, below, illustrates the Mapel Ditch water surface elevation at DP #4 for the 10-year storm event (Sacramento Method) under existing conditions.

Figure 1



Woodfair Way/Rappahannock Way 15-inch Storm Drain System

As directed by Sacramento County DWR, the existing 15-storm drain within Woodfair Way was evaluated for Post-Project Nolte flows to ensure standard freeboard requirements will be maintained. Additionally, the proposed extension of this storm up Rappahannock Way (approximately 115-ft) was included as part of the Nolte analysis.

Tailwater conditions, as previously described, were used as the starting point in StormCAD to analyze the pipe system. Based on the estimated Design Runoff (Nolte) and the associated hydraulic characteristics within the existing/proposed storm drain, the underground system has adequate capacity to convey the post-project flow. The StormCAD generated Catch Basin Table, Conduit Table and Profile Report (see Appendix – F) show that HGL's within the storm drain maintain 6-inches of freeboard below drain inlet grates and 12-inches of freeboard below drain manhole rim elevations, as required by the *Manual*.

Noted Assumptions/Criteria Used in Analysis:

- Tailwater: 144.08-feet (NAVD88) at the storm drain's outfall to Mapel Ditch – Design Point 4 (DP #4) on the Developed Shed Map.
- Manning's Coefficient: 0.015 (used for all pipe segments)
- Max. Nolte Flow: 2.9-cfs occurring at existing drain Manhole 2 – Design Point 1 (DP #1) on the Developed Shed Map.
- The proposed re-alignment of the Woodfair/Rappahannock Way street elbow and entrance to the Project's cul-de-sac will require reconfiguring/replacement of existing drainage inlets, associated with the existing 15-inch storm drain system. Replaced drain inlets are proposed to meet County Standard Type – B.

Basin "A"

Drainage Basin "A" is proposed to mitigate potential increased flows and total runoff from drainage Sheds A1.1, A2, and A3 of the developed Project. Basin "A" also serves as a proposed means of LID for Shed A1.1 (further discussed in Section V below). Sheds A1.1, A2 and A3 correspond to roughly 54% of the tributary area to the existing 15-inch storm drain. Under developed conditions, this area includes an additional 0.7-acres of drainage shed area shifted from the Southern Watershed to the Northern Watershed, relative to existing conditions.

The proposed 0.61± ac-ft basin is sized to detain 0.34 ac-ft of runoff above the level of LID bio-retention ponding which consumes the first 12-inches of storage (see Sections D & H – Preliminary Sections – Appendix D). Above the LID bio-retention ponding,

stormwater will begin flowing from the basin through a proposed County Standard concrete headwall and 15-inch outfall pipe (see Section H – Preliminary Sections – Appendix D). Stormwater outflow rates are regulated by the 15-inch outfall. Post-Project in-flow to Basin "A" is 7.6 cfs & 12.8 cfs for the 10-yr & 100-yr events, respectively. Regulated Post-Project out-flow from Basin "A" is 3.7 cfs & 4.4 cfs for the 10-yr & 100-yr events, respectively. The final configuration, basin access, fencing, landscaping, and outfall structure will be further refined through Sacramento County DWR during review of the subdivision Improvement Plans and final drainage report.

Existing drainage Sheds A2 and A3 contribute to the proposed basin via sheet flow and natural conveyances. The Developed Shed Map and Preliminary Grading Plan (Appendix – D) shows runoff from developed Shed A1.1 is conveyed to Basin "A" through proposed individual lot drainage swales, roadside ditches along the Cul-de-Sac, driveway culverts and roadway cross culverts. This system is sized to convey the estimated 100-yr storm event runoff (Sacramento Method) in order to mitigate post-project runoff from Shed A1.1, further discussed below.

Table 2, below, contains the stage storage data of Basin "A" for its geometric characteristics.

Table 2

BASIN "A" - Stage Elevation Data					
ELEVATION (ft.)		**AREA (sq. ft.)**	**AREA (ac.)**	**Incremental Volume (acre-ft)**	**Cumulative Detention Volume (acre-ft)**
144.50	Top of LID Surface	3,755	0.09	0	-
145.50	Outfall I.E.	4,657	0.11	0.10	0.00
146.50		5,616	0.13	0.12	0.12
147.50		6,630	0.15	0.14	0.26
148.07	Max 100-yr Elevation	7,240	0.17	0.09	0.35
148.50		7,701	0.18	0.05	0.42
149.50	Top FG of Basin	8,828	0.20	0.19	0.61

On-Site Roadside Ditch/Culvert System

Runoff from Developed Lots 2-3 and Lots 6-8 is proposed to be served by a system of driveway culverts, roadway cross-culverts, roadside ditches and side-yard drainage swales (see Preliminary Grading Plan – Appendix D). The roadside ditches are proposed to have 3:1 (maximum) side slopes and average longitudinal (running) slopes between 3% and 6%. The side-yard drainage swales are proposed to have 3:1 (maximum) side slopes and maintain a minimum of 0.5% longitudinal (running) slope. The minimum driveway and

roadway cross-culvert sizes proposed are 12-inch & 15-inch in diameter (Reinforced Concrete Pipe – RCP), respectively.

The On-Site culvert crossing that represents the worst-case scenario roadway cross-culvert is between Lots 3 & 8 with a tributary runoff area of 0.62-acres (See Onsite Swale & Culvert Sizing Exhibit – Appendix H). For the 100-year event (Sacramento Method) 0.62-acres yields a Peak Flow of 1.8± cfs (See Sacramento Method Results – Appendix H). A 15-inch diameter cross culvert adequatley conveys 125% of the Peak Flow (at 2.25-cfs) without overtopping the roadway (See CulvertMaster Report – Appendix H).

The On-Site drainage swale that represents the worst-case scenario is the side-yard swale along the northern property line of lot 8, with a tributary runoff area of 1.39-acres (See Onsite Swale & Culvert Sizing Exhibit – Appendix H). For the 100-year event (Sacramento Method) 1.39-acres yields a Peak Flow of 4.0± cfs (See Sacramento Method Results – Appendix H). Per results from a FlowMaster analysis, a swale with 3:1 side slopes, 0.5% longitudinal slope and 4.0-cfs design flow, the normal depth is 0.89-ft (See Worksheet for Critical Swale – Appendix H). The proposed side-yard swale within Lot 8 would be required to maintain a depth of roughly 1.5-ft along its course to Basin "A".

In the event that any single culvert or series of culverts are 100-percent blocked/clogged, the proposed road side grading on O'Donnell Park Court will provide an overland release path to proposed draingage swale along the northern property line of Lot 1, further discussed below.

<u>Overland Release Routes</u>

Currently, the overland release flow paths follow Rappahannock Way down to Woodfair Way, overtopping the existing sidewalk, making its way between the Project's northerly boundary and the adjacent northern property (4501 Woodfair Way). The overland flow follows the property line towards the west and releases into the Mapel Ditch (see Shed Maps – Appendix D). The Project proposes to further define this existing overland release path by providing a trapezoidal drainage swale across Lot 1 to the Mapel Ditch (see Developed Shed Map & Preliminary Grading Plan – Appendix D). The proposed drainage swale will be constructed with 3:1 (max.) side slopes, 5-ft (min.) bottom width and a longitudinal slope of 0.5% (min.). The drainage swale is designed to convey the 10-year event runoff in excess of the underground storm drain capacity (approximately 10-year flow – Nolte flow), as well as, the 100-yr event flow.

As described in Section III – Developed Site Conditions, the Project proposes to leave the residential lots non-graded. Therefore, future building pad elevations will be required to

maintain 1.2-ft of freeboard from the 100-yr WSEL's (or 1.5-ft to future finish floor elevations), per the *Manual*.

Downstream Culvert at 4530 Mapel Lane

Previously described in Section III – Existing Site Conditions and Hydrology, of this report, developed runoff from the Project site and adjacent neighboring properties is conveyed northerly via the Mapel Ditch. At the north end of Mapel Ditch, an existing 15-inch culvert conveys flows underneath the driveway at 4530 Mapel Lane (Reference Design Point #5 – Shed Maps – Appendix D). This existing culvert was modeled with XPStorm for both the 10-year & 100-year storm events under existing and developed conditions. The analysis shows that during larger storm events (10-yr & 100-yr) design flows exceed the culvert's capacity. As a result, stormwater overtops the concrete driveway which acts as a "straight" headwall at the upstream end of the culvert (Reference Exist. Driveway @ 4530 Mapel Ln. Photo – Appendix D).

It is expected, based on design flows (10-yr & 100-yr events) and hydraulic modeling that the driveway at 4530 Mapel Lane is subject to flooding. A "Mapel Ditch Flood Exhibit" (See Appendix D) has been prepared to illustrate 100-yr Water Surface Elevations (WSEL's) along the existing Mapel Ditch, for both existing and developed Project conditions. Additionally, Design Point – Stage Elevation results are presented in Appendix – F that show maximum stage elevations above the existing driveway surface (at approximately 142.09-ft in elevation).

Although design flows are expected to exceed the existing culvert's capacity and overtop the driveway, it should be noted that this condition has the potential to occur under both Existing and Post-Project (Developed) conditions. It should also be noted that under Developed Conditions (Post-Project) that WSEL's along Mapel Ditch and at the driveway of 4530 Mapel Lane, are reduced. This reduction in WSEL's can be attributed to the proposed Basin "A" which attenuates runoff during storm events prior to contributing flows to Mapel Ditch.

V. LOW IMPACT DEVELOPMENT (LID)

The Project addresses Low Impact Development measures required by the County of Sacramento for residential projects. Per the *SQDM* the goal of LID measures is "to mimic a site's predevelopment balance of runoff and infiltration by using design techniques that infiltrate, store, evaporate, and detain runoff close to its source."

To mitigate increased stormwater runoff from developed areas, the Project proposes the following LID measures:

- Common Drainage Plan Open Space (Natural Areas including Existing Trees, Vegetation & Soil)
- Disconnected Roof Drains
- Interceptor Trees (Existing and Proposed)
- Individual Residential Lot – Amended Soil Areas
- Multiple Lot – Bio-Retention Basin "A"

In order to determine the effectiveness of the proposed LID measures, the County's spreadsheet for Residential Sites: Low Impact Development (LID) Credits was utilized (See Appendix – G). The Project's proposed pervious and impervious surfaces were calculated along with existing tree canopy area to be saved. Assumptions were made for future buildable areas on each lot, future tree locations and potential locations for individual lot amended soil areas. These assumptions and potential areas are depicted on the LID Measures Exhibit in Appendix – G.

VI. SUMMARY

Based on the following, the O'Donnell Estates Subdivision (Project) preliminary design and development will meet or exceed drainage performance standards required by the County of Sacramento.

- No significant change to Overall Shed boundaries (Existing vs. Proposed).
- The existing & proposed underground storm drain in Rappahannock Way & Woodfair Way adequately conveys Post-Project Design Runoff (Nolte) storm event to the Mapel Ditch, with available freeboard to drain inlet grate and manhole rim elevations.
- The existing driveway at 4530 Mapel Lane is subject to potential flooding during large storm events (i.e. – 10 & 100 Year Events) under both Existing and Developed Project Conditions. The proposed development of O'Donnell Estates does not increase water surface elevations or exacerbate potential flooding, based on design flows.
- The methods used to calculate storm runoff and various hydraulic characteristics for the Project are compliant with the *Manual*.
- Low Impact Development (LID) measures are adequately proposed to mitigate increased runoff from the developed site.
- The proposed drainage Basin "A" attenuates developed flows to the Mapel Ditch reducing the potential for negative impacts to existing downstream properties.

- The combined developed flow from Sheds M1.1 & M1.2 is reduced from that of existing flow from Shed M1. This reduction is flow is a result of shed size reduction (2.02± acres to 1.25± acres), as well as LID features proposed within Sheds M1.1 & M1.2.
- Shed M2's design runoff remains the same between existing and developed conditions, as there are no proposed improvements (development) within this drainage shed.

VII. REFERENCES

1. County of Sacramento. County of Sacramento Improvement Standards – Section 9. April 1, 2018
2. City/County of Sacramento. Drainage Manual – Volume 2 Hydrology Standards. December 1996
3. Sacramento Region. Storm Water Quality Design Manual for the Sacramento Region. July 2018

APPENDIX A

Vicinity Map



VICINITY MAP

NOT TO SCALE

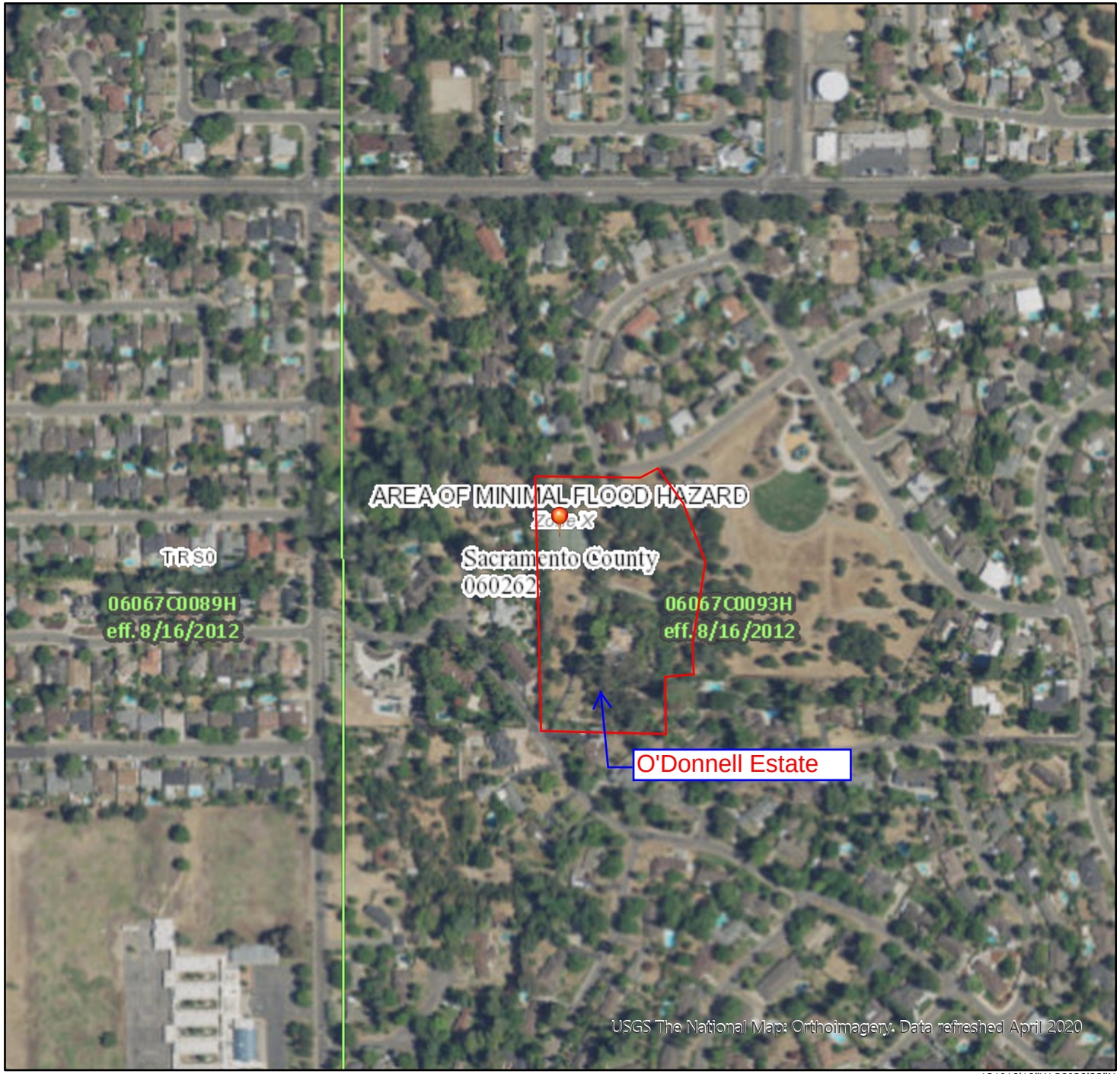
APPENDIX B

FEMA Map (FIRMette)

National Flood Hazard Layer FIRMette

FEMA

121°18'56"W 38°39'1"N



121°18'19"W 38°38'33"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/12/2020 at 10:43 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX C

Existing Conditions – Topographic Survey Map

Figure C1-Topographic Survey Map

NICKSAM PROPERTIES 247-0010-008

CARMICHAEL RECREATION/PARK DISTRICT 247-0010-007

MARCY JEAN E/JAMES R UBER 247-0161-008

SOUTHAM MARTHA A/RANDY D WASINA/MARIENA F 247-0172-002

CRAVENS FAMILY REV LIVING TRUST 247-0172-001

CARGILL CLINTON/DOMINIQUE 247-0023-008

SMITH BRUCE A 247-0023-009

JANET BATES/PHILIP SALZMAN 2015 REVOCABLE TRUST 247-0021-011

PETRASHISIN RUSIAN Y 245-0123-013

ZEHNDER MICHAEL G 245-0123-006

DOLORES A MACBEAN 2008 LIVING TRUST 245-0123-009

HARRIS JAMES L/JENNIFER J 245-0123-008

OPEN SPACE ±1.09 AC

RAPPAHANNOCK WAY

WOODFAIR WAY

MAPEL LANE

GRAVEL ROAD

DRIVEWAY

BASKETBALL COURT

TENNIS COURT

FENCE

FOUNTAIN

MAIN HOUSE

SHED

GAS PIPE RISER

12 151.07 FNDRB W/ CAP LS 42

13 150.07 FNDIP 2" W/ CAP BENT SHOT CTR

21 150.94 FNDIP 1.5" W/ TAG

31 158.99 FNDIP 1.5" W/ CAP SHOT CTR

18 157.40 FNDRB 5/8" W/ CAP LS4732

19 152.09 FNDIP 1.5" W/ TAG

14 148.72 FNDIP 3/4" NO CAP/TAG

15 146.88 FNDIP 3/4" NO CAP/TAG

16 149.22 FNDIP 1.5" W/ TAG LS 2716

24 149.53 FNDIP 3/4" W/TAG LS7820

25 145.74 FNDIP 3/4" NO CAP/TAG

26 145.92 FNDRB 1/2" NO CAP/TAG

27 144.70 FNDIP 3/4" NO CAP/TAG

DRAIN INLET RIM=146.59 INV(10"ø,NW)=144.44 INV(10"ø,SE)=144.69

SSMH RIM=146.84 INV(8"ø)=140.04

RIM=146.38 INV(10ø,S)=144.53

DRAIN INLET RIM=146.48 INV=144.08

SDMH RIM=146.89 INV=143.69

15ø CMP FL=142.98

8"ø STORM DRAIN FL=148.28

N E S W

30 15 0 30 60

SCALE: 1" = 30'

SITE

NORTH N.T.S.

VICINITY MAP
NOT TO SCALE

LEGEND

▲	CONTROL POINT AS NOTED
○	TREE AS NOTED
◉	FOUND MONUMENT AS NOTED
COMM	COMMUNICATIONS BOX
W	WATER METER
E	ELECTRICAL BOX
TS	TELEPHONE SERVICE BOX
S	SEWER MANHOLE
	SEWER CLEANOUT
D	STORM MANHOLE
	WATER VALVE
	FIRE HYDRANT
PVC	PVC RISER
	STREET LIGHT
	FENCE

BENCHMARK: RAMSET & 7/8" METAL DISC STAMPED "CO. B.M. 14-122" LOCATED IN TOP OF VERTICAL CURB ABOVE D.I. CENTER OF CURB RETURN AT SOUTHWEST CORNER OF FAIR OAKS BLVD. & HOLLISTER AVE. ELEVATION = 129.03 (NAVD88)

BASIS OF BEARINGS: THE BASIS OF BEARINGS FOR THIS SURVEY IS IDENTICAL TO THE MOST NORTHERLY BOUNDARY LINE OF THE "PLAT OF MAPLE GROVE UNIT NO.2" AS SHOWN ON 33 B.M. 34. SHOWN ON THE RECORD OF SURVEY. FILED IN BOOK 56 OF MAPS AT PAGE 28.

TOPOGRAPHIC SURVEY
4434 MAPLE LANE
CITY OF CARMICHAEL
COUNTY OF SACRAMENTO
STATE OF CALIFORNIA

Scale: 1"=10' Date: JULY 2018 Revised: SEPTEMBER 2, 2020

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JOB #265-039

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785 Orchard Drive, Suite #110
Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701
jklamm@tsdeng.com

APPENDIX D

Tentative Subdivision Map

Existing Shed Map

Preliminary Grading Plan

Preliminary Sections

Developed Shed Map

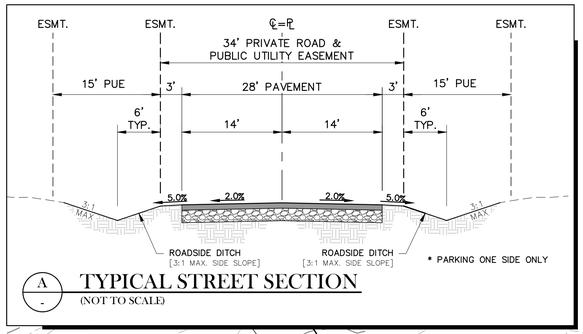
Mapel Ditch Flood Exhibit

4530 Mapel Lane – Driveway Culvert Photo

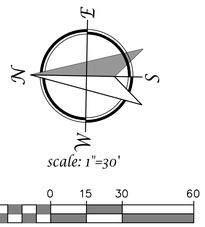
TENTATIVE MAP

O'DONNELL ESTATES

4434 MAPEL LN
APN: 247-0010-001, 008, 009
CARMICHAEL, CA



A — TYPICAL STREET SECTION
(NOT TO SCALE)



scale: 1"=30'

30 0 15 30 60



VICINITY MAP
NOT TO SCALE

4434 MAPEL LN PROJECT SUMMARY

ASSESSORS PARCEL NO
247-0010-001, 008, 009

OWNER
NICKSAM PROPERTIES, LLC
20 BICENTENNIAL CIRCLE
SACRAMENTO, CA 95826
CONTACT: JOHN ROSEBERRY
apexpropertymgmt@att.net

DEVELOPER/APPLICANT
APEX PROPERTY MANAGEMENT
1500 WEST EL CAMINO AVE #344
SACRAMENTO, CA 95833
CONTACT: JOHN ROSEBERRY
apexpropertymgmt@att.net

ENGINEER/PLANNER
TSD ENGINEERING, INC
785 ORCHARD DR., SUITE #110
FOLSOM, CA 95630
ATTN: CASEY FEICKERT
cfeickert@tsdeng.com

LOT AREA
TOTAL (GROSS) - 5.04 ac

LOT 1 - 22,443 Sq. Ft.
LOT 2 - 22,414 Sq. Ft.
LOT 3 - 25,521 Sq. Ft.
LOT 4 - 20,875 Sq. Ft.
LOT 5 - 35,100 Sq. Ft.
LOT 6 - 24,961 Sq. Ft.
LOT 7 - 21,886 Sq. Ft.
LOT 8 - 22,401 Sq. Ft.
LOT 9 - 23,784 Sq. Ft.

MINIMUM LOT AREA - 20,875 Sq.Ft.
MAXIMUM LOT AREA - 35,100 Sq.Ft.
AVERAGE LOT AREA - 24,376 Sq.Ft.

PROPOSED NUMBER OF LOTS
9 SINGLE FAMILY LOTS

PROPOSED USE
SINGLE FAMILY RESIDENTIAL

ZONING
EXISTING - RD 2
PROPOSED - RD 2

GENERAL PLAN
EXISTING - LDR (LOW DENSITY RESIDENTIAL)
PROPOSED - LDR (LOW DENSITY RESIDENTIAL)

SERVICE PROVIDERS

PARK DISTRICT
CARMICHAEL PARK

SCHOOL DISTRICT
SAN JUAN UNIFIED

WATER
CARMICHAEL WATER DISTRICT
CHRIS NELSON
916-483-2452

SANITARY SEWER
SACRAMENTO AREA SEWER DISTRICT
ERIC SCHOLTZ
916-876-6065

STORM DRAIN
COUNTY STORMWATER UTILITY ZONE 12

GAS
PG&E
DON HENDRICKS
916-386-5722

ELECTRIC
SMUD
888-742-7683

TELEPHONE
AT&T
ELENA BANKE
916-453-7140

CABLE
COMCAST
800-266-2278

FIRE
SACRAMENTO METRO FIRE
WENDY ROOP
916-942-3300

CARMICHAEL RECREATION/PARK DISTRICT 247-0010-007

OPEN SPACE ±1.09 AC

BASIN "A"

NICKSAM PROPERTIES 247-0010-008 & 009

MARGY JEAN E/JAMES R UBER 247-0161-008

SOUTHAM MARTHA A/RANDY D WASINA/MARIENA F 247-0172-002

GRAVENS FAMILY REV LIVING TRUST 247-0172-001

CARGILL CLINTON/DOMINIQUE 247-0023-008

SMITH BRUCE A 247-0023-009

JANET BATES/PHILIP SALZMAN 2015 REVOCABLE TRUST 247-0021-011

PETRASHISIN RUSIAN Y 247-0123-013

ZEHNDER MICHAEL S 247-0123-008

DOLORES A MAGBEAN 2008 LIVING TRUST 247-0123-009

HARRIS JAMES L/JENNIFER J 247-0123-008

WOODFAIR WAY

RAPPAHANNOCK WAY

O'DONNELL PARK COURT

MAPEL LANE

EXISTING RESIDENCE (TO REMAIN)

EXISTING GARAGE

EXISTING CARPORT

EXISTING BASKETBALL COURT

EXISTING TENNIS COURT

STRUCTURES TO BE REMOVED (TYP)

BLDG FOOTPRINT AREA (TYP)

1 GROSS: 22,443 SF NET: 20,096 SF

2 GROSS: 22,414 SF NET: 20,085 SF

3 GROSS: 25,521 SF NET: 20,043 SF

4 GROSS: 20,875 SF NET: 20,075 SF

5 GROSS: 35,100 SF NET: 35,100 SF

6 GROSS: 24,961 SF NET: 24,417 SF

7 GROSS: 21,886 SF NET: 20,142 SF

8 GROSS: 22,401 SF NET: 20,018 SF

9 GROSS: 23,784 SF NET: 20,013 SF

PROFESSIONAL LAND SURVEYOR — JOHN E. KLAAM — No. 7375 — Exp. 12/31/2021 — STATE OF CALIFORNIA

O'DONNELL ESTATES
TENTATIVE MAP
MAY 26, 2021

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Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

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EXISTING SHED MAP
O'DONNELL ESTATES
CARMICHAEL, CA

MAPEL LANE

SHED-B2 OVERLAND FLOW [COMMERCIAL]

SHED-B1 COLLECTOR FLOW LENGTH = 480 SLOPE = 2.0%

SHED B1 ±0.22 AC

TAYLOR KAREN THERESA
245-0123-010
4540 MAPEL LN.

SHED-B2 OVERLAND FLOW [RESIDENTIAL]

LEV TWOMBLY KRSNA
CORONA JANNICE
245-0123-011
4530 MAPEL LN.

141.52

SHED C1.1 ±2.21 AC

DP #5

SHED-B2 COLLECTOR FLOW LENGTH = 390 SLOPE = 2.0%

SHED B2 ±2.86 AC

YOSGOTT REV LIVING TRUST
247-0021-009
4517 WOODFAIR WY.

SPIVEY WILLIAM V
247-0023-010
4512 WOODFAIR WY.

WOODFAIR WAY

SHED B3 ±0.37 AC

SHED-B3 OVERLAND FLOW LENGTH = 60 SLOPE = 5.2%

SMITHLBRCE A
247-0023-009
4500 WOODFAIR WY.

CARGILL DOMINIQUE
CARGILL DOMINIQUE
247-0023-008
6609 RAPPAHANNOCK WY.

RAPPAHANNOCK WAY

FARASAT FAMILY TRUST
245-0123-004
4520 MAPEL LN.

DURBIN REVOCABLE TRUST
247-0021-010
4509 WOODFAIR WY.

SHED-C1.1 COLLECTOR FLOW LENGTH = 135 SLOPE = 2.4%

OUTFALL-1 (E)

15" SD

MH-1 (E)

JANET BATES/PHILIP SALZMAN
2015 REVOCABLE TRUST
247-0021-011
4501 WOODFAIR WY.

DP #4

DI-2 (E)

CARMICHAEL RECREATION/PARK DISTRICT
247-0024-003
6618 RAPPAHANNOCK WY.

SHED-C1.1 OVERLAND FLOW [RESIDENTIAL]

PETRASHISHIN RUSIAN Y
245-0123-013
4514 MAPEL LN.

SHED-B3 COLLECTOR FLOW LENGTH = 335 SLOPE = 4.3%

DP #3

DP #2

DI-1 (E)

DI-3 (E)

BURDICK GAIL
BURDICK ORION
245-0123-012
4510 MAPEL LN.

DP #1

MH-2 (E)

SHED A3 ±1.32 AC

SHED C1.2 ±3.11 AC

SHED-C2 COLLECTOR FLOW LENGTH = 135 SLOPE = 4.0%

SHED-C1.2 COLLECTOR FLOW LENGTH = 390 SLOPE = 2.2%

SHED-A COLLECTOR FLOW LENGTH = 385 SLOPE = 3.0%

SHED-C1.2 OVERLAND FLOW [RESIDENTIAL]

SHED C2 ±0.68 AC

SHED A1 ±2.29 AC

NICKSAM PROPERTIES, LLC.
247-0010-008

MAPEL LANE

MICHAEL G ZEHNDER REVOCABLE TRUST
245-0123-006
4506 MAPEL LN.

SHED-C2 OVERLAND FLOW LENGTH = 190 SLOPE = 0.3%

SHED A2 ±0.87 AC

CARMICHAEL RECREATION/PARK DISTRICT
247-0010-007
6618 RAPPAHANNOCK WY.

SHED-A OVERLAND [RESIDENTIAL]

DOLORES A MACBEAN
2008 LIVING TRUST
245-0123-009
4448 MAPEL LN.

SHED M2 ±0.24 AC

HARRIS JAMES L
245-0123-008
4444 MAPEL LN.

SHED-M1 OVERLAND FLOW [RESIDENTIAL]

SHED M1 ±2.02 AC

SHED-M1 COLLECTOR FLOW LENGTH = 170 SLOPE = 4.5%

DP #5

MARCY JEAN E UBER
JAMES R
247-0161-008
6705 LAKEVIEW DR.

MAPEL LANE

CRAVENS FAMILY REV LIVING TRUST
247-0172-001
4420 MAPEL LN.

SOUTHAM MARTHA A
WASINA RANDY D
247-0172-002
4410 MAPEL LN.

KEY FEATURES LEGEND:

- EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- EXISTING DRAIN INLET
- SHED M1 ±2.02 AC — "SUB-SHED I.D." / "SUB-SHED AREA"
- EXISTING SHED BOUNDARY
- EXISTING SHED BOUNDARY [ON PROJECT ℄]
- COLLECTOR FLOW PATH
- OVERLAND FLOW PATH
- 150 — EXISTING CONTOUR (MAJOR)
- 148 — EXISTING CONTOUR (MINOR)
- DP #1 — DESIGN POINT [POINT OF COMPARISON I.D.]
- EXISTING SURFACE FLOW DIRECTION
- MAPEL DITCH FLOWLINE

DRAINAGE SHED LEGEND:

- SHED A ±4.47 AC
- SHED B ±3.44 AC
- SHED C ±6.00 AC
- SHED M ±2.26 AC

N W E S

scale: 1"=50'

5 0 2.5 5 10

EXISTING SHED MAP
MAY 26, 2021

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Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

P:\Projects\265-039\03 REPORTS\HYDROLOGY AND HYDRAULICS\Entitlements 4th Submittal\Appendix D - Site Plan\265-039-Existing Shed Map_2021-0526.dwg, Tom Jones, 11:12:11, 05-26-21

PRELIMINARY GRADING PLAN

O'DONNELL ESTATES

4434 MAPEL LN

APN: 247-0010-001, 008, 009

CARMICHAEL, CA

BENCHMARK

RAMSET & 7/8" METAL DISC STAMPED "CO. B.M. 14–122" LOCATED IN TOP OF VERTICAL CURB ABOVE D.I. CENTER OF CURB RETURN AT SOUTHWEST CORNER OF FAIR OAKS BLVD. & HOLLISTER AVE. ELEVATION = 129.03 (NAVD88)

BASIS OF BEARING

THE BASIS OF BEARINGS FOR THIS SURVEY IS IDENTICAL TO THE MOST NORTHERLY BOUNDARY LINE OF THE "PLAT OF MAPLE GROVE UNIT NO.2" AS SHOWN ON 33 B.M. 34. SHOWN ON THE RECORD OF SURVEY. FILED IN BOOK 56 OF MAPS AT PAGE 28.

NOTE:

1. LOCATION OF DRIVEWAYS SET TO CHANGE DURING FINAL DESIGN.

PROPOSED 6' WROUGHT IRON FENCE

TOP OF BASIN EL=149.5

MATCH EXISTING

151.20 FG

BIO-RETENTION BASIN "A" BTTM. EL=144.5

149.85 FG

PROPOSED 5' DG TRAIL

NICKSAM PROPERTIES 247-0010-008 & 009

OPEN SPACE 1.00 AC

CARMICHAEL RECREATION/PARK DISTRICT 247-0010-007

MARBY JEAN E/JAMES R UBER 247-0161-008

CONNECT TO EXISTING WROUGHT IRON FENCE

(E) 10' SEWER EASEMENT

CARGILL CLINTON/DOMINIQUE 247-0023-008

RAPPAHANNOCK WAY

147.89 FG

PROPOSED 5' DG TRAIL 10' TRAIL ESMT

EXISTING GARAGE

EXISTING CARPORT

EXISTING FOUNTAIN

SOUTHAM MARTHA A/RANDY D WAGNNA/MARIENA F 247-0172-002

SMITH BRUCE A 247-0023-009

MATCH EXISTING

147.19 FG

BLDG FOOTPRINT AREA (TYP)

EXISTING RESIDENCE (TO REMAIN)

(E) 10' SEWER EASEMENT

WOODFAIR WAY

O'DONNELL PARK COURT

146.71 FG

147.41 FG

149.83 FG

154.00 FG

160.29 FG

161.94 FG

GRAVENS FAMILY REV LIVING TRUST 247-0172-001

JANET BAYES/PHILIP GRAZIANI 2015 REVOCABLE TRUST 247-0021-011

(P) 15' D.E.

EXISTING ACCESS EASEMENT PER O.R. BOOK 2314 PAGE 308

EXISTING DRIVEWAY TO REMAIN FOR LOT 5

PROPOSED 15' DRAINAGE ESMT

MAPEL LANE

PETRASHISIN RUSIAN Y 245-0123-013

ZEHNDER MICHAEL S 245-0123-006

DOLORES A MACBEAN 2008 LIVING TRUST 245-0123-009

HARRIS JAMES L/JENNIFER J 245-0123-008

EARTHWORK QUANTITIES:

FILL - ±405 CY
CUT - ±1,265 CY
NET - ±860 CY (EXPORT)
RAW NUMBERS, NO SHRINKAGE OR SWELL WAS ACCOUNTED FOR.

LEGEND

DESCRIPTION	PROPOSED	EXISTING
DESIGN ELEVATION	95.0 AC	×95.0
CONTOUR	95	95
STORM DRAIN	12"SD	12"SD
CULVERT	12"SD	
MANHOLE		
DROP INLET		
LOW POINT	LP	LP
HIGH POINT	HP	HP
SWALE FLOWLINE		
TREE		

scale: 1"=30'

30 0 15 30 60

O'DONNELL ESTATES
PRELIMINARY GRADING PLAN
MAY 26, 2021

TSD ENGINEERING, INC.
expect more.
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Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

P:\Projects\265-039\02 DWG\B- Planning\PG\Preliminary Grading Plan.dwg, Tom Jones, 14:09:32, 09-22-21

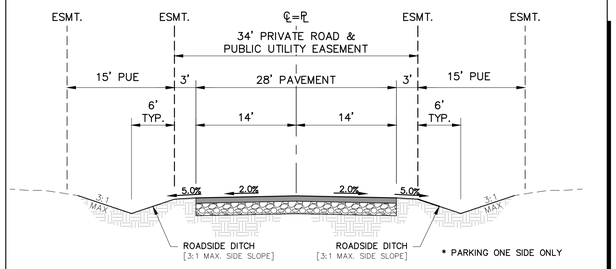
PRELIMINARY SECTIONS

O'DONNELL ESTATES

4434 MAPEL LN

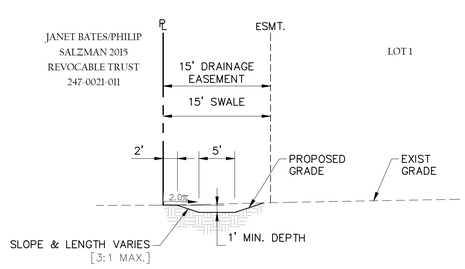
APN: 247-0010-001, 008, 009

CARMICHAEL, CA



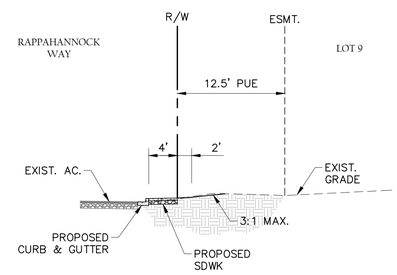
A - TYPICAL PRIVATE STREET SECTION

N.T.S.



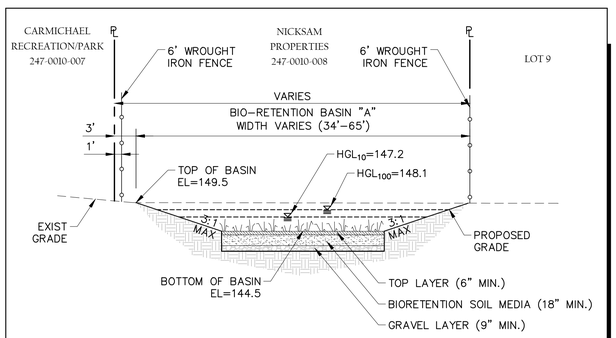
B - BOUNDARY GRADING SECTION

N.T.S.



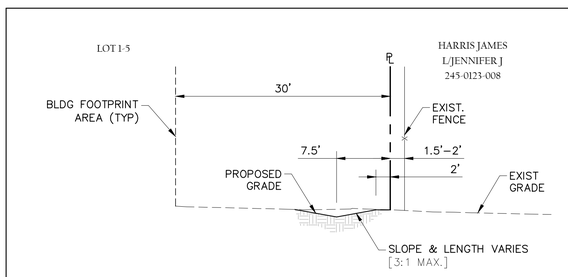
C - TYPICAL RAPPAHANNOCK WIDENING

N.T.S.



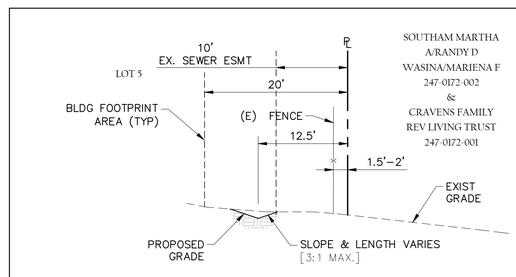
D - BIO-RETENTION BASIN "A"

N.T.S.



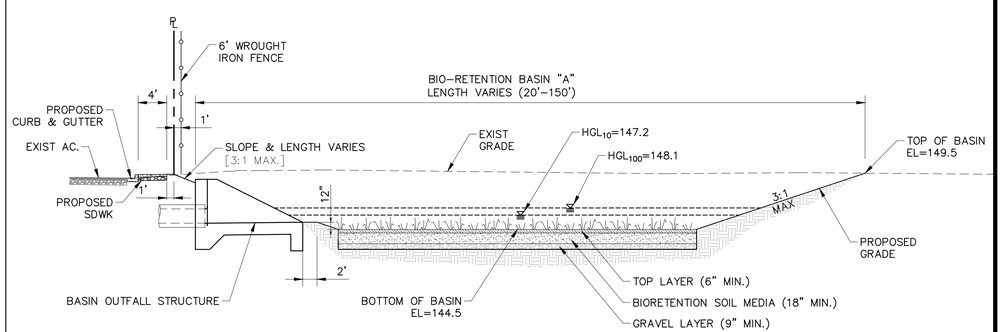
E - BOUNDARY GRADING SECTION

N.T.S.



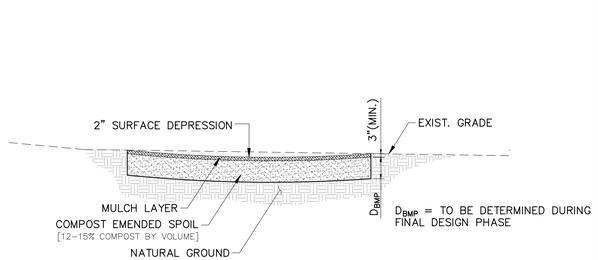
F - BOUNDARY GRADING SECTION

N.T.S.



G - BIO-RETENTION BASIN "A"

N.T.S.



H - AMENDED SOIL SECTION (TYP.)

N.T.S.

O'DONNELL ESTATES
PRELIMINARY SECTIONS
MAY 26, 2021

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Fax: (916) 608-0701

P:\Projects\265-039\02 DWG\B- Planning\FIG\Preliminary Grading Plan.dwg, Tom Jones, 13:39:14, 09-22-21

DEVELOPED SHED MAP
O'DONNELL ESTATES
CARMICHAEL, CA

MAPEL LANE

RAPPAHANNOCK WAY

WOODFAIR WAY

SHED-B1 OVERLAND FLOW [COMMERCIAL]

SHED-B1 COLLECTOR FLOW LENGTH=480 SLOPE=2.0%

SHED B1 ±0.26 AC

SHED-B2 OVERLAND FLOW [RESIDENTIAL]

SHED-B2 COLLECTOR FLOW LENGTH=390 SLOPE=2.0%

SHED B2 ±2.86 AC

SHED B3 ±0.32 AC

SHED-B3 OVERLAND FLOW LENGTH=60 SLOPE=5.2%

SHED-B3 COLLECTOR FLOW LENGTH=335 SLOPE=4.3%

SHED C1.1 ±2.21 AC

SHED C1.2 ±3.11 AC

SHED C2.1 ±0.28 AC

SHED C2.2 ±0.23 AC

SHED A1.2 ±0.52 AC

SHED A1.1 ±2.73 AC

SHED A2 ±0.87 AC

SHED A3 ±1.32 AC

SHED M1.1 ±0.44 AC

SHED M1.2 ±0.81 AC

SHED M2 ±0.24 AC

BASIN "A"

BASIN OUTFALL

DP #1

DP #2

DP #3

DP #4

DP #5

DP #6

OUTFALL-1 (E)

MH-1 (E)

MH-2 (E)

MH-3

MH-4

DI-1

DI-2

DI-3

DI-4

DI-5

TAYLOR KAREN THERESA
245-0123-010
4540 MAPEL LN.

LEV TWOMBLY KRSNA
CORONA JANNICE
245-0123-011
4530 MAPEL LN.

YOSGOTT REV LIVING TRUST
247-0021-009
4517 WOODFAIR WY.

SPIVEY WILLIAM V
247-0023-010
4512 WOODFAIR WY.

SMITHBRUCE A
247-0023-009
4500 WOODFAIR WY.

CARGILL DOMINIQUE
CARGILL CLINTON
247-0023-008
6609 RAPPAHANNOCK WY.

CARMICHAEL RECREATION/PARK DISTRICT
247-0024-003
6618 RAPPAHANNOCK WY.

CARMICHAEL RECREATION/PARK DISTRICT
247-0010-007
6618 RAPPAHANNOCK WY.

NICKSAM PROPERTIES, LLC.
247-0010-008

FARASAT FAMILY TRUST
245-0123-004
4520 MAPEL LN.

DURBIN REVOCABLE TRUST
247-0021-010
4509 WOODFAIR WY.

JANET BATES/PHILIP SALZMAN
2015 REVOCABLE TRUST
247-0021-011
4501 WOODFAIR WY.

PETRASHISHIN RUSIAN Y
245-0123-013
4514 MAPEL LN.

BURDICK GAIL
BURDICK ORION
245-0123-012
4510 MAPEL LN.

MICHAEL G ZEHNDER
REVOCABLE TRUST
245-0123-006
4506 MAPEL LN.

DOLORES A MACBEAN
2008 LIVING TRUST
245-0123-009
4448 MAPEL LN.

HARRIS JAMES L
245-0123-008
4444 MAPEL LN.

CRAVENS FAMILY
REV LIVING TRUST
247-0172-001
4420 MAPEL LN.

SOUTHAM MARTHA A
WASINA RANDY D
247-0172-002
4410 MAPEL LN.

MARCY JEAN E UBER
JAMES R
247-0161-008
6705 LAKEVIEW DR.

SHED-C1.1 COLLECTOR FLOW LENGTH=135 SLOPE=2.4%

SHED-C1.1 OVERLAND FLOW [RESIDENTIAL]

SHED-C1.2 COLLECTOR FLOW LENGTH=390 SLOPE=2.2%

SHED-C1.2 OVERLAND FLOW [RESIDENTIAL]

SHED-C2.1 COLLECTOR FLOW LENGTH=90 SLOPE=4.3%

SHED-C2.1 OVERLAND FLOW [RESIDENTIAL]

SHED-C2.2 COLLECTOR FLOW LENGTH=50 SLOPE=2.0%

SHED-C2.2 OVERLAND FLOW [RESIDENTIAL]

SHED-A1.2 COLLECTOR FLOW LENGTH=80 SLOPE=2.0%

SHED-A1.2 OVERLAND FLOW [RESIDENTIAL]

SHED-A1.1 COLLECTOR FLOW LENGTH=685 SLOPE=2.1%

SHED-A1.1 OVERLAND FLOW [RESIDENTIAL]

SHED-M1.1 OVERLAND FLOW [RESIDENTIAL]

SHED-M1.1 COLLECTOR FLOW LENGTH=200 SLOPE=4.0%

SHED-M1.2 OVERLAND FLOW [RESIDENTIAL]

SHED-M1.2 COLLECTOR FLOW LENGTH=300 SLOPE=1.0%

KEY FEATURES LEGEND:

- EXISTING STORM DRAIN (18"SD)
- EXISTING STORM DRAIN MANHOLE
- EXISTING DRAIN INLET
- PROPOSED STORM DRAIN (12"SD)
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED DRAIN INLET
- "SUB-SHED I.D." / "SUB-SHED AREA" (SHED M1 ±2.02 AC)
- EXISTING SHED BOUNDARY
- DEVELOPED SHED BOUNDARY
- COLLECTOR FLOW PATH
- OVERLAND FLOW PATH
- EXISTING CONTOUR (MAJOR) (150)
- EXISTING CONTOUR (MINOR) (148)
- DESIGN POINT [POINT OF COMPARISON I.D.] (DP #1)
- EXISTING/DEVELOPED SURFACE FLOW DIRECTION
- MAPEL DITCH FLOWLINE
- BIO-RETENTION/DETENTION BASIN

DRAINAGE SHED LEGEND:

- SHED A ±5.44 AC
- SHED B ±3.44 AC
- SHED C ±5.83 AC
- SHED M ±1.49 AC

N

W E

S

scale: 1"=50'

5 0 2.5 5 10

DEVELOPED SHED MAP
MAY 26, 2021

TSD ENGINEERING, INC.
expect more.
785 Orchard Drive, Suite #110
Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

P:\Projects\265-039\03 REPORTS\HYDROLOGY AND HYDRAULICS\Entitlements 6th Submittal\Appendix D - Site Plan\265-039-Developed Shed Map_2021-0922.dwg, Tom Jones, 14:04:28, 09-22-21

MAPEL DITCH FLOOD EXHIBIT
O'DONNELL ESTATES
CARMICHAEL, CA

MAPEL LANE

TAYLOR KAREN THERESA
245-0123-010
4540 MAPEL LN.

SEE DETAIL "A" BELOW

LEV TWOMBLY KRSNA
CORONA JANNICE
245-0123-011
4530 MAPEL LN.

SHED C-1
(E) $WSEL_{100}$=142.84
(P) $WSEL_{100}$=142.79

DP #5
(E) $WSEL_{100}$=142.87
(P) $WSEL_{100}$=142.75

FARASAT FAMILY TRUST
245-0123-004
4520 MAPEL LN.

NODE 30
(E) $WSEL_{100}$=143.81
(P) $WSEL_{100}$=143.56

DP #4
(E) $WSEL_{100}$=144.75
(P) $WSEL_{100}$=144.34

PETRASHIHIN RUSIAN Y
245-0123-013
4514 MAPEL LN.

DP #3
(E) $WSEL_{100}$=145.53
(P) $WSEL_{100}$=145.35

BURDICK GAIL
BURDICK ORION
245-0123-012
4510 MAPEL LN.

NODE 27
(E) $WSEL_{100}$=145.57
(P) $WSEL_{100}$=145.38

SHED C2
(E) $WSEL_{100}$=148.29
(P) $WSEL_{100}$=148.16

MICHAEL G ZEHNDER
REVOCABLE TRUST
245-0123-006
4506 MAPEL LN.

DOLORES A MACBEAN
2008 LIVING TRUST
245-0123-009
4448 MAPEL LN.

YOSGOTT REV
LIVING TRUST
247-0021-009
4517 WOODFAIR WY.

DURBIN REVOCABLE TRUST
247-0021-010
4509 WOODFAIR WY.

JANET BATES/PHILIP SALZMAN
2015 REVOCABLE TRUST
247-0021-011
4501 WOODFAIR WY.

WOODFAIR WAY

SMITH BRUCE A
4500 WOODFAIR WY.
247-0023-009

CARGILL CLINTON
CARGILL DOMINIQUE
4504 RAPPAHANNOCK WY.
247-0023-008

SPIVEY WILLIAM V
247-0023-010
4512 WOODFAIR WY.

RAPPAHANNOCK WAY

CARMICHAEL RECREATION/
PARK DISTRICT
247-0024-003
6618 RAPPAHANNOCK WY.

OUTFALL-1 (E)
MH-1 (E)
15"SD
DI-2
MH-4
DI-1
DP #2
DP #1
MH-3
DI-3
MH-2 (E)
BASIN OUTFALL
BASIN "A"
BREAKOUT ELEVATION
(E) $WSEL_{100}$=147.66
(P) $WSEL_{100}$=146.80
12"SD

O'DONNELL PARK COURT

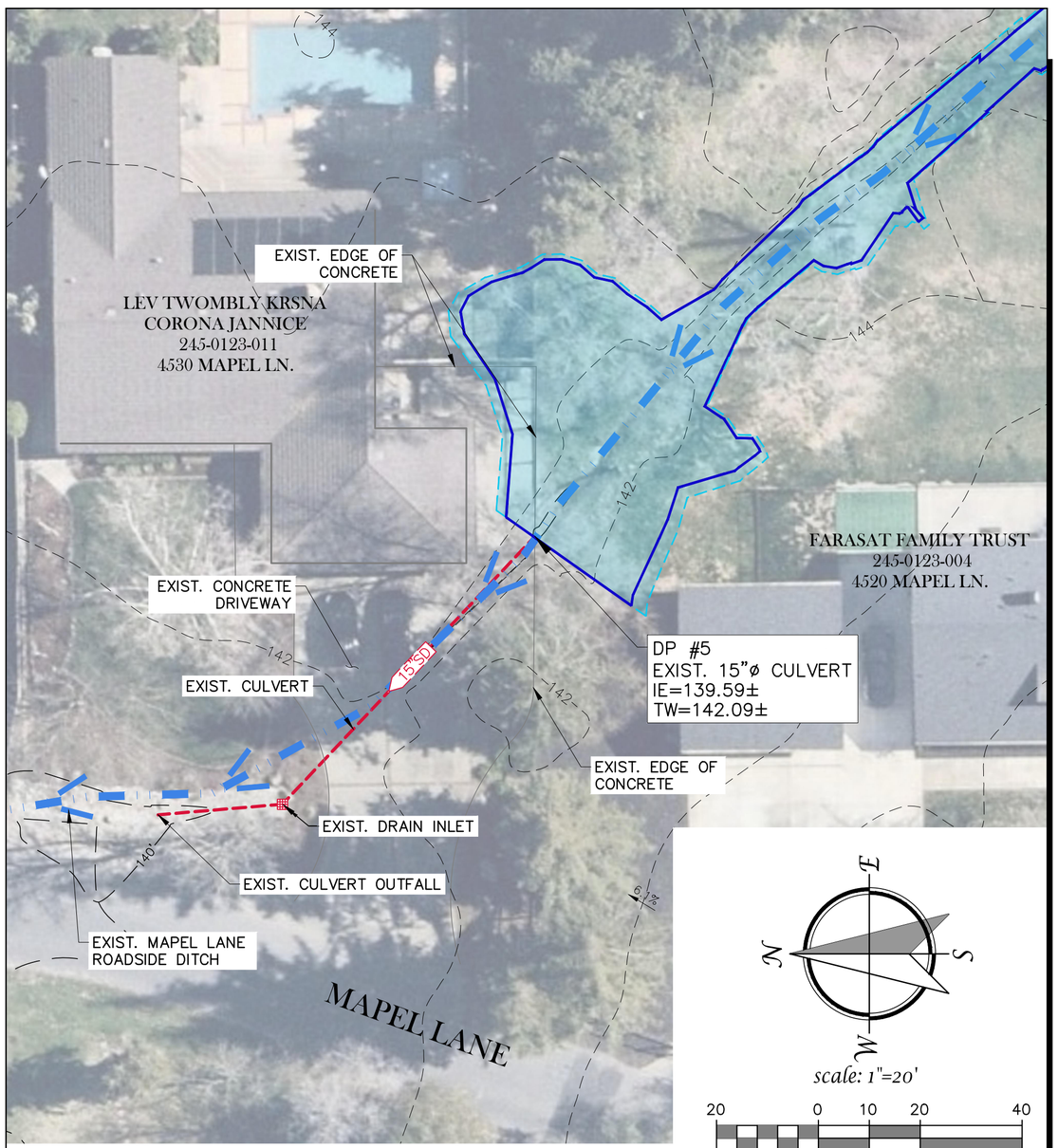
NICKSAM
PROPERTIES, LLC.
247-0010-008

CARMICHAEL RECREATION/
PARK DISTRICT
247-0010-007
6618 RAPPAHANNOCK WY.

MARCY JEAN E
UBER JAMES R
247-0161-008
6705 LAKEVIEW DR.

CRAVENS FAMILY REV
LIVING TRUST
247-0172-001
4420 MAPEL LN.

SOUTHAM MARTHA A
WASINA RANDY D
247-0172-002
4410 MAPEL LN.



scale: 1"=20'

20 0 10 20 40

A - DESIGN POINT #5 DETAIL
@ 4530 MAPEL LANE CULVERT

KEY FEATURES LEGEND:

- 18"SD — EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- EXISTING DRAIN INLET
- 150 — EXISTING CONTOUR (MAJOR)
- 148 — EXISTING CONTOUR (MINOR)
- NODE 30 (E) $WSEL_{100}$=143.89 (P) $WSEL_{100}$=143.48 — POINT OF COMPARISON I.D. (E) EXISTING WATER SURFACE ELEVATION (P) PROPOSED WATER SURFACE ELEVATION
- MAPEL DITCH FLOWLINE
- 100-YR EXISTING MAPEL DITCH FLOOD EXTENTS
- 100-YR PROPOSED MAPEL DITCH FLOOD EXTENTS

N W E S

scale: 1"=50'

50 0 25 50 100

MAPEL DITCH FLOOD EXHIBIT
O'DONNELL ESTATES
AUGUST 11, 2021

TSD ENGINEERING, INC.
expect more.
785 Orchard Drive, Suite #110
Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

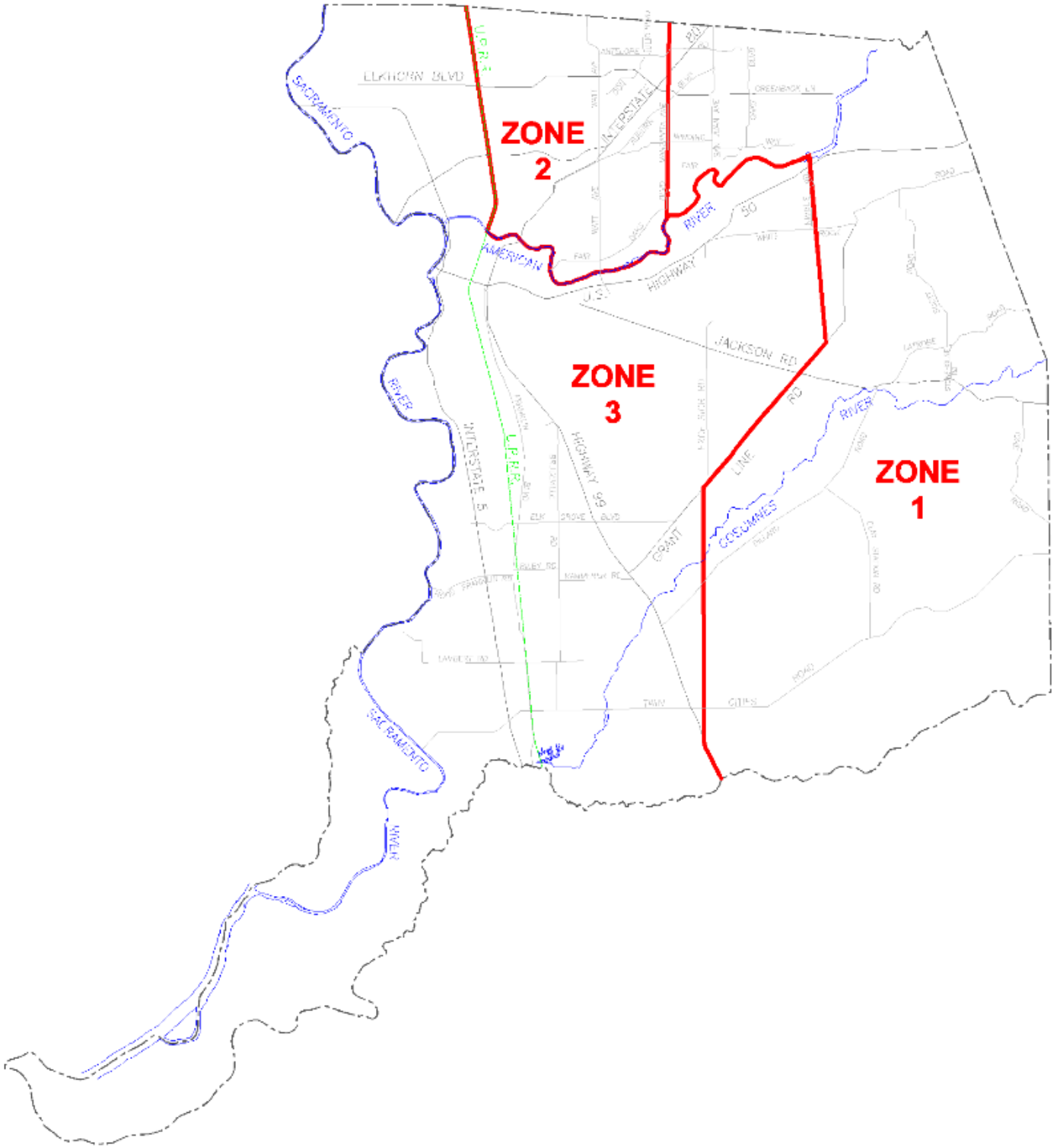
P:\Projects\265-039\03 REPORTS\HYDROLOGY AND HYDRAULICS\Entitlements 6th Submittal\Appendix D - Site Plan\265-039 Flood Map.dwg, Tom Jones, 14:18:00, 09-22-21


4530 MAPEL LANE
EXISTING DRIVEWAY CULVERT

APPENDIX E

SacCalc – Nolte Method
SacCalc Nolte Method – Zone Map
SacCalc Nolte Method – Shed Layout – Post Project
SacCalc Nolte Method – Post-Project Peak Flow Results

XPStorm – Sacramento Method
Sacramento Method – Zone Map (Per SacCalc)
XPStorm Sacramento Method Layouts

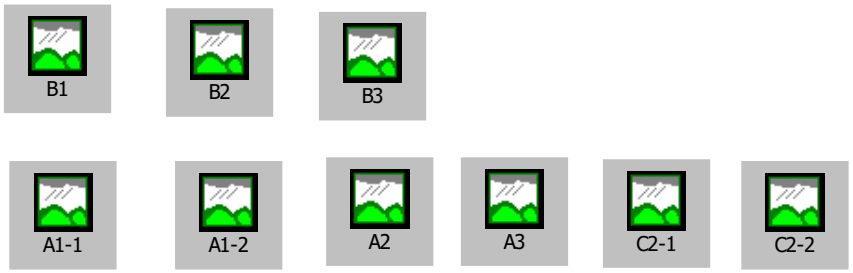


Source : County of Sacramento Master Drainage Plan, Part 1, County-wide Hydrology, Nolte and Assoc.

Sacramento City and County Hydrologic Zones Nolte Method

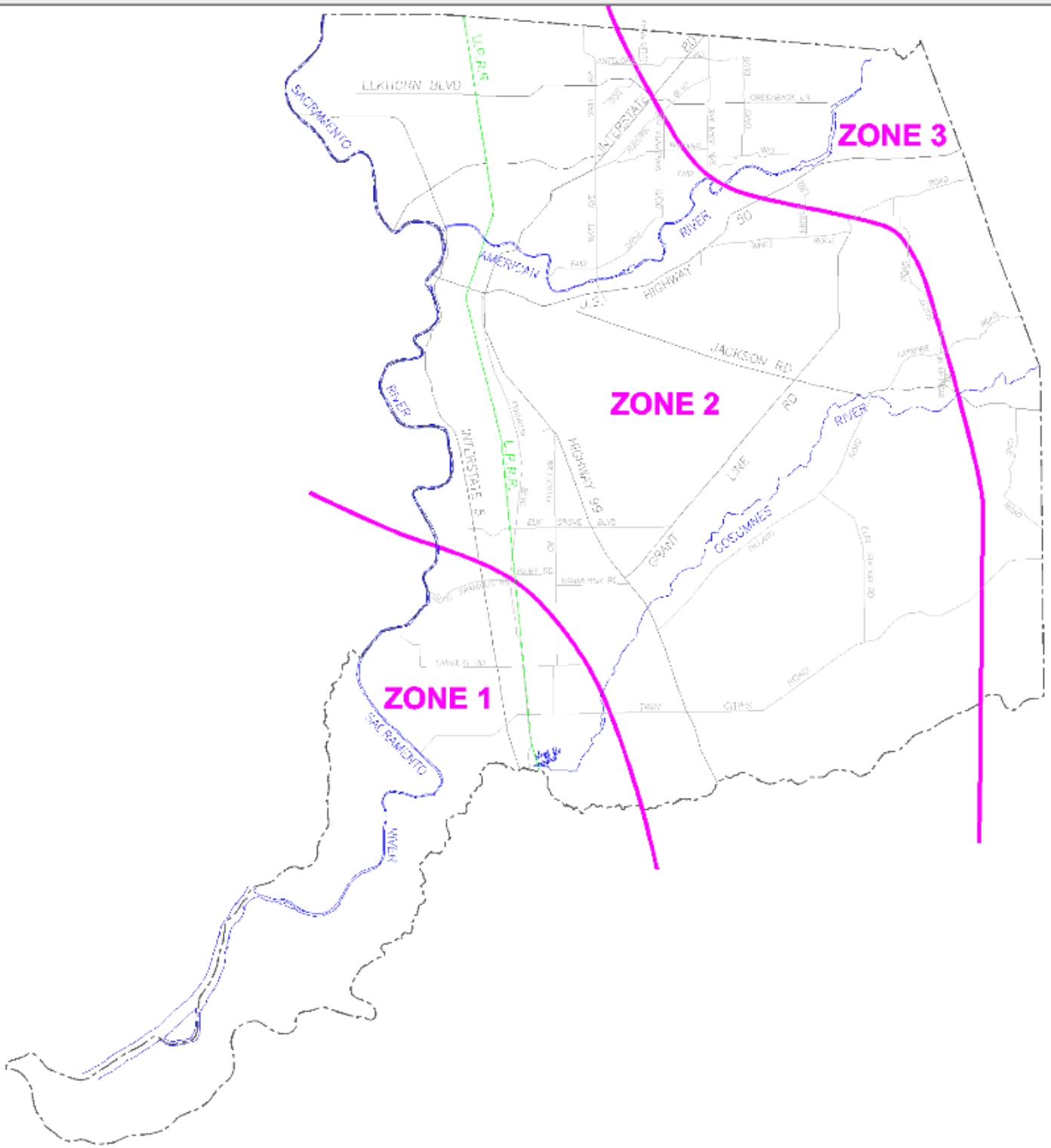
Date
December
1996

Figure
2-4


B1
B2
B3
A1-1
A1-2
A2
A3
C2-1
C2-2

Nolte method results
(Project: O'Donnell Estates)
(Hydrologic zone 1)

ID	Drainage area (acres)	Impervious area (%)	Design Q (cfs)
B1	0.26	90.00	0.14
B2	2.86	54.48	0.88
B3	0.32	48.44	0.09
A3	1.32	20.00	0.37
A2	0.87	27.24	0.24
A1-1	2.73	53.81	0.83
A1-2	0.52	53.08	0.16
C2-1	0.28	50.00	0.08
C2-2	0.23	56.96	0.07



Note : See foldout map in the back of Hydrology Standards for larger scale map of Rainfall Zones

Sacramento City and County Rainfall Zones Sacramento Method

Date
December 1996

Figure
2-11

Existing Conditions
XPStorm Hydrology Layout

Shed C-1

DP #4 (Shed C1.2)

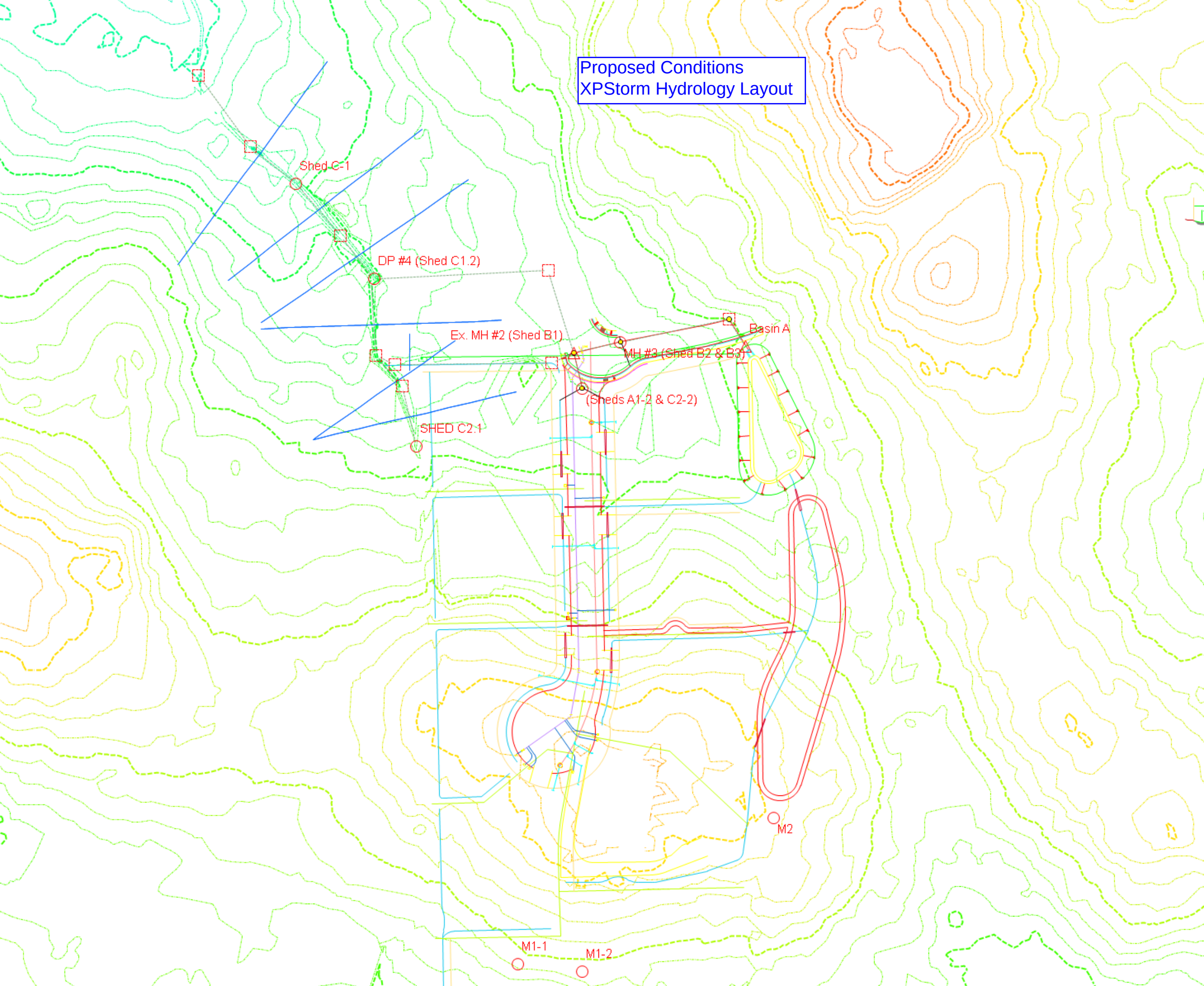
Ex. MH #2 (Shed A-B)

SHED C2

Shed M1

Shed M2

Proposed Conditions
XPStorm Hydrology Layout



APPENDIX F

XPStorm Results

XPStorm Sacramento Method – Design Point Flows (Existing Conditions)
XPStorm Sacramento Method – Design Point Flows (Developed Conditions)
Existing Conditions – Stage Elevations
Developed Conditions – Stage Elevations

Basin "A" – In-Flow Results (Developed Conditions)
Basin "A" – Discharge Results (Developed Conditions)
Basin "A" Stage Elevations (Developed Conditions)

StormCAD Results

Developed Conditions – Network Preview
Developed Conditions – Catch Basin Table
Developed Conditions – Conduit Table
Developed Conditions – Outfall Table
Developed Conditions – Profile Report

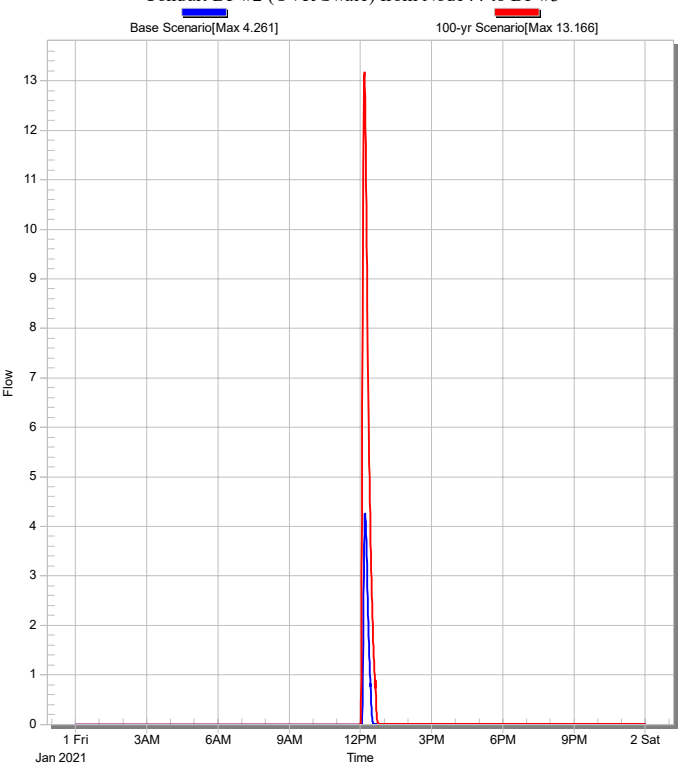
Existing Conditions
XPStorm Hydraulic Layout

D/S Culvert
Link20
DP #5 (U/S Culvert)
Link23
Shed C-1
Link22
Node30
Link21
DP #4 (Shed C1.2)
Link16
Ex. MH #1
Link19
Link13
DP #2 (OVR Swale)
Link34
Ex. MH #2 (Shed A-B)
DP #3
Node44
Link18
Node27
Link17
SHED C2

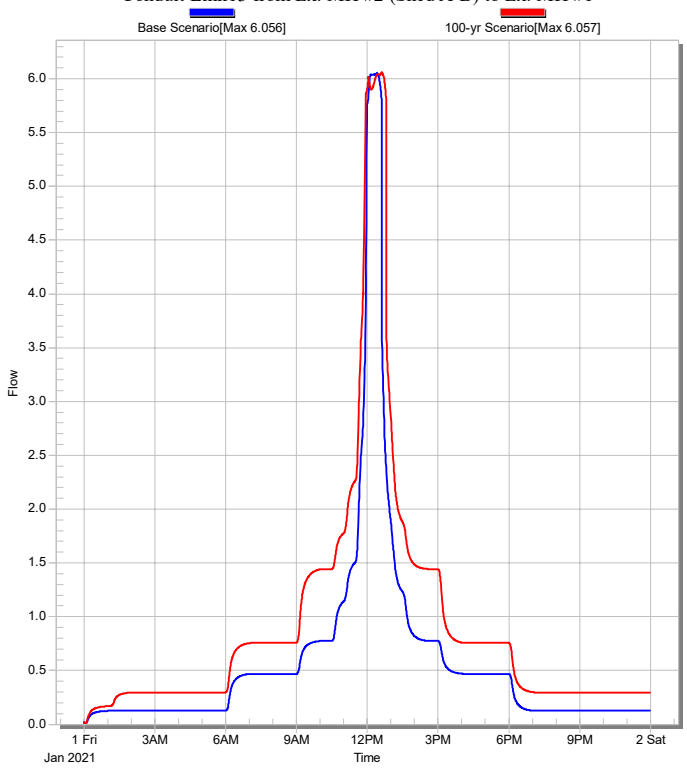
Cross-Section @ Link 23
Cross-Section @ Link 22
Cross-Section @ Link 21
Cross-Section @ Link 19
Cross-Section @ Link 18
Cross-Section @ Link 17

Existing Routed Flows at Design Points

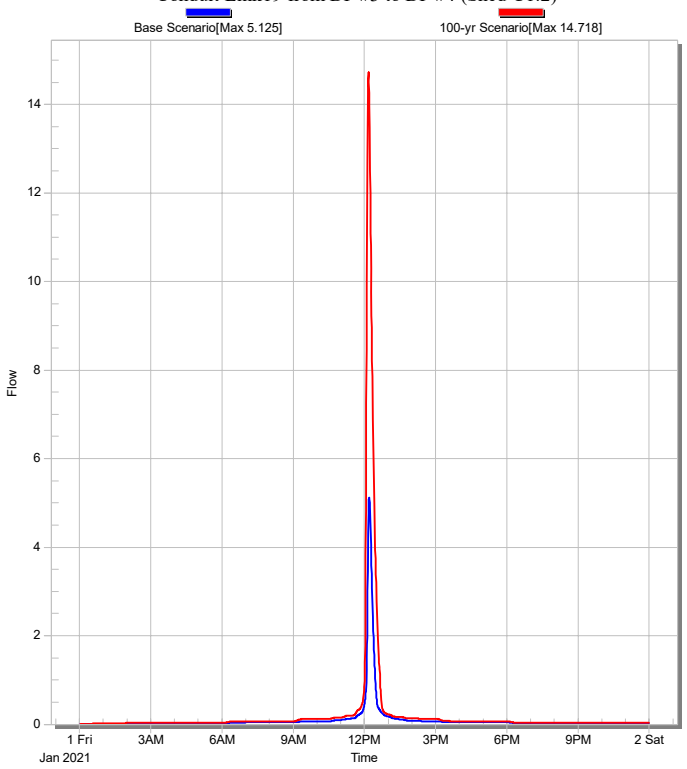
Conduit DP #2 (OVR Swale) from Node44 to DP #3



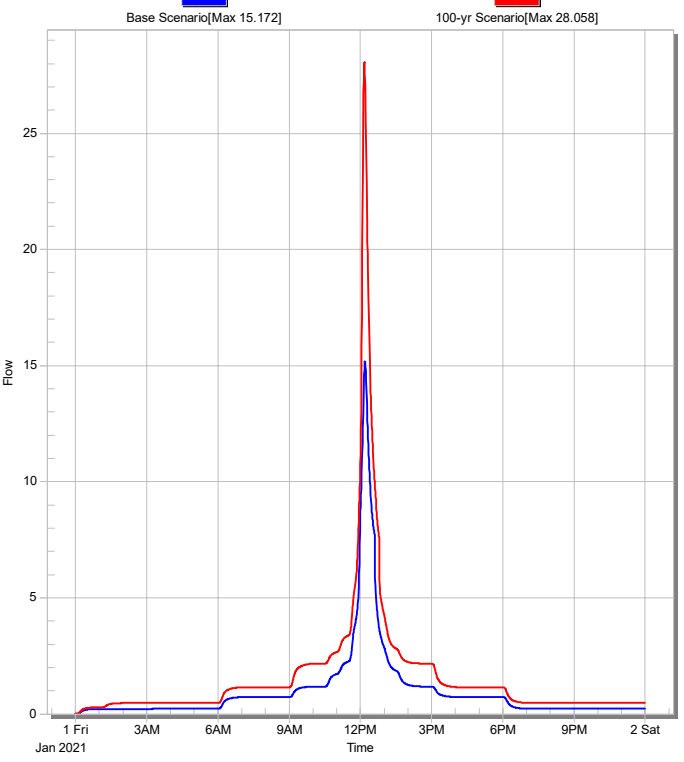
Conduit Link13 from Ex. MH #2 (Shed A-B) to Ex. MH #1



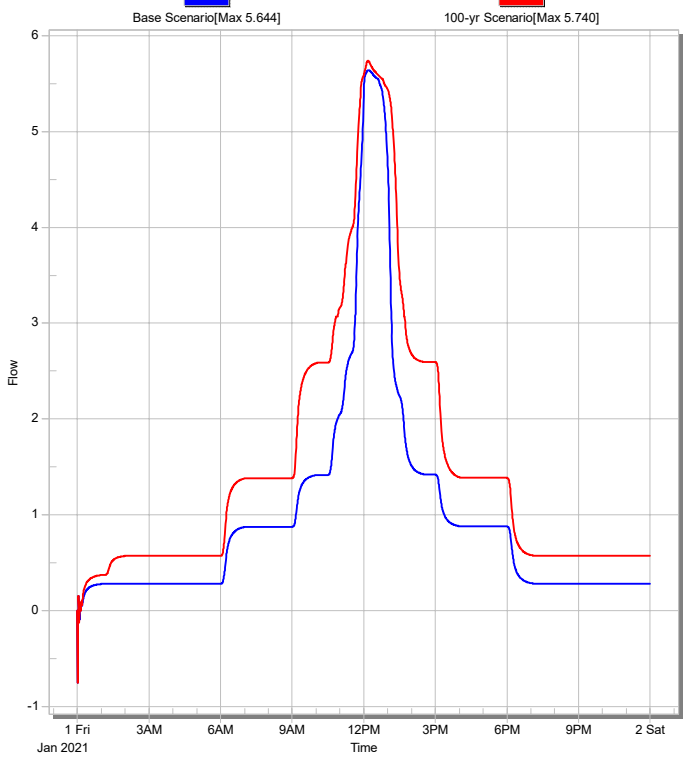
Conduit Link19 from DP #3 to DP #4 (Shed C1.2)



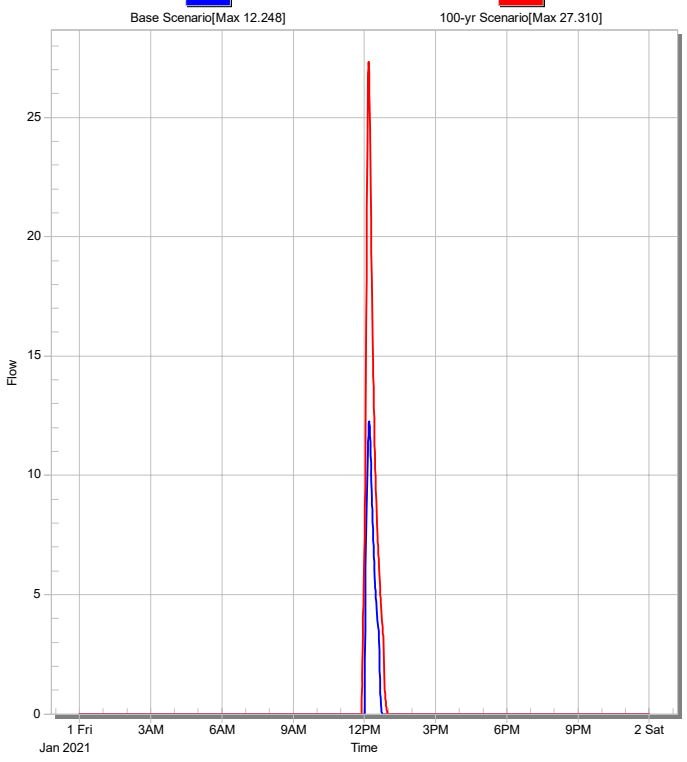
Conduit Link21 from DP #4 (Shed C1.2) to Node30



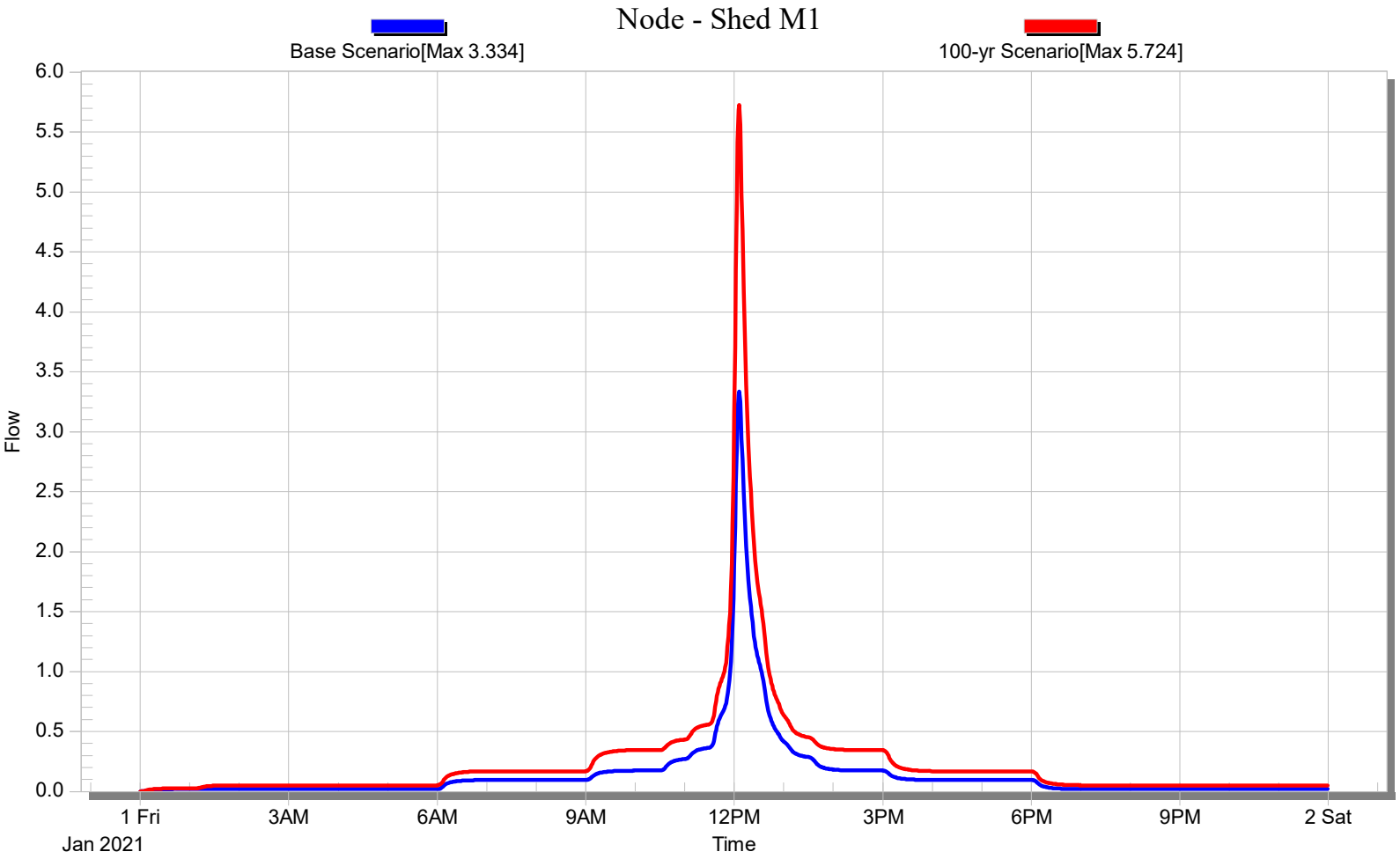
Conduit Culvert from DP #5 (U/S Culvert) to D/S Culvert

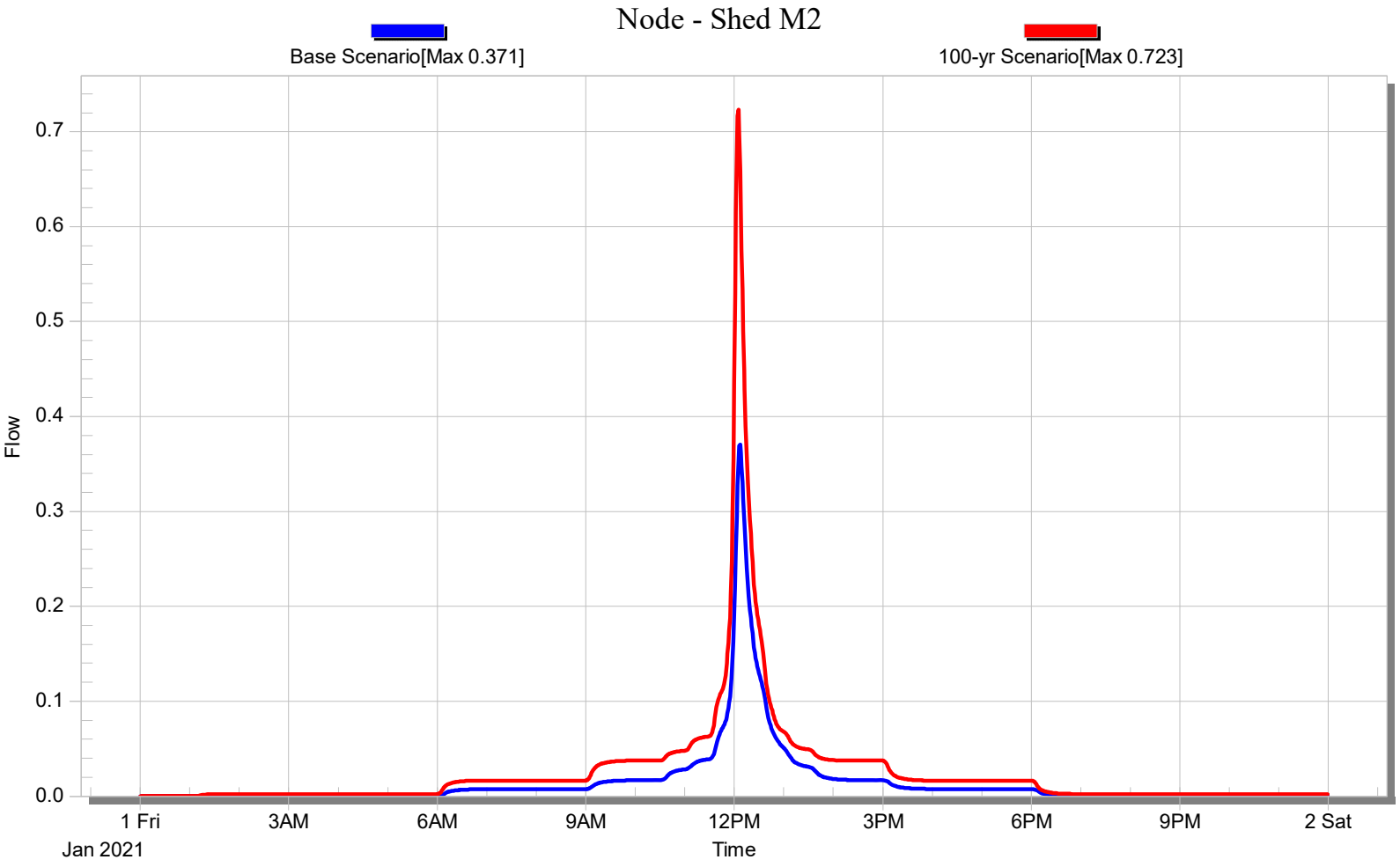


Conduit Drwy Section from DP #5 (U/S Culvert) to D/S Culvert



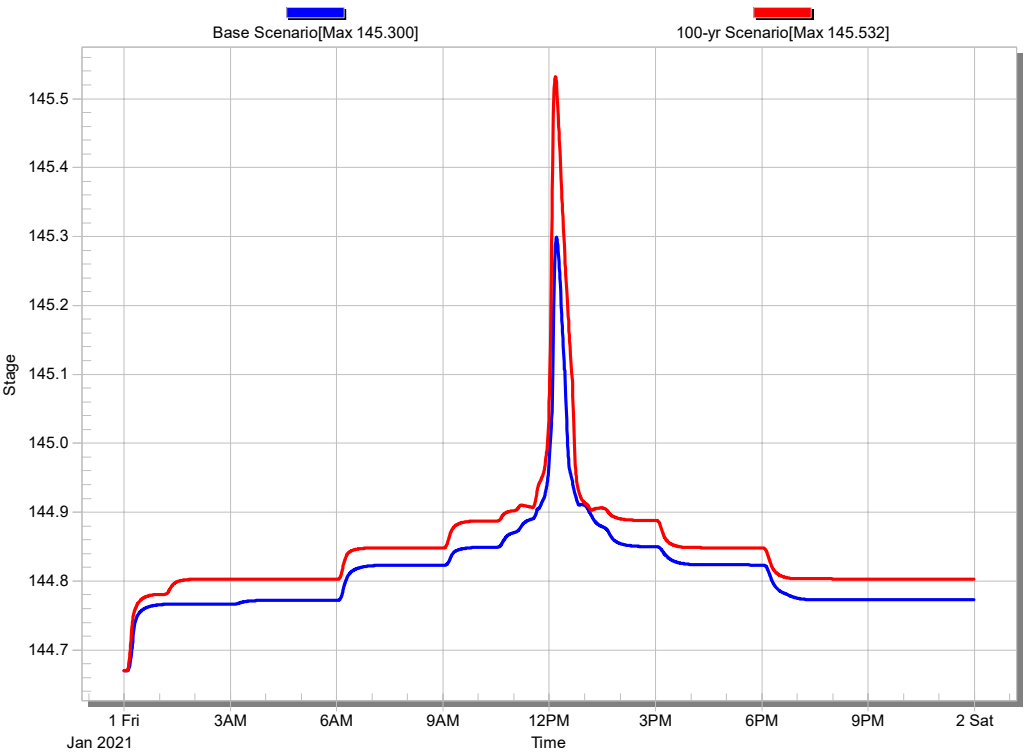
Existing Shed M Flows



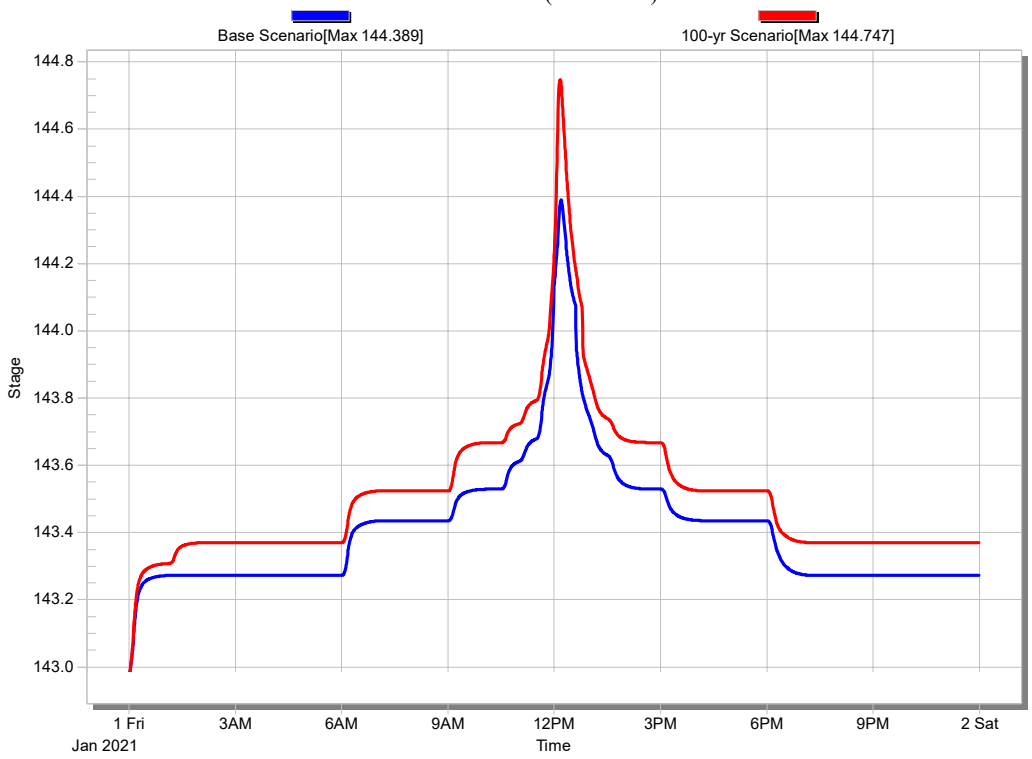


Existing Conditions: Stages at Design Points

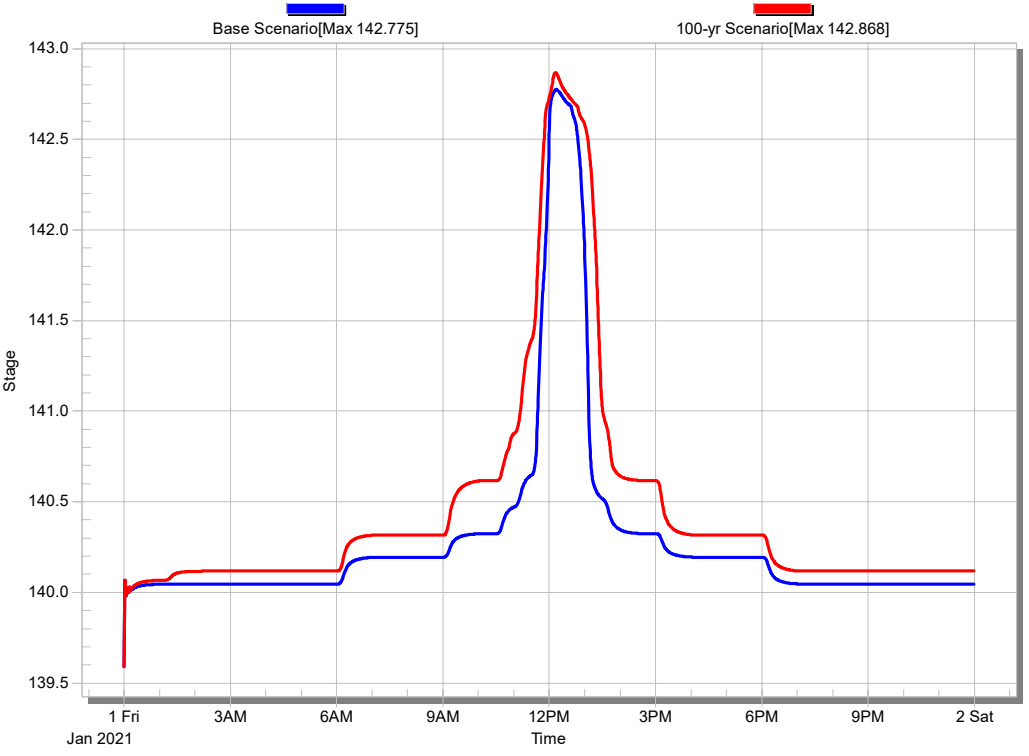
Node - DP #3



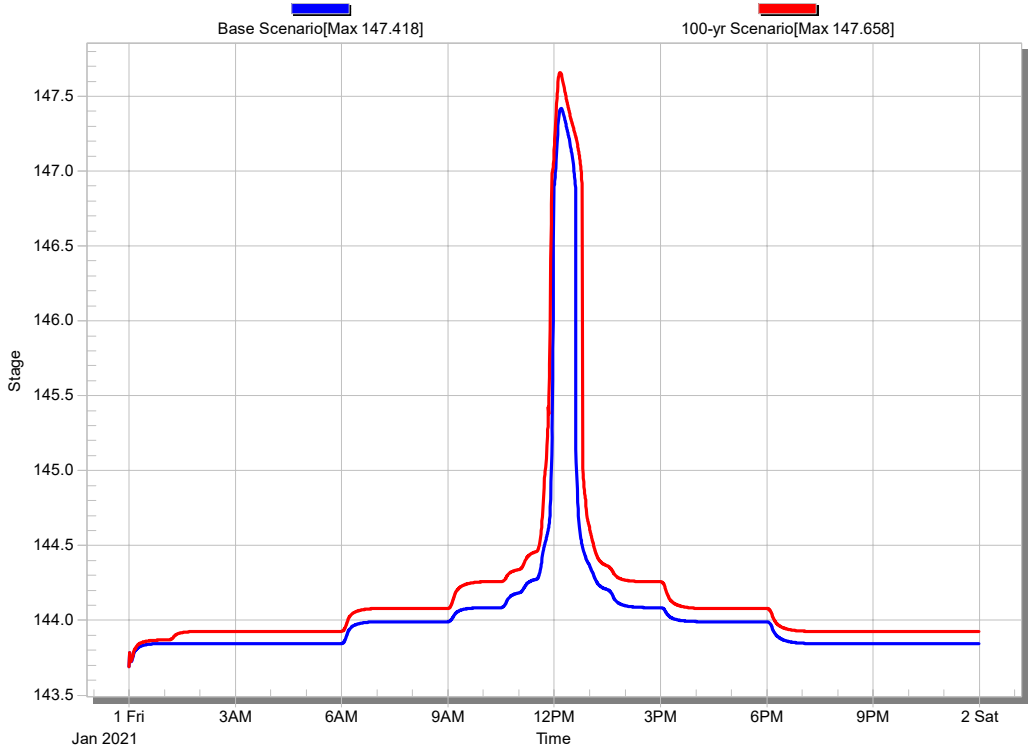
Node - DP #4 (Shed C1.2)



Node - DP #5 (U/S Culvert)



Node - Ex. MH #2 (Shed A-B)



Existing Conditions: Cross Section Views of Mapel Ditch in 100-yr Event

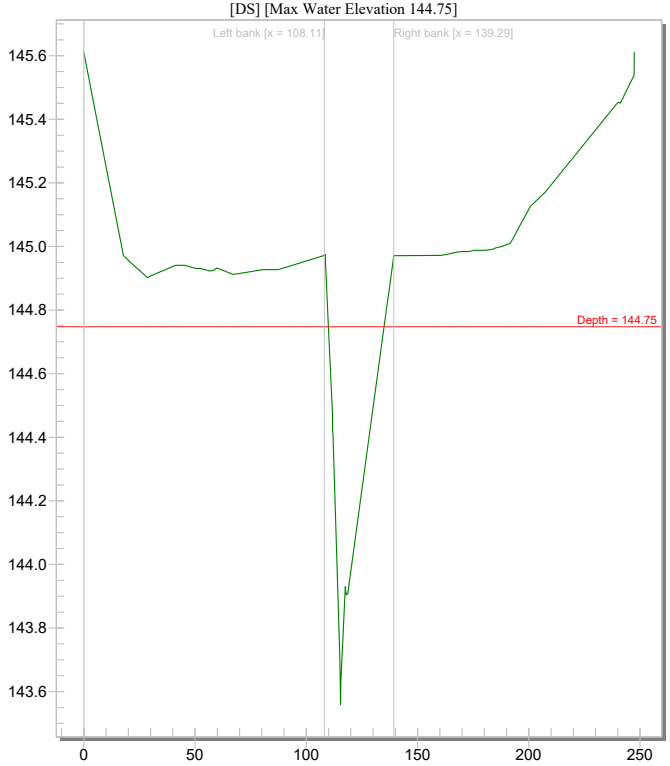
Link17
[DS] [Max Water Elevation 145.57]



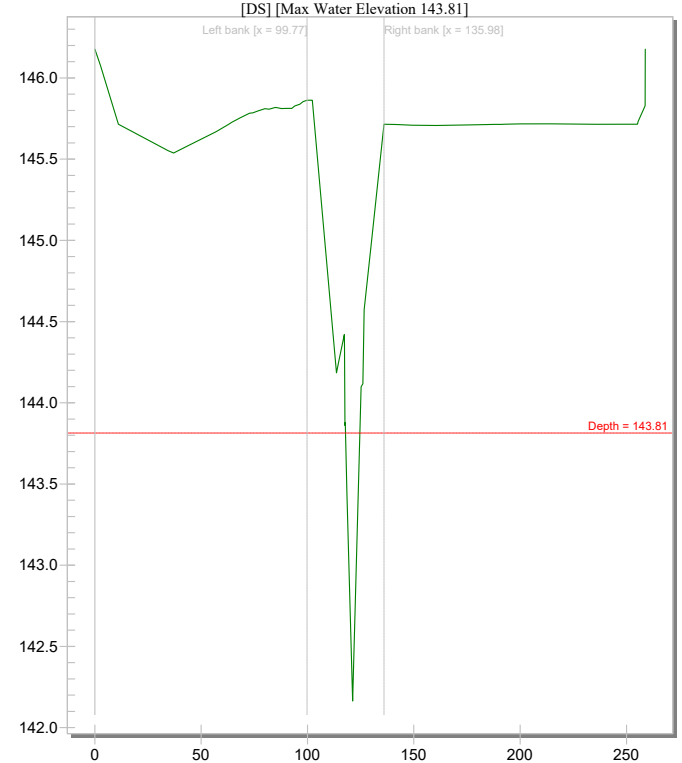
Link18
[DS] [Max Water Elevation 145.53]



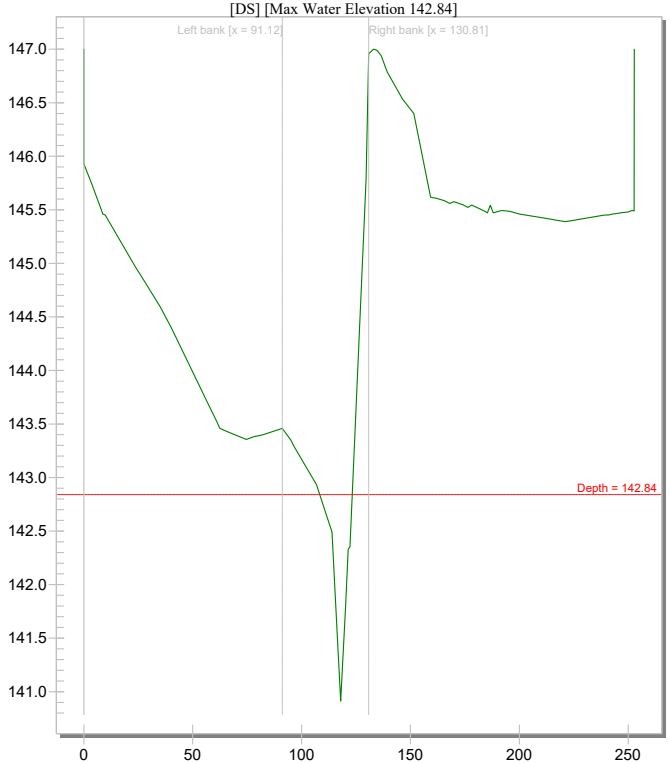
Link19
[DS] [Max Water Elevation 144.75]



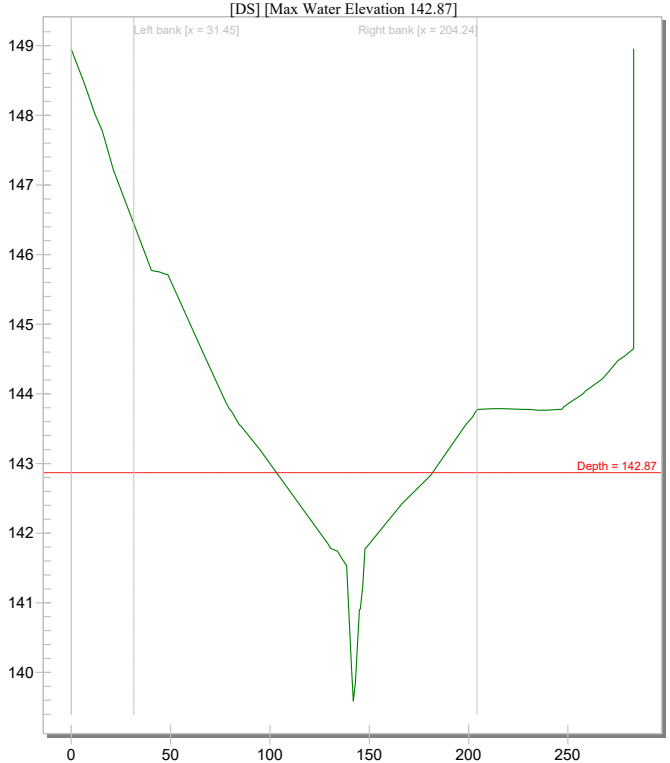
Link21
[DS] [Max Water Elevation 143.81]



Link22
[DS] [Max Water Elevation 142.84]



Link23
[DS] [Max Water Elevation 142.87]



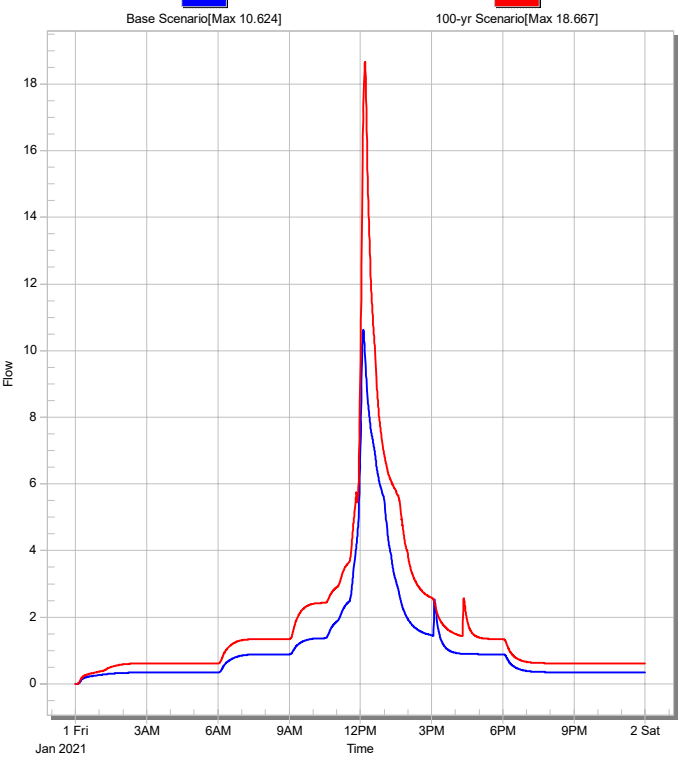
Developed Conditions
XPStorm Hydraulic Layout

D/S Culvert
Link20
DP #5 (U/S Culvert)
Link23
Shed C-1
Link22
Node30
Link21
DP #4 (Shed C1.2)
Link16
Ex. MH #1
Link13
Link19
Link39
DP #3
D/S OVR Swale
DP #2 (OVR Swale)
U/S OVR Swale
Ex. MH #2 (Shed B1)
Link38
Link37
MH #3 (Shed B2 & B3)
Link36
MH #4
Link35
Basin A
Link40
(Sheds A1-2 & C2-2)
Link18
Node27
Link17
SHED C2.1

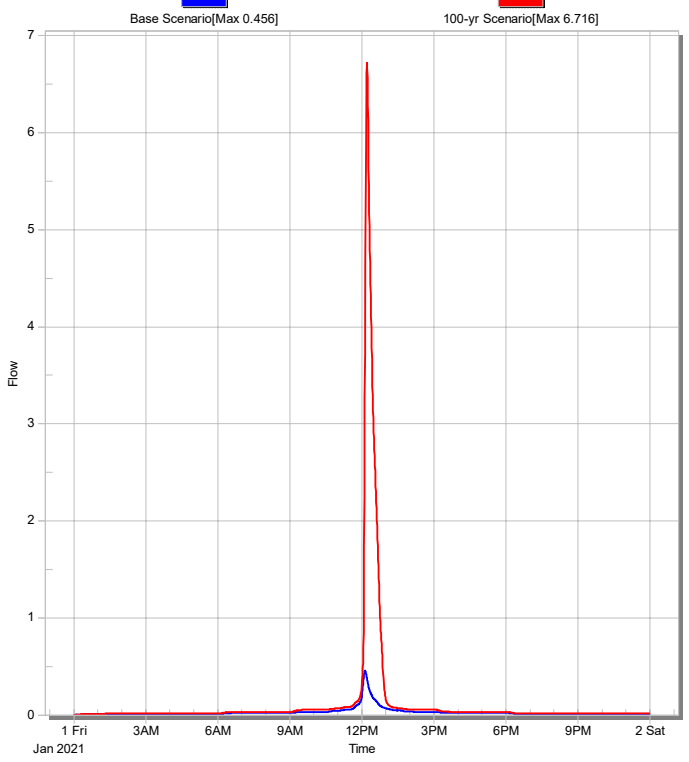
Cross-Section @ Link 23
Cross-Section @ Link 22
Cross-Section @ Link 21
Cross-Section @ Link 19
Cross-Section @ Link 18
Cross-Section @ Link 17

Developed Conditions: Routed Flows at Design Points

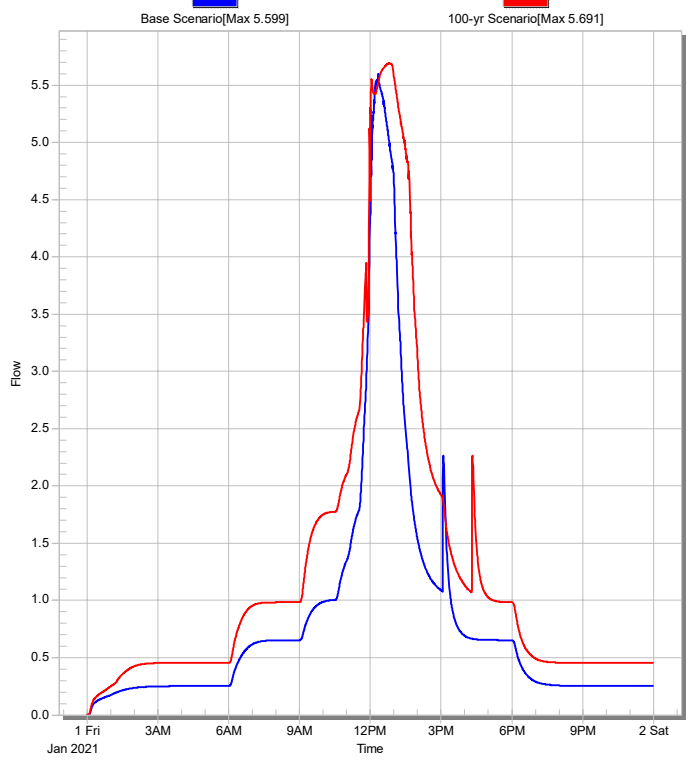
Conduit Link21 from DP #4 (Shed C1.2) to Node30



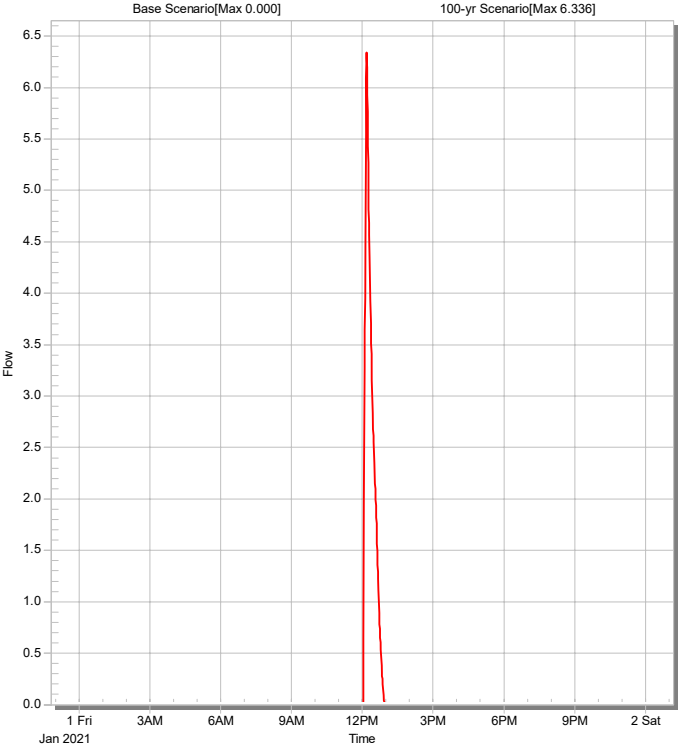
Conduit Link19 from DP #3 to DP #4 (Shed C1.2)



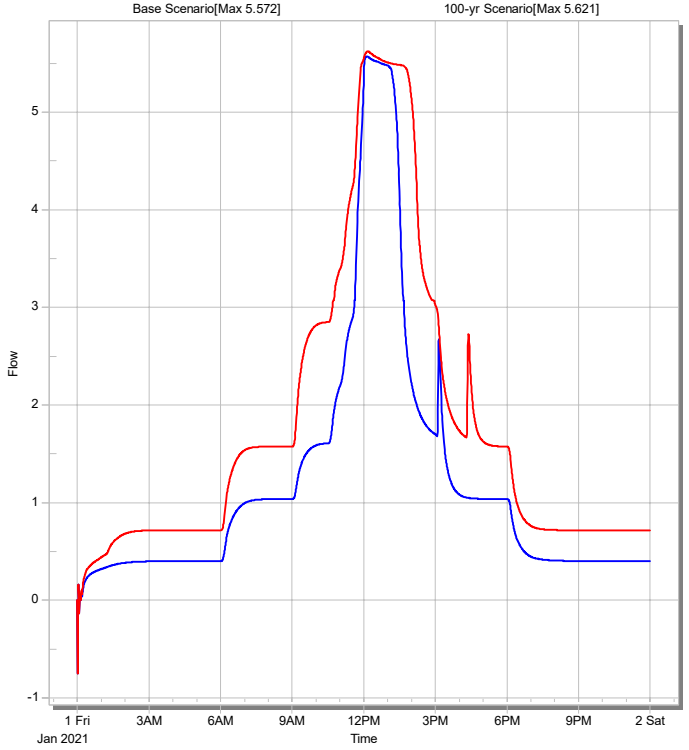
Conduit Link13 from Ex. MH #2 (Shed B1) to Ex. MH #1



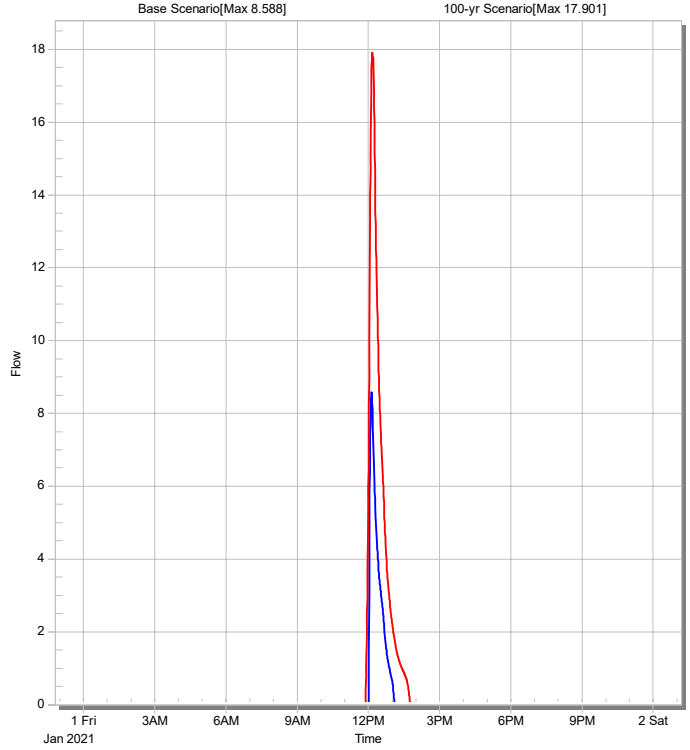
Conduit Link38 from Ex. MH #2 (Shed B1) to U/S OVR Swale



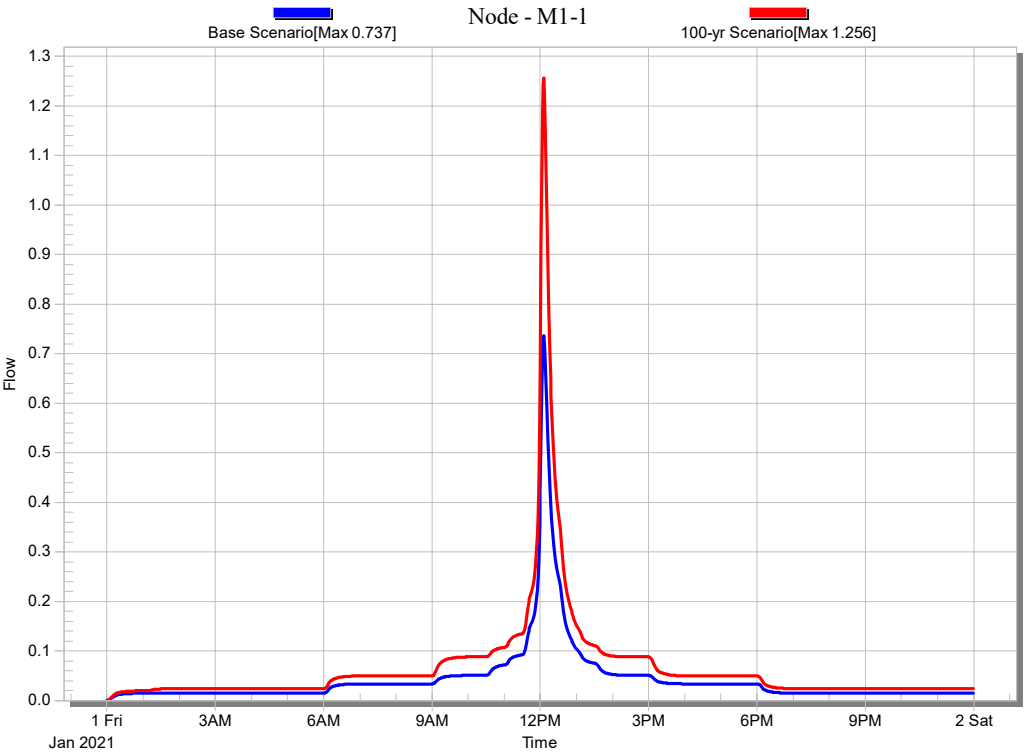
Conduit Culvert from DP #5 (U/S Culvert) to D/S Culvert

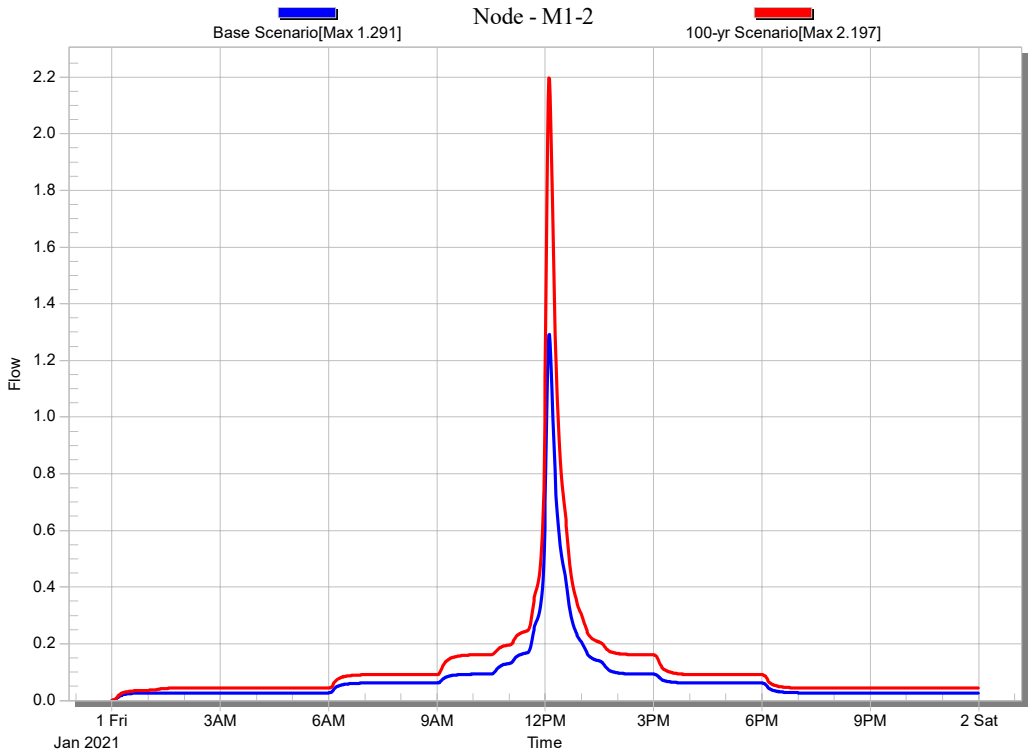


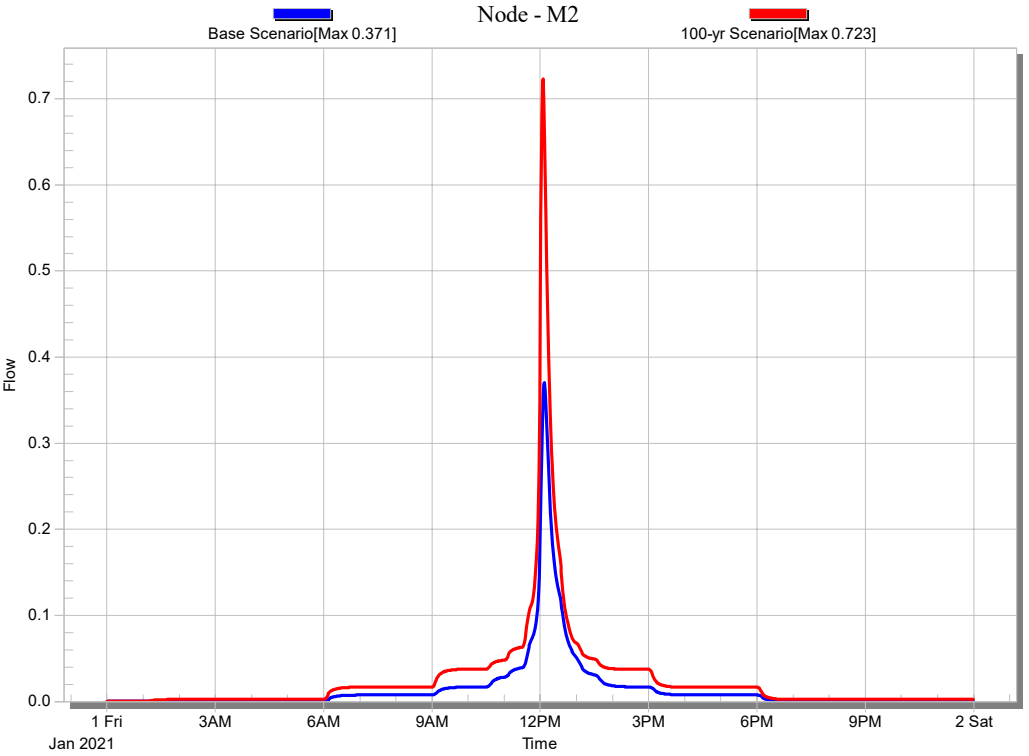
Conduit Drwy Section from DP #5 (U/S Culvert) to D/S Culvert



Developed Conditions: Shed M Flows

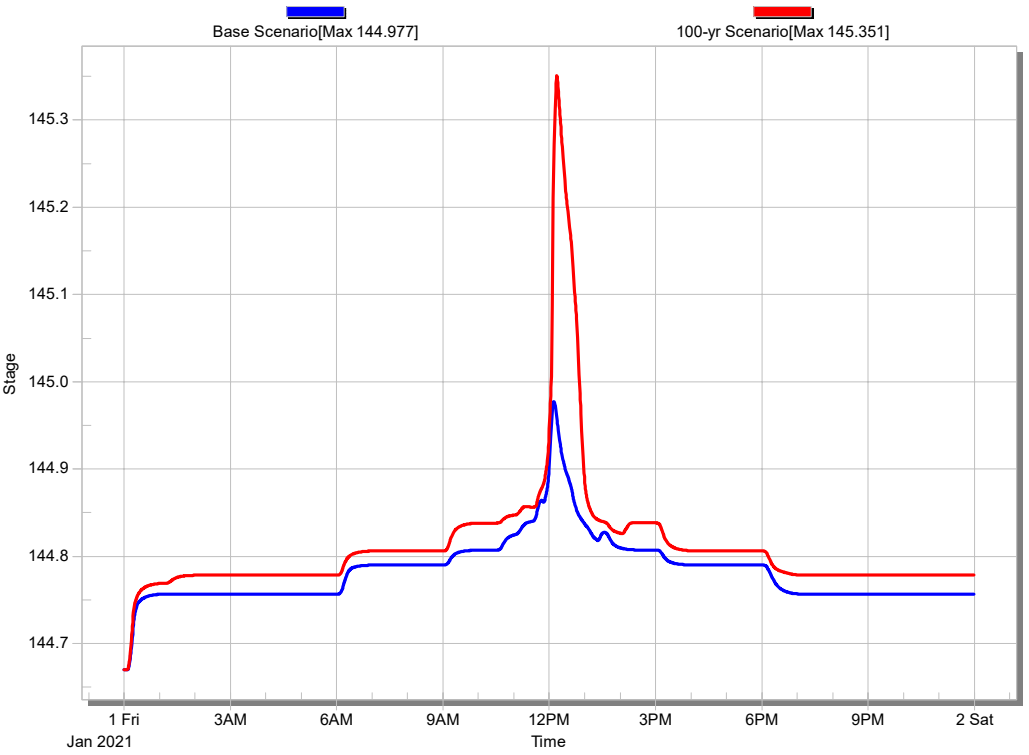




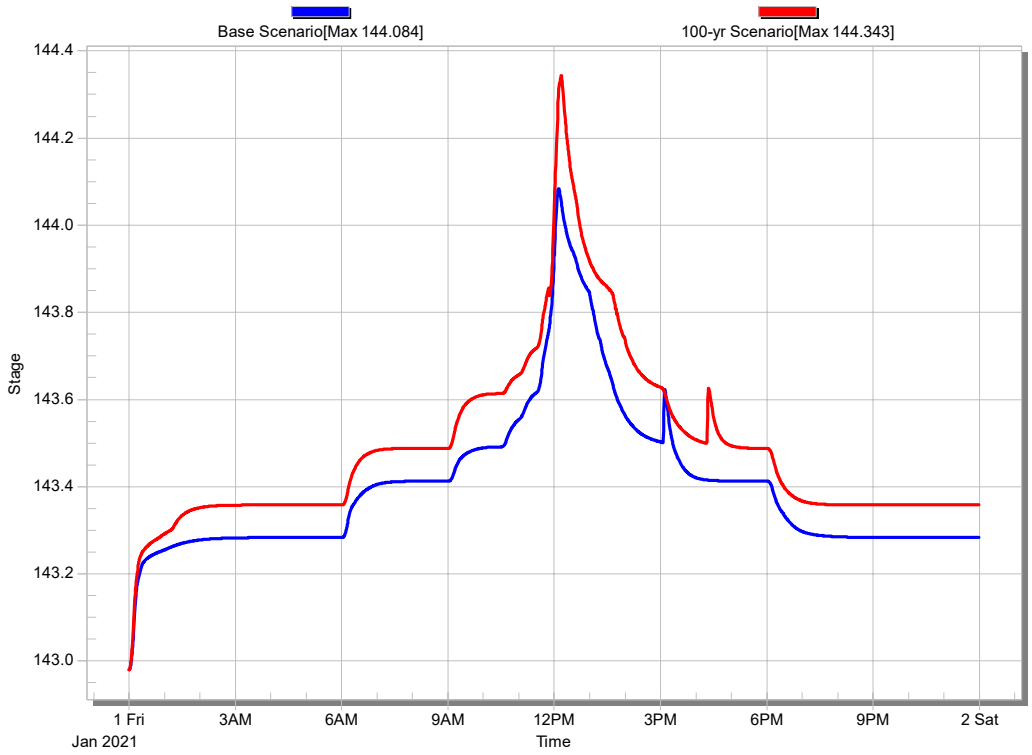


Developed Conditions: Stages at Design Points

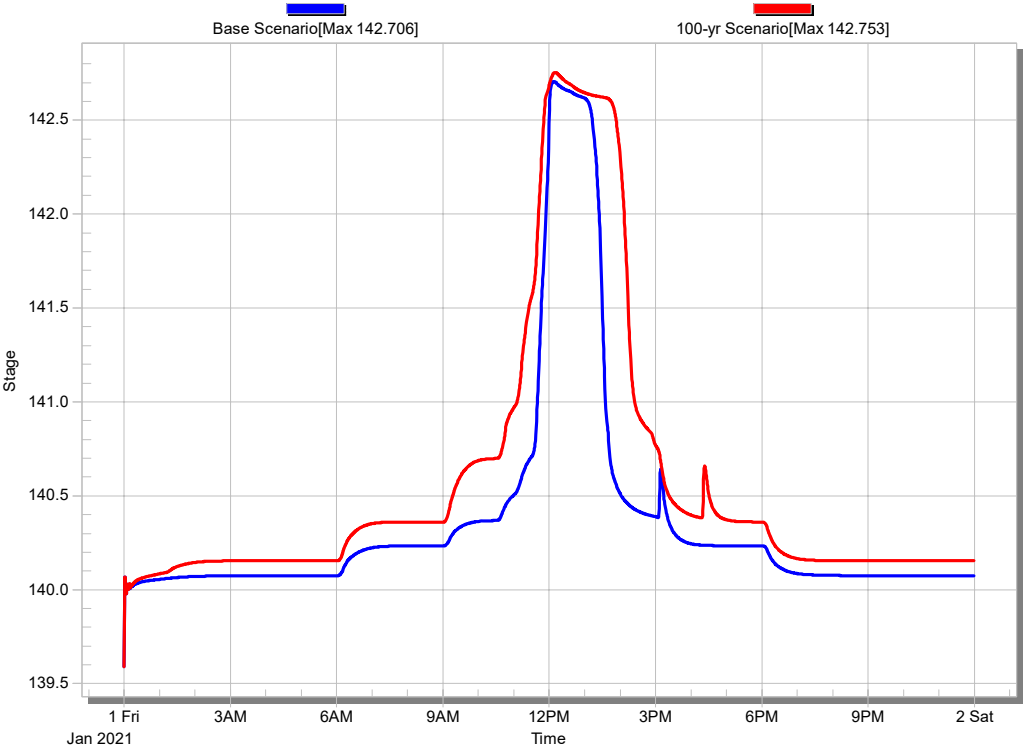
Node - DP #3



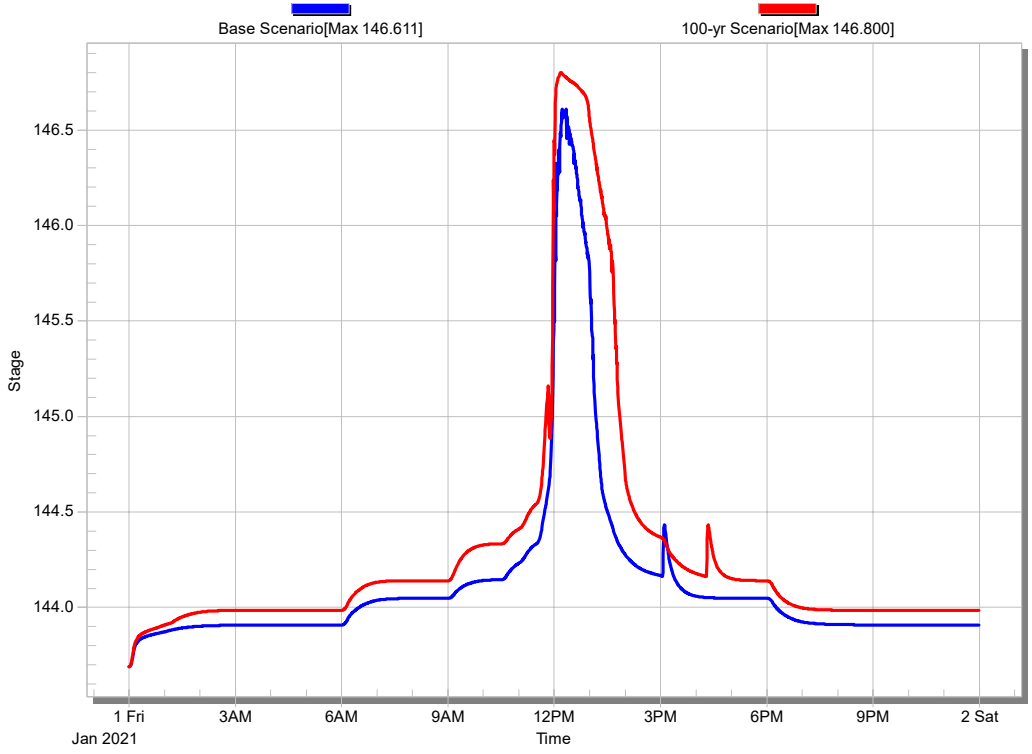
Node - DP #4 (Shed C1.2)



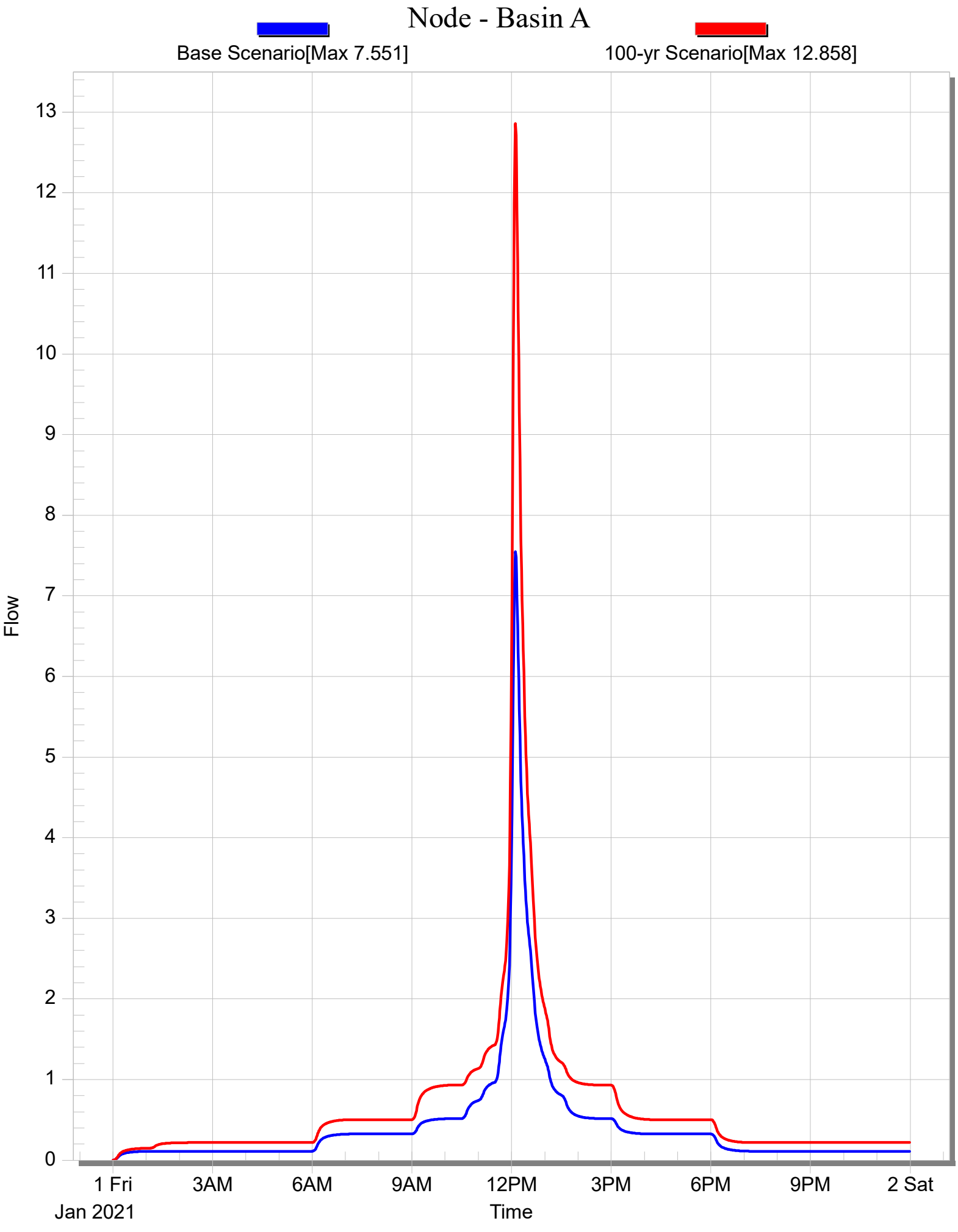
Node - DP #5 (U/S Culvert)



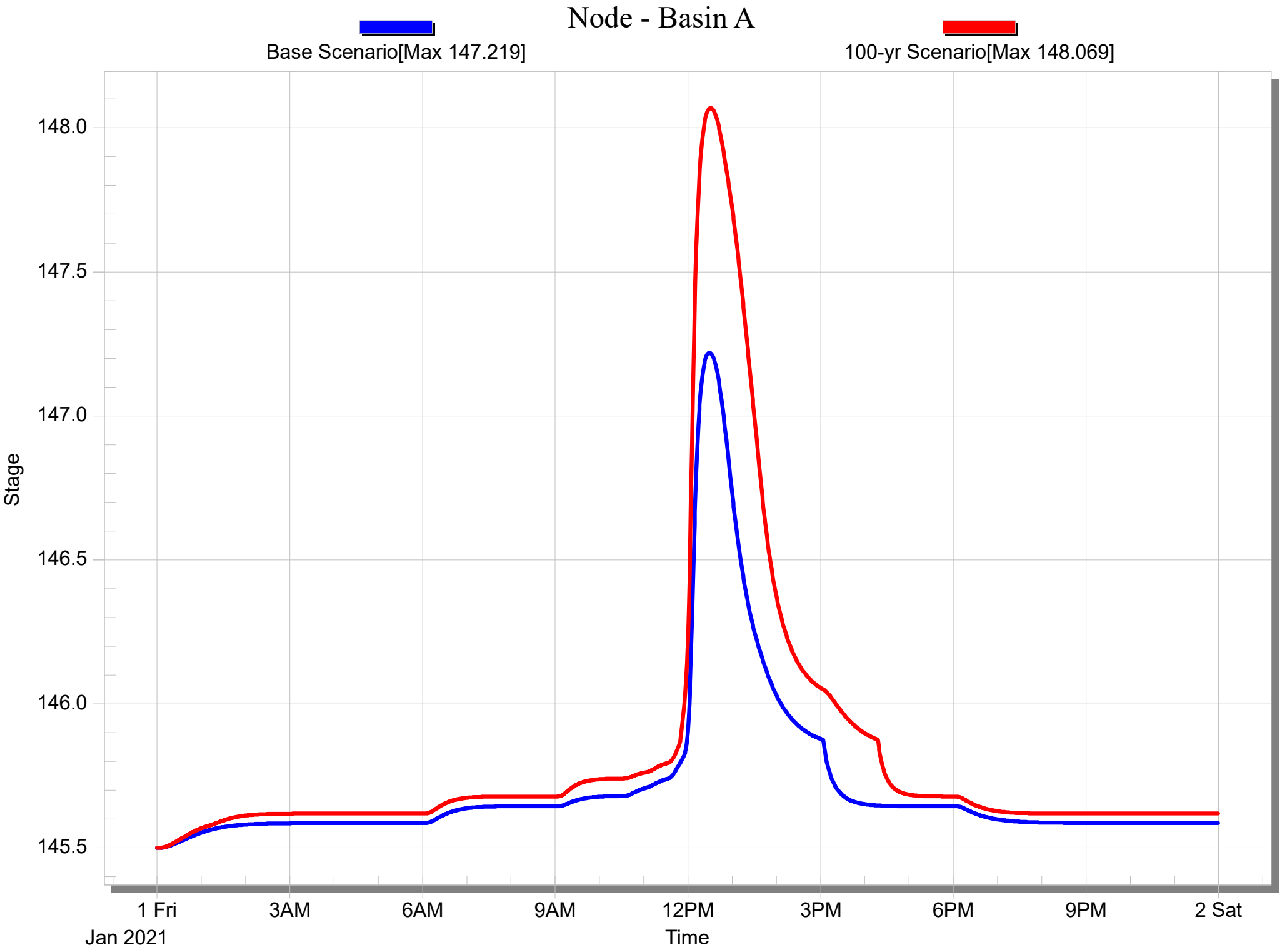
Node - Ex. MH #2 (Shed B1)



Developed Conditions: Flows into Basin A



Developed Conditions: Stages at Basin A



Developed Conditions: Cross Section Views of Mapel Ditch in 100-yr Event

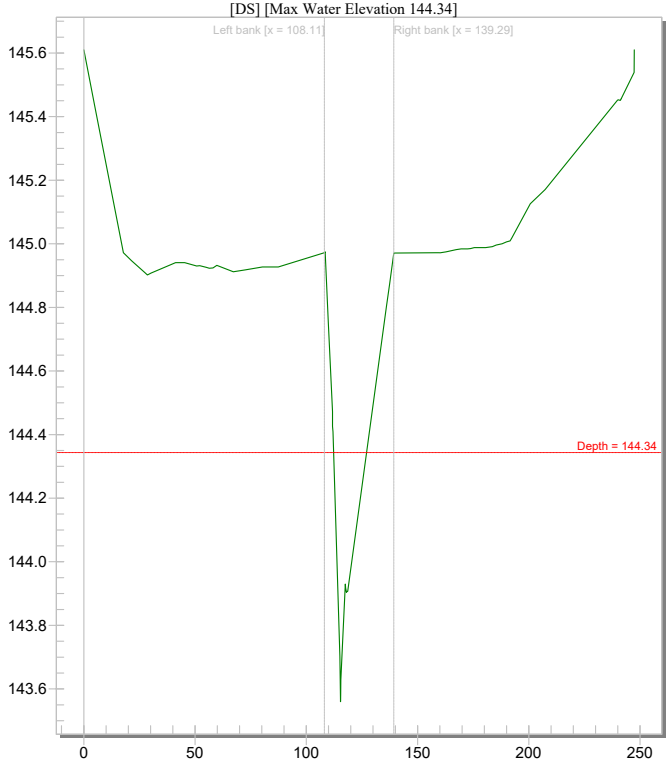
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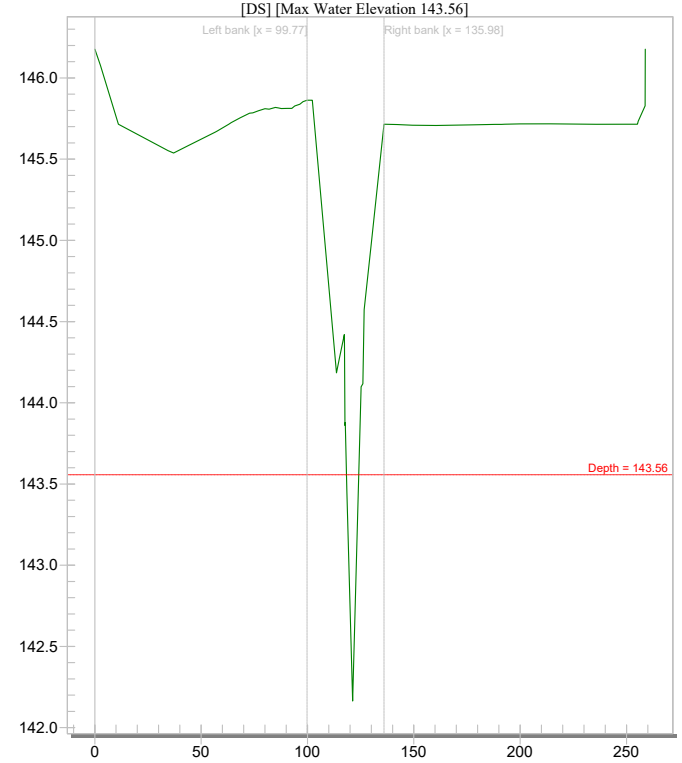
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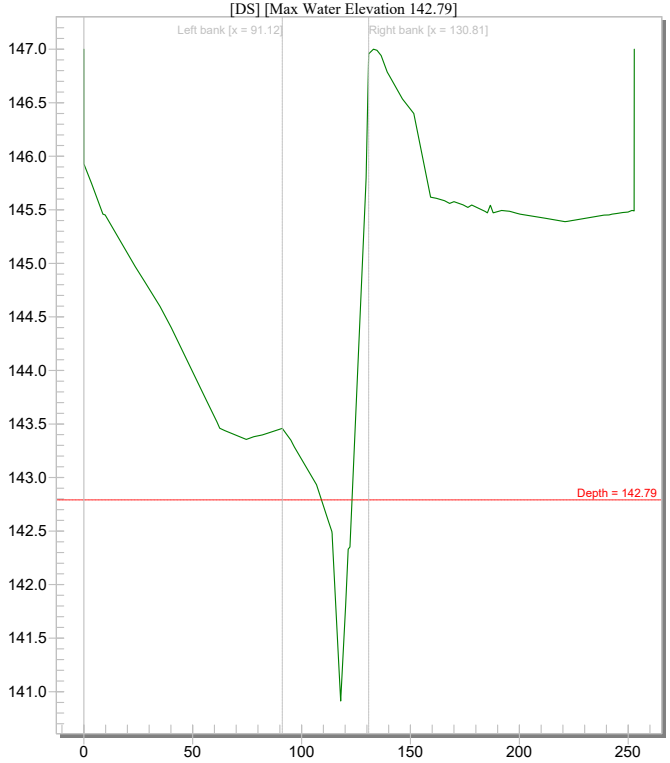
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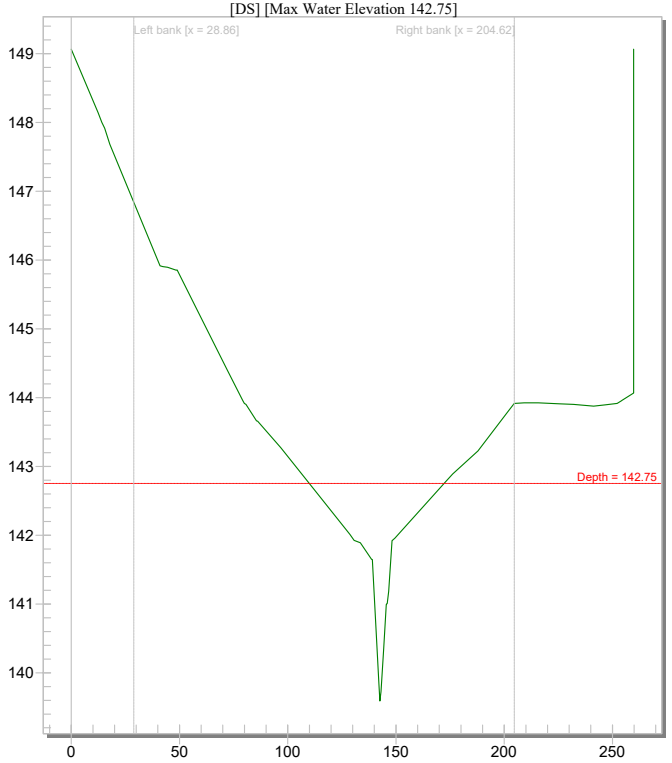
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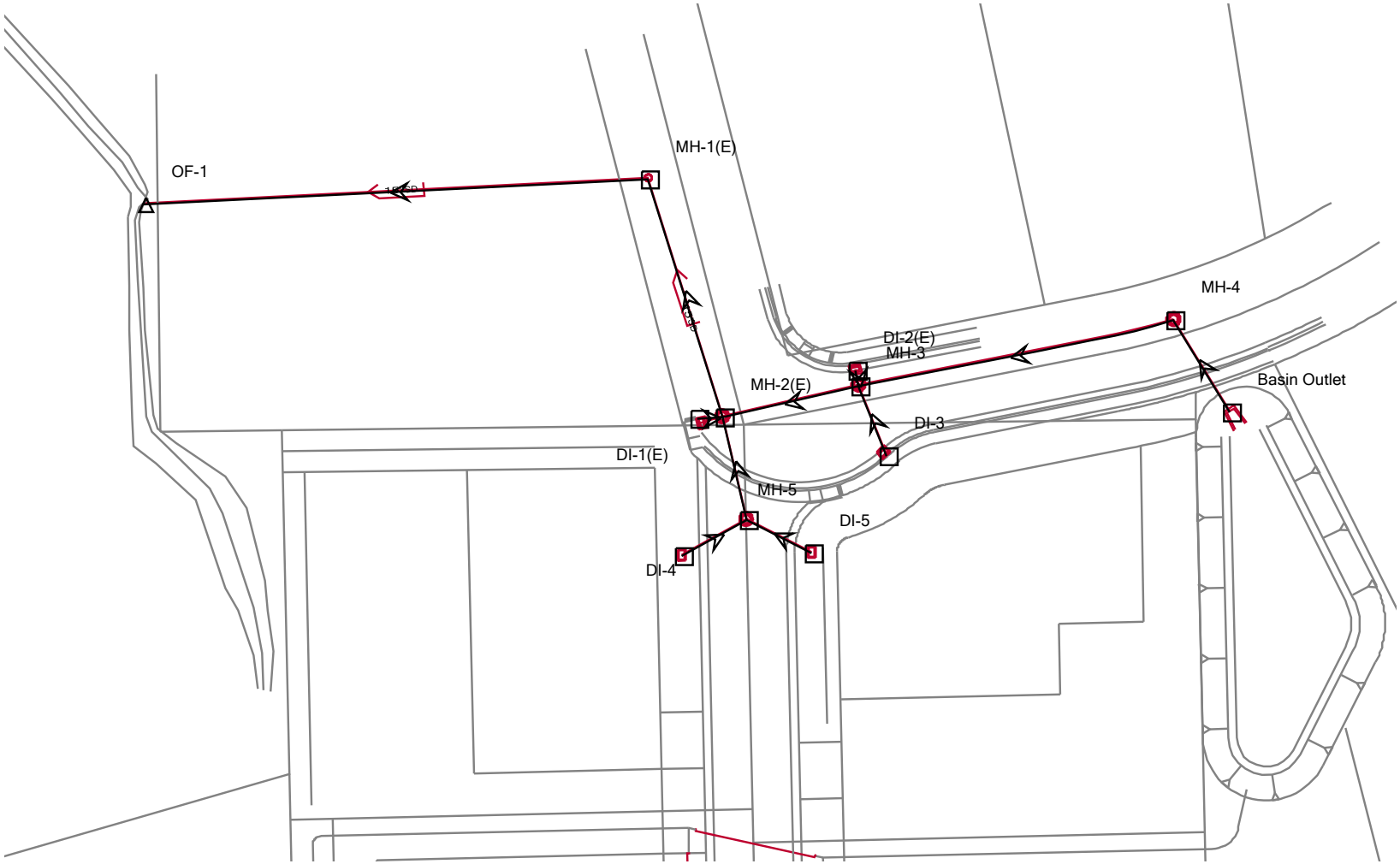
Link22



Link23



Scenario: Proposed Conditions (Nolte)



FlexTable: Catch Basin Table (O'Donnell Estates Proposed StormCAD_2021-0519.stc)

Label	Elevation (Ground) (ft)	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Flow (Known) (ft^3/s)	Hydraulic Grade Line (Out) (ft)
Basin Outlet	149.50	149.50	145.50	1.44	145.97
DI-1(E)	146.83	146.83	143.74	0.14	144.65
DI-2(E)	147.38	147.38	143.85	0.88	144.76
DI-3	146.82	146.82	143.95	0.09	144.75
DI-4	144.98	144.98	143.86	0.07	144.65
DI-5	144.99	144.99	143.86	0.16	144.65
MH-1(E)	147.19	147.19	143.29	2.78	144.48
MH-2(E)	146.91	146.91	143.69	2.78	144.65
MH-3	147.31	147.31	143.82	2.41	144.75
MH-4	150.14	150.14	144.12	1.44	144.86
MH-5	147.02	147.02	143.79	0.23	144.65

Conduit FlexTable: Combined Pipe/Node Report (O'Donnell Estates Proposed StormCAD_2021-0519.stc)

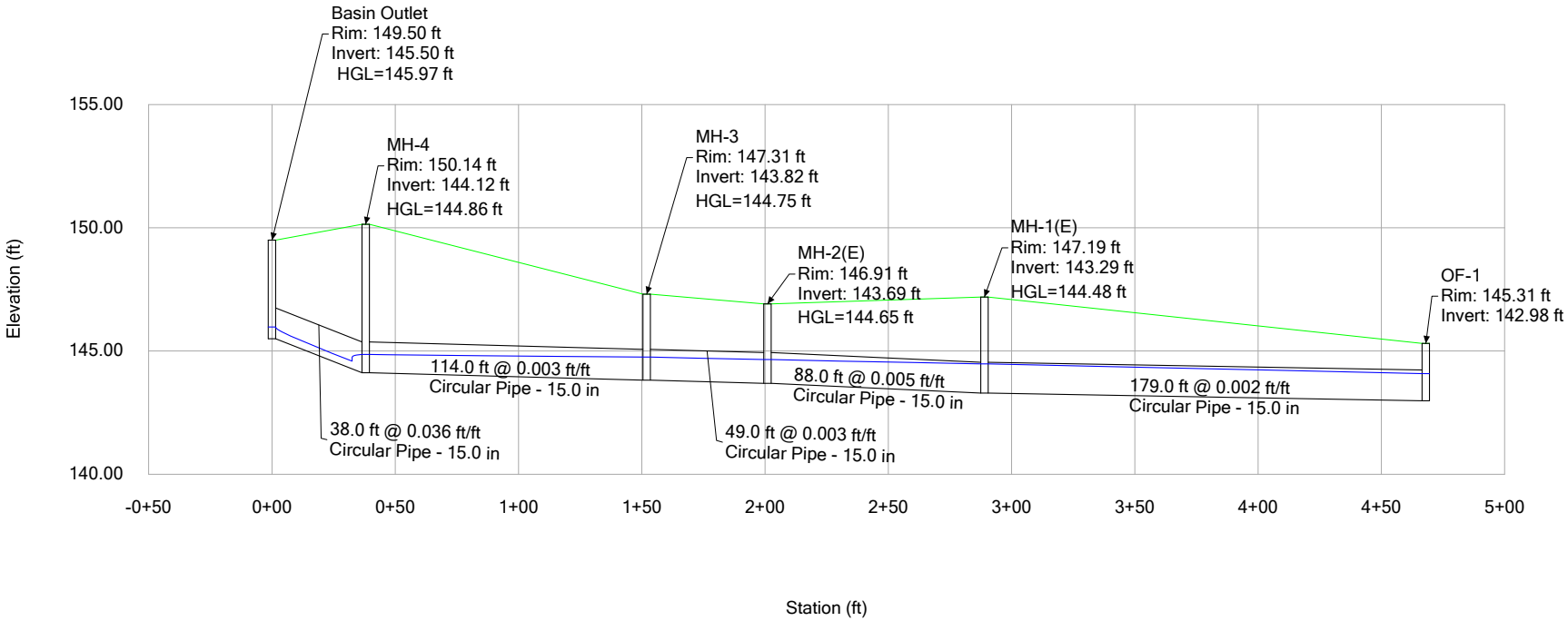
Start Node	Stop Node	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Length (Unified) (ft)	System Known Flow (ft^3/s)	Diameter (in)	Velocity (Average) (ft/s)	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Slope (ft/ft)	Manning's n
DI-5	MH-5	144.65	144.65	26.0	0.16	12.0	1.30	143.86	143.79	0.003	0.015
DI-4	MH-5	144.65	144.65	26.0	0.07	12.0	1.02	143.86	143.79	0.003	0.015
MH-1(E)	OF-1	144.48	144.08	179.0	2.78	15.0	2.27	143.29	142.98	0.002	0.015
MH-2(E)	MH-1(E)	144.65	144.48	88.0	2.78	15.0	3.36	143.69	143.29	0.005	0.015
MH-5	MH-2(E)	144.65	144.65	37.0	0.23	12.0	1.45	143.79	143.69	0.003	0.015
DI-1(E)	MH-2(E)	144.65	144.65	9.0	0.14	12.0	1.62	143.74	143.69	0.006	0.015
MH-3	MH-2(E)	144.75	144.65	49.0	2.41	15.0	2.63	143.82	143.69	0.003	0.015
DI-2(E)	MH-3	144.76	144.75	5.0	0.88	12.0	2.81	143.85	143.82	0.006	0.015
DI-3	MH-3	144.75	144.75	27.0	0.09	12.0	1.35	143.95	143.82	0.005	0.015
MH-4	MH-3	144.86	144.75	114.0	1.44	15.0	2.34	144.12	143.82	0.003	0.015
Basin Outlet	MH-4	145.97	144.86	38.0	1.44	15.0	6.07	145.50	144.12	0.036	0.015

FlexTable: Outfall Table (O'Donnell Estates Proposed StormCAD_2021-0519.stc)

Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Boundary Condition Type	Elevation (Tailwater) (ft)	System Known Flow (ft^3/s)
OF-1	145.31	142.98	User Defined Tailwater	144.08	2.78

Profile Report

Engineering Profile - Basin Outlet TO OF-1 (O'Donnell Estates Proposed StormCAD_2021-0519.stc)



APPENDIX G

Low Impact Development (LID) Measures Exhibit
Residential LID Worksheets – DMA "A1.1"
Residential LID Worksheets – DMA "A1.2"
Residential LID Worksheets – DMA "C"
Residential LID Worksheets – DMA "M1"
Residential LID Worksheets – DMA "M2

LID MEASURES EXHIBIT

O'DONNELL ESTATES

CARMICHAEL, CA

JANET BATES/PHILIP SALZMAN 2015 REVOCABLE TRUST 247-0021-011

SMITH BRUCE A 247-0023-009

RAPPAHANNOCK WAY

PETRASHISIN RUSIAN Y 245-0123-013

ZEHNDER MICHAEL G 245-0123-006

DOLORES A MACBEAN 2008 LIVING TRUST 245-0123-009

HARRIS JAMES L/JENNIFER J 245-0123-008

MAPEL LANE

NICKSAM PROPERTIES 247-0010-008 & 009

CARMICHAEL RECREATION/PARK DISTRICT 247-0010-007

MARCY JEAN E/JAMES R UBER 247-0161-008

GRAVENS FAMILY REV LIVING TRUST 247-0172-001

SOUTHAM MARTHA A/RANDY D WASINA/MARIENA F 247-0172-002

5' SMUD EASEMENT PER 2594 O.R. 295

(P) 15' D.E.

LOT 1 LID FEATURE

BUILDABLE AREA

SHED A1.1 ±2.73 AC

SHED A1.2 ±0.52 AC

SHED C ±0.51 AC

SHED M1 ±0.44 AC

SHED M2 ±0.81 AC

15' PUE

34' PRIVATE ROAD & PUE

15' PUE

10' TRAIL ESMT.

BIO-RETENTION BASIN "A"

LOT 4 LID FEATURE

5' SMUD EASEMENT PER 690502 O.R. 708

PROPOSED 15' DRAINAGE ESMT.

LOT 5 LID FEATURE

10' SEWER EASEMENT PER 3917 O.R. 587

EX. 50' SETBACK

EX. 42' ROW

1 2 3 4 5 6 7 8 9

KEY FEATURES LEGEND:

- EXISTING TREE LOCATION
- EXISTING TREE [LID CANOPY AREA]
- PROPOSED TREE [ASSUMED FUTURE LOCATION]
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- EXISTING DRAIN INLET
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED DRAIN INLET
- PROPOSED SHED BOUNDARY
- PERVIOUS AREA
- IMPERVIOUS AREA
- BIO-RETENTION BASIN LID AREA
- SOIL AMENDMENT LID AREA

N W E S

scale: 1"=30'

30 0 15 30 60

LID MEASURES EXHIBIT
MAY 26, 2021

TSD ENGINEERING, INC.
expect more.
785 Orchard Drive, Suite #110
Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

P:\Projects\265-039\03 REPORTS\HYDROLOGY AND HYDRAULICS\Entitlements 6th Submittal\Appendix G - LID & SWQ\CAD\LID Measures Exhibit.dwg, Tom Jones, 14:07:38, 09-22-21

Appendix D-1: Residential Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: O'Donnell Estates - DMA A1.1
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	6	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	1	acres	A_{OS}	see area example below
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	1	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	2.73	acres	A	
Project-Specific Open Space (In-project, communal)**	0.00	acres	A_{PSOS}	see area example below
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.00	acres		
e. Flood Control/Drainage basins	0.00	acres		

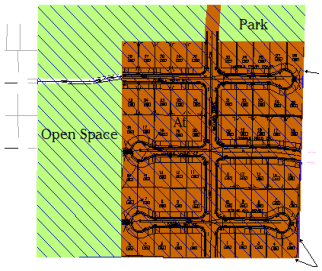
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

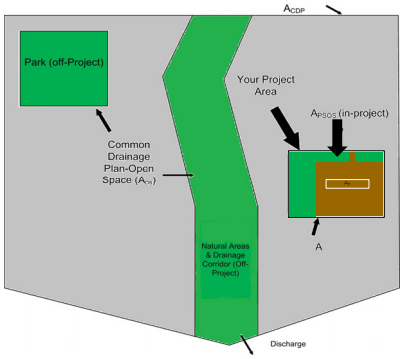
Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	2.73	acres	A_T
Number of Units in A_T		5		
Number of units per acre in A_T	DU/A_T =	2		DUA
Assumed Initial Impervious Fraction of A_T (determined using Table D-1a)		0.25		I

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 17 pts

Table D-1a

Dwelling units per acre	Imperviousness
1	0.17
2	0.25
3,4	0.35
5,6	0.40
7	0.50
8,9	0.55
10-14	0.60
15-20	0.70





Step 2 - Runoff Reduction Credits

Runoff Reduction Measures		Effective Area Managed (A_C)	
Disconnected Roof Drains (see Fact Sheet)	use Form D-1a for credits →	0.19	acres
Disconnected Pavement (see Fact Sheet)	use Form D-1b for credits →	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-1c for credits →	0.06	acres
Alternative Driveway Design (see Fact Sheet)	use Form D-1d for credits →	0.00	acres
Total Effective Area Managed (Credit Area)	A_C	0.24	acres EAM

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100$ = 9 pts

Form D-1a: Disconnected Roof Drains Worksheet

See Fact Sheet for more information regarding Disconnected Roof Drain credit guidelines

Effective Area Managed (A_C)

1. Determine efficiency Multiplier

Runoff is directed to a dispersal trench or dry well (Type A and B soils only)		1.00
Runoff is directed across landscaping, determine setback		
25 ft +	Use multiplier of	1.00
≥ 20 and < 25 ft	Use multiplier of	0.90
≥ 15 and < 20 ft	Use multiplier of	0.70
≥ 10 and < 15 ft	Use multiplier of	0.45
≥ 5 and < 10 ft	Use multiplier of	0.25

Efficiency Multiplier → 0.90 Box J1

2. Determine percentage of roof drains disconnected → 100.0% Box J2

3. Select project density in dwelling units per acre:

1	Use reduction factor of	0.08
2	Use reduction factor of	0.13
3,4	Use reduction factor of	0.19
5,6	Use reduction factor of	0.23
7	Use reduction factor of	0.29
8,9	Use reduction factor of	0.33
10-14	Use reduction factor of	0.37
15-20	Use reduction factor of	0.44

Reduction Factor → 0.13 Box J3

4. Determine Area Managed

Multiply Box J3 by A_T, and enter the result in Box J4: 0.3 acres Box J4

5. Multiply Boxes J1, J2 and J4, and enter 60% of the Result in Box J: 0.2 acres Box J

This is the amount of area credit to enter into the "Disconnected Roof Drains" Box of Form D-1

Form D-1b: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding NDC Pavement credit guidelines

Effective Area Managed (A_C)

Divided Sidewalks

1. Determine percentage of units with divided Sidewalks: Box K1

Multiply Box K1, A_T, and 0.04 and enter 60% of the result in Box K: 0.00 acres Box K

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-1

Form D-1c: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

Effective Area Managed (A_C)

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1: 4 trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2: 800 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3: 4 trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4: 400 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5: 23200 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6: 11600 sq. ft. Box L6

Total Interceptor Tree Credits

Add Boxes L2, L4, and L6 and enter it into Box L7: 12800 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter the result in Box L8: 0.06 acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-1

Form D-1d: Alternative Driveway Design

See Fact Sheet for more information regarding Alternative Driveway Design credit guidelines

1. Select type of driveway

Pervious Driveway:	Multiplier:
Cobblestone Block F	0.40
Pervious Concrete/A	0.60
Modular Block Porous Pavement	0.75
Porous Gravel	
Not Directly-connected	1.00

Box M1

2. Determine percentage of units with Alternative Driveways: Box M2

4. Multiply Boxes M1, M2, A_T and 0.04, and enter the result in Box M: 0.00 acres

This is the amount of area credit to enter into the "Alternative Driveway Design" Box of Form D-1

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) _____ enter gallons, for simple rain barrels — 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) — 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area 3,700 sq ft
Subdrain Elevation 6 inches
Ponding Depth, inches 12.0 inches — 1.27 acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs _____ drawdown_hrs_inf
Soil Infiltration Rate, in/hr _____ soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft _____ capture_vol_inf — 0.00 acres

Sizing Option 2: Infiltration BMP surface area, sq ft _____ soil_surface_area — 0.00 acres

Basin or trench? _____ approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft _____ mulch_area — 0.00 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs — 1.27 A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = 92.8 pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 — 118.6

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ = 1.22 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment $(A_T*I-A_C-A_{LIDC}) / A$ = 0.000 I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Form D-1e

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Adjusted Treatment Area

Determine C Factor using Table D-1b — 0.50 C

Determine i using Table D-1c (Rainfall Intensity) — 0.18 i

A_{AT} from Step 2 — 1.22 A_{AT}

Flow = C * i * A_{AT} — 0.11 cfs

TABLE D-1b

Development Type	Runoff Coefficient (Rational), C
Single-family areas	0.50
Multi-units, detached	0.60
Apartment dwelling areas	0.70
Multi-units, attached	0.75
User Specified	0.00

Table D-1c

Rainfall Intensity		
Roseville	i = 0.20	in/hr
Sacramento	i = 0.18	in/hr
Folsom	i = 0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 — 2.73 A — 24 hrs Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. — 0.00 P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) — 0.000 Acre-Feet

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Appendix D-1: Residential Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: O'Donnell Estates - DMA A1.2
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	6	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	1	acres	A_{OS}	see area example below
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	1	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	0.52	acres	A	
Project-Specific Open Space (In-project, communal)**	0.00	acres	A_{PSOS}	see area example below
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.00	acres		
e. Flood Control/Drainage basins	0.00	acres		

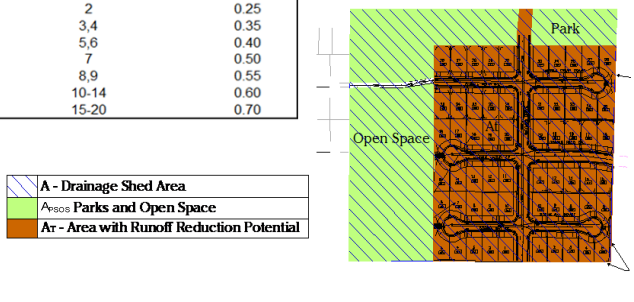
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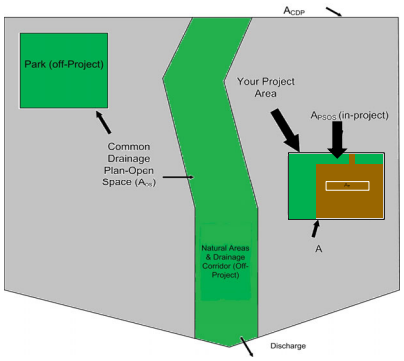
Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	0.52	acres	A_T
Number of Units in A_T		1		
Number of units per acre in A_T	DU/A_T =	2	DUA	
Assumed Initial Impervious Fraction of A_T (determined using Table D-1a)		0.25	I	

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 17 pts

Table D-1a

Dwelling units per acre	Imperviousness
1	0.17
2	0.25
3,4	0.35
5,6	0.40
7	0.50
8,9	0.55
10-14	0.60
15-20	0.70





Step 2 - Runoff Reduction Credits

Runoff Reduction Measures		Effective Area Managed (A_C)	
Disconnected Roof Drains (see Fact Sheet)	use Form D-1a for credits →	0.04	acres
Disconnected Pavement (see Fact Sheet)	use Form D-1b for credits →	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-1c for credits →	0.02	acres
Alternative Driveway Design (see Fact Sheet)	use Form D-1d for credits →	0.00	acres
Total Effective Area Managed (Credit Area)	A_C	0.06	acres EAM

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100$ = 11 pts

Form D-1a: Disconnected Roof Drains Worksheet

See Fact Sheet for more information regarding Disconnected Roof Drain credit guidelines

Effective Area Managed (A_C)

1. Determine efficiency Multiplier

Runoff is directed to a dispersal trench or dry well (Type A and B soils only)		1.00
Runoff is directed across landscaping, determine setback		
25 ft +	Use multiplier of	1.00
≥ 20 and < 25 ft	Use multiplier of	0.90
≥ 15 and < 20 ft	Use multiplier of	0.70
≥ 10 and < 15 ft	Use multiplier of	0.45
≥ 5 and < 10 ft	Use multiplier of	0.25

Efficiency Multiplier → 0.90 Box J1

2. Determine percentage of roof drains disconnected → 100.0% Box J2

3. Select project density in dwelling units per acre:

1	Use reduction factor of	0.08
2	Use reduction factor of	0.13
3,4	Use reduction factor of	0.19
5,6	Use reduction factor of	0.23
7	Use reduction factor of	0.29
8,9	Use reduction factor of	0.33
10-14	Use reduction factor of	0.37
15-20	Use reduction factor of	0.44

Reduction Factor → 0.13 Box J3

4. Determine Area Managed

Multiply Box J3 by A_T, and enter the result in Box J4: 0.1 acres Box J4

5. Multiply Boxes J1, J2 and J4, and enter 60% of the Result in Box J: 0.0 acres Box J

This is the amount of area credit to enter into the "Disconnected Roof Drains" Box of Form D-1

Form D-1b: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding NDC Pavement credit guidelines

Effective Area Managed (A_C)

Divided Sidewalks

1. Determine percentage of units with divided Sidewalks: Box K1

Multiply Box K1, A_T, and 0.04 and enter 60% of the result in Box K: 0.00 acres Box K

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-1

Form D-1c: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

Effective Area Managed (A_C)

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1: 1 trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2: 200 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3: 1 trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4: 100 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5: 9400 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6: 4700 sq. ft. Box L6

Total Interceptor Tree Credits

Add Boxes L2, L4, and L6 and enter it into Box L7: 5000 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter the result in Box L8: 0.02 acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-1

Form D-1d: Alternative Driveway Design

See Fact Sheet for more information regarding Alternative Driveway Design credit guidelines

1. Select type of driveway

Pervious Driveway:	Multiplier:
Cobblestone Block P	0.40
Pervious Concrete/A	0.60
Modular Block Porous Pavement	0.75
Porous Gravel	
Not Directly-connected	1.00

Box M1

2. Determine percentage of units with Alternative Driveways: 0% Box M2

4. Multiply Boxes M1, M2, A_T and 0.04, and enter the result in Box M: 0.00 acres

This is the amount of area credit to enter into the "Alternative Driveway Design" Box of Form D-1

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) - enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area - sq ft
Subdrain Elevation inches
Ponding Depth, inches inches | 0.00 | acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs
Soil Infiltration Rate, in/hr soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft capture_vol_inf | 0.00 | acres

Sizing Option 2: Infiltration BMP surface area, sq ft soil_surface_area | 0.00 | acres

Basin or trench? approximate BMP depth 1.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft 2,050 mulch_area | 0.19 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.19 | A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = | 72.4 | pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 | 100.4

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ = | 0.27 | A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment $(A_T*I-A_C-A_{LIDC}) / A$ = | 0.000 | I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Form D-1e

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Adjusted Treatment Area

Determine C Factor using Table D-1b	0.50	C
Determine i using Table D-1c (Rainfall Intensity)	0.18	i
A_{AT} from Step 2	0.27	A_{AT}
Flow = C * i * A_{AT}	0.02	cfs

TABLE D-1b

Development Type	Runoff Coefficient (Rational), C
Single-family areas	0.50
Multi-units, detached	0.60
Apartment dwelling areas	0.70
Multi-units, attached	0.75
User Specified	0.00

Table D-1c

Rainfall Intensity		
Roseville	i = 0.20	in/hr
Sacramento	i = 0.18	in/hr
Folsom	i = 0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	0.52	A	24 hrs	Specified Draw Down time
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.00	P_0		
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.000	Acre-Feet		

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Appendix D-1: Residential Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: O'Donnell Estates - DMA C
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	6	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	1	acres	A_{OS}	see area example below
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	1	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	0.51	acres	A	
Project-Specific Open Space (In-project, communal)**	0.00	acres	A_{PSOS}	see area example below
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.00	acres		
e. Flood Control/Drainage basins	0.00	acres		

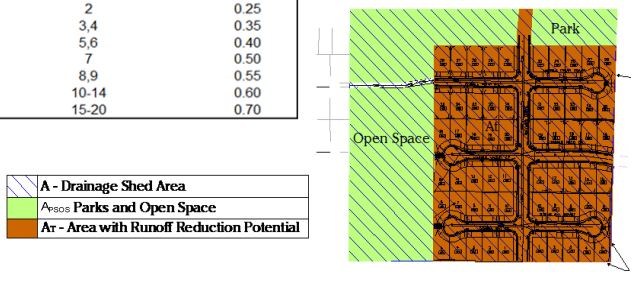
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

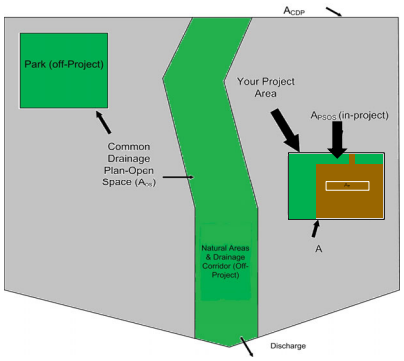
Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	0.51	acres	A_T
Number of Units in A_T		1		
Number of units per acre in A_T	DU/A_T =	2	DUA	
Assumed Initial Impervious Fraction of A_T (determined using Table D-1a)		0.25	I	

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 17 pts

Table D-1a

Dwelling units per acre	Imperviousness
1	0.17
2	0.25
3,4	0.35
5,6	0.40
7	0.50
8,9	0.55
10-14	0.60
15-20	0.70





Step 2 - Runoff Reduction Credits

Runoff Reduction Measures		Effective Area Managed (A_C)	
Disconnected Roof Drains (see Fact Sheet)	use Form D-1a for credits →	0.03	acres
Disconnected Pavement (see Fact Sheet)	use Form D-1b for credits →	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-1c for credits →	0.02	acres
Alternative Driveway Design (see Fact Sheet)	use Form D-1d for credits →	0.00	acres
Total Effective Area Managed (Credit Area)	A_C	0.06	acres EAM

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100$ = 11 pts

Form D-1a: Disconnected Roof Drains Worksheet

See Fact Sheet for more information regarding Disconnected Roof Drain credit guidelines

Effective Area Managed (A_C)

1. Determine efficiency Multiplier

Runoff is directed to a dispersal trench or dry well (Type A and B soils only)		1.00
Runoff is directed across landscaping, determine setback		
25 ft +	Use multiplier of	1.00
≥ 20 and < 25 ft	Use multiplier of	0.90
≥ 15 and < 20 ft	Use multiplier of	0.70
≥ 10 and < 15 ft	Use multiplier of	0.45
≥ 5 and < 10 ft	Use multiplier of	0.25

Efficiency Multiplier → 0.90 Box J1

2. Determine percentage of roof drains disconnected → 100.0% Box J2

3. Select project density in dwelling units per acre:

1	Use reduction factor of	0.08
2	Use reduction factor of	0.13
3,4	Use reduction factor of	0.19
5,6	Use reduction factor of	0.23
7	Use reduction factor of	0.29
8,9	Use reduction factor of	0.33
10-14	Use reduction factor of	0.37
15-20	Use reduction factor of	0.44

Reduction Factor → 0.13 Box J3

4. Determine Area Managed

Multiply Box J3 by A_T, and enter the result in Box J4: 0.1 acres Box J4

5. Multiply Boxes J1, J2 and J4, and enter 60% of the Result in Box J: 0.0 acres Box J

This is the amount of area credit to enter into the "Disconnected Roof Drains" Box of Form D-1

Form D-1b: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding NDC Pavement credit guidelines

Effective Area Managed (A_C)

Divided Sidewalks

1. Determine percentage of units with divided Sidewalks: Box K1

Multiply Box K1, A_T, and 0.04 and enter 60% of the result in Box K: 0.00 acres Box K

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-1

Form D-1c: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

Effective Area Managed (A_C)

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1: 1 trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2: 200 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3: 1 trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4: 100 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5: 8500 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6: 4250 sq. ft. Box L6

Total Interceptor Tree Credits

Add Boxes L2, L4, and L6 and enter it into Box L7: 4550 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter the result in Box L8: 0.02 acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-1

Form D-1d: Alternative Driveway Design

See Fact Sheet for more information regarding Alternative Driveway Design credit guidelines

1. Select type of driveway

Pervious Driveway:	Multiplier:
Cobblestone Block P	0.40
Pervious Concrete/A	0.60
Modular Block Porous Pavement	0.75
Porous Gravel	
Not Directly-connected	1.00

Box M1

2. Determine percentage of units with Alternative Driveways: 0% Box M2

4. Multiply Boxes M1, M2, A_T and 0.04, and enter the result in Box M: 0.00 acres

This is the amount of area credit to enter into the "Alternative Driveway Design" Box of Form D-1

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) — enter gallons, for simple rain barrels: -

	0.00	acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system)

	0.00	acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area: - sq ft
Subdrain Elevation: inches
Ponding Depth, inches: inches

	0.00	acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs:
Soil Infiltration Rate, in/hr: soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft: capture_vol_inf	0.00	acres
Sizing Option 2: Infiltration BMP surface area, sq ft: soil_surface_area	0.00	acres

Basin or trench?: approximate BMP depth: 1.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) — Mulched Infiltration Area, sq ft: 2,025 mulch_area

	0.19	acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs	0.19	A_{LIDc}
Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 =	72.9	pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4: 100.6

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ =	0.27	A_{AT}
Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment $(A_T*I-A_C-A_{LIDC}) / A$ =	0.000	I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Form D-1e

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Adjusted Treatment Area

Determine C Factor using Table D-1b	0.50	C
Determine i using Table D-1c (Rainfall Intensity)	0.18	i
A_{AT} from Step 2	0.27	A_{AT}
Flow = C * i * A_{AT}	0.02	cfs

TABLE D-1b

Development Type	Runoff Coefficient (Rational), C
Single-family areas	0.50
Multi-units, detached	0.60
Apartment dwelling areas	0.70
Multi-units, attached	0.75
User Specified	0.00

Table D-1c

Rainfall Intensity		
Roseville	i = 0.20	in/hr
Sacramento	i = 0.18	in/hr
Folsom	i = 0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1	0.51	A	24 hrs	Specified Draw Down time
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.00	P_0		
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.000	Acre-Feet		

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Appendix D-1: Residential Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: O'Donnell Estates - DMA M1
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	6	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	1	acres	A_{OS}	see area example below
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	1	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	0.44	acres	A	
Project-Specific Open Space (In-project, communal)**	0.00	acres	A_{PSOS}	see area example below
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.00	acres		
e. Flood Control/Drainage basins	0.00	acres		

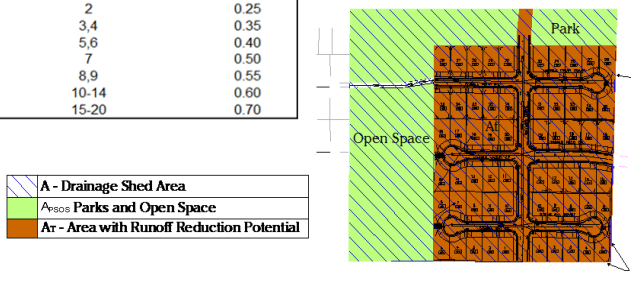
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

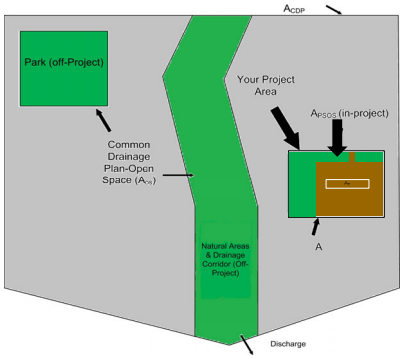
Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	0.44	acres	A_T
Number of Units in A_T		1		
Number of units per acre in A_T	DU/A_T =	3	DUA	
Assumed Initial Impervious Fraction of A_T (determined using Table D-1a)		0.35	I	

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 17 pts

Table D-1a

Dwelling units per acre	Imperviousness
1	0.17
2	0.25
3,4	0.35
5,6	0.40
7	0.50
8,9	0.55
10-14	0.60
15-20	0.70





Step 2 - Runoff Reduction Credits

Runoff Reduction Measures		Effective Area Managed (A_C)	
Disconnected Roof Drains (see Fact Sheet)	use Form D-1a for credits →	0.05	acres
Disconnected Pavement (see Fact Sheet)	use Form D-1b for credits →	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-1c for credits →	0.00	acres
Alternative Driveway Design (see Fact Sheet)	use Form D-1d for credits →	0.00	acres
Total Effective Area Managed (Credit Area)	A_C	0.05	acres EAM

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100$ = 11 pts

Form D-1a: Disconnected Roof Drains Worksheet

See Fact Sheet for more information regarding Disconnected Roof Drain credit guidelines

Effective Area Managed (A_C)

1. Determine efficiency Multiplier

Runoff is directed to a dispersal trench or dry well (Type A and B soils only)		1.00
Runoff is directed across landscaping, determine setback		
25 ft +	Use multiplier of	1.00
≥ 20 and < 25 ft	Use multiplier of	0.90
≥ 15 and < 20 ft	Use multiplier of	0.70
≥ 10 and < 15 ft	Use multiplier of	0.45
≥ 5 and < 10 ft	Use multiplier of	0.25

Efficiency Multiplier → 0.90 Box J1

2. Determine percentage of roof drains disconnected → 100.0% Box J2

3. Select project density in dwelling units per acre:

1	Use reduction factor of	0.08
2	Use reduction factor of	0.13
3,4	Use reduction factor of	0.19
5,6	Use reduction factor of	0.23
7	Use reduction factor of	0.29
8,9	Use reduction factor of	0.33
10-14	Use reduction factor of	0.37
15-20	Use reduction factor of	0.44

Reduction Factor → 0.19 Box J3

4. Determine Area Managed

Multiply Box J3 by A_T, and enter the result in Box J4: 0.1 acres Box J4

5. Multiply Boxes J1, J2 and J4, and enter 60% of the Result in Box J: 0.0 acres Box J

This is the amount of area credit to enter into the "Disconnected Roof Drains" Box of Form D-1

Form D-1b: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding NDC Pavement credit guidelines

Effective Area Managed (A_C)

Divided Sidewalks

1. Determine percentage of units with divided Sidewalks: Box K1

Multiply Box K1, A_T, and 0.04 and enter 60% of the result in Box K: 0.00 acres Box K

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-1

Form D-1c: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

Effective Area Managed (A_C)

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1: 1 trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2: 200 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3: 1 trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4: 100 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5: 880 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6: 440 sq. ft. Box L6

Total Interceptor Tree Credits

Add Boxes L2, L4, and L6 and enter it into Box L7: 740 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter the result in Box L8: 0.00 acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-1

Form D-1d: Alternative Driveway Design

See Fact Sheet for more information regarding Alternative Driveway Design credit guidelines

1. Select type of driveway

Pervious Driveway:	Multiplier:
Cobblestone Block P	0.40
Pervious Concrete/A	0.60
Modular Block Porous Pavement	0.75
Porous Gravel	
Not Directly-connected	1.00

Box M1

2. Determine percentage of units with Alternative Driveways: Box M2

4. Multiply Boxes M1, M2, A_T and 0.04, and enter the result in Box M: 0.00 acres

This is the amount of area credit to enter into the "Alternative Driveway Design" Box of Form D-1

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) _____ enter gallons, for simple rain barrels — 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) — 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area _____ sq ft
Subdrain Elevation 6 inches
Ponding Depth, inches 12.0 inches — 0.00 acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs _____ drawdown_hrs_inf
Soil Infiltration Rate, in/hr _____ soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft _____ capture_vol_inf — 0.00 acres

Sizing Option 2: Infiltration BMP surface area, sq ft _____ soil_surface_area — 0.00 acres

Basin or trench? _____ approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft 1,750 mulch_area — 0.16 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs — 0.16 A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = 73.0 pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 — 100.9

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ = 0.23 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment $(A_T*I-A_C-A_{LIDC}) / A$ = 0.000 I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Form D-1e

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Adjusted Treatment Area

Determine C Factor using Table D-1b — 0.50 C

Determine i using Table D-1c (Rainfall Intensity) — 0.18 i

A_{AT} from Step 2 — 0.23 A_{AT}

Flow = C * i * A_{AT} — 0.02 cfs

TABLE D-1b

Development Type	Runoff Coefficient (Rational), C
Single-family areas	0.50
Multi-units, detached	0.60
Apartment dwelling areas	0.70
Multi-units, attached	0.75
User Specified	0.00

Table D-1c

Rainfall Intensity		
Roseville	i = 0.20	in/hr
Sacramento	i = 0.18	in/hr
Folsom	i = 0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 — 0.44 A — 24 hrs Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. — 0.00 P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) — 0.000 Acre-Feet

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Appendix D-1: Residential Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: O'Donnell Estates - DMA M2
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	6	acres	A_{CDP}	
Common Drainage Plan Open Space (Off-project)	1	acres	A_{OS}	see area example below
a. Natural storage reservoirs and drainage corridors	0	acres		
b. Buffer zones for natural water bodies	0	acres		
c. Natural areas including existing trees, other vegetation, and soil	1	acres		
d. Common landscape area/park	0	acres		
e. Regional Flood Control/Drainage basins	0	acres		
1 b. Project Drainage Shed Area (Total)	0.81	acres	A	
Project-Specific Open Space (In-project, communal)**	0.00	acres	A_{PSOS}	see area example below
a. Natural storage reservoirs and drainage corridors	0.00	acres		
b. Buffer zones for natural water bodies	0.00	acres		
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres		
d. Landscape area/park	0.00	acres		
e. Flood Control/Drainage basins	0.00	acres		

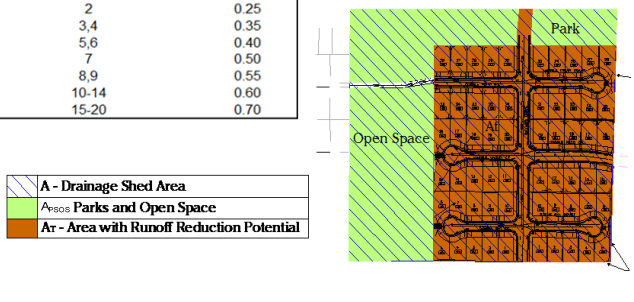
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

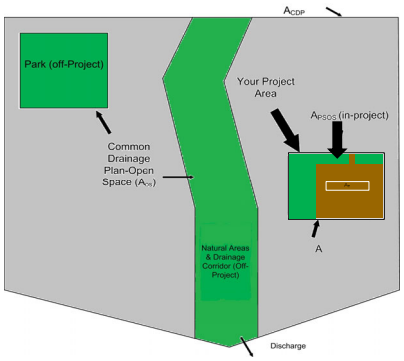
Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	0.81	acres	A_T
Number of Units in A_T		1		
Number of units per acre in A_T	DU/A_T =	2	DUA	
Assumed Initial Impervious Fraction of A_T (determined using Table D-1a)		0.25	I	

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 17 pts

Table D-1a

Dwelling units per acre	Imperviousness
1	0.17
2	0.25
3,4	0.35
5,6	0.40
7	0.50
8,9	0.55
10-14	0.60
15-20	0.70





Step 2 - Runoff Reduction Credits

Runoff Reduction Measures		Effective Area Managed (A_C)		
Disconnected Roof Drains (see Fact Sheet)	use Form D-1a for credits →	0.06	acres	
Disconnected Pavement (see Fact Sheet)	use Form D-1b for credits →	0.00	acres	
Interceptor Trees (see Fact Sheet)	use Form D-1c for credits →	0.02	acres	
Alternative Driveway Design (see Fact Sheet)	use Form D-1d for credits →	0.00	acres	
Total Effective Area Managed (Credit Area)	A_C	0.07	acres	EAM

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100$ = 9 pts

Form D-1a: Disconnected Roof Drains Worksheet

See Fact Sheet for more information regarding Disconnected Roof Drain credit guidelines

Effective Area Managed (A_C)

1. Determine efficiency Multiplier

Runoff is directed to a dispersal trench or dry well (Type A and B soils only)		1.00
Runoff is directed across landscaping, determine setback		
25 ft +	Use multiplier of	1.00
≥ 20 and < 25 ft	Use multiplier of	0.90
≥ 15 and < 20 ft	Use multiplier of	0.70
≥ 10 and < 15 ft	Use multiplier of	0.45
≥ 5 and < 10 ft	Use multiplier of	0.25

Efficiency Multiplier → 0.90 Box J1

2. Determine percentage of roof drains disconnected → 100.0% Box J2

3. Select project density in dwelling units per acre:

1	Use reduction factor of	0.08
2	Use reduction factor of	0.13
3,4	Use reduction factor of	0.19
5,6	Use reduction factor of	0.23
7	Use reduction factor of	0.29
8,9	Use reduction factor of	0.33
10-14	Use reduction factor of	0.37
15-20	Use reduction factor of	0.44

Reduction Factor → 0.13 Box J3

4. Determine Area Managed

Multiply Box J3 by A_T, and enter the result in Box J4: 0.1 acres Box J4

5. Multiply Boxes J1, J2 and J4, and enter 60% of the Result in Box J: 0.1 acres Box J

This is the amount of area credit to enter into the "Disconnected Roof Drains" Box of Form D-1

Form D-1b: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding NDC Pavement credit guidelines

Effective Area Managed (A_C)

Divided Sidewalks

1. Determine percentage of units with divided Sidewalks: Box K1

Multiply Box K1, A_T, and 0.04 and enter 60% of the result in Box K: 0.00 acres Box K

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-1

Form D-1c: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

Effective Area Managed (A_C)

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1: 1 trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2: 200 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3: 1 trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4: 100 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5: 7700 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6: 3850 sq. ft. Box L6

Total Interceptor Tree Credits

Add Boxes L2, L4, and L6 and enter it into Box L7: 4150 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter the result in Box L8: 0.02 acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-1

Form D-1d: Alternative Driveway Design

See Fact Sheet for more information regarding Alternative Driveway Design credit guidelines

1. Select type of driveway

Pervious Driveway:	Multiplier:
Cobblestone Block P	0.40
Pervious Concrete/A	0.60
Modular Block Porous Pavement	0.75
Porous Gravel	
Not Directly-connected	1.00

Box M1

2. Determine percentage of units with Alternative Driveways: Box M2

4. Multiply Boxes M1, M2, A_T and 0.04, and enter the result in Box M: 0.00 acres

This is the amount of area credit to enter into the "Alternative Driveway Design" Box of Form D-1

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) _____ enter gallons, for simple rain barrels — 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) — 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area _____ sq ft
Subdrain Elevation 6 inches
Ponding Depth, inches 12.0 inches — 0.00 acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs _____ drawdown_hrs_inf
Soil Infiltration Rate, in/hr _____ soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft _____ capture_vol_inf — 0.00 acres

Sizing Option 2: Infiltration BMP surface area, sq ft _____ soil_surface_area — 0.00 acres

Basin or trench? _____ approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft 3,400 mulch_area — 0.31 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs — 0.31 A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = 77.1 pts

Total LID Credits (Step 1+2+3) LID compliant, check for treatment sizing in Step 4 — 103.0

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ = 0.42 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment $(A_T*I-A_C-A_{LIDC}) / A$ = 0.000 I_A

STOP: No additional treatment needed

Step 4a Treatment - Flow-Based (Rational Method)

Form D-1e

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Adjusted Treatment Area

Determine C Factor using Table D-1b — 0.50 C

Determine i using Table D-1c (Rainfall Intensity) — 0.18 i

A_{AT} from Step 2 — 0.42 A_{AT}

Flow = C * i * A_{AT} — 0.04 cfs

TABLE D-1b

Development Type	Runoff Coefficient (Rational), C
Single-family areas	0.50
Multi-units, detached	0.60
Apartment dwelling areas	0.70
Multi-units, attached	0.75
User Specified	0.00

Table D-1c

Rainfall Intensity		
Roseville	i = 0.20	in/hr
Sacramento	i = 0.18	in/hr
Folsom	i = 0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 — 0.81 A — 24 hrs Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. — 0.00 P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) — 0.000 Acre-Feet

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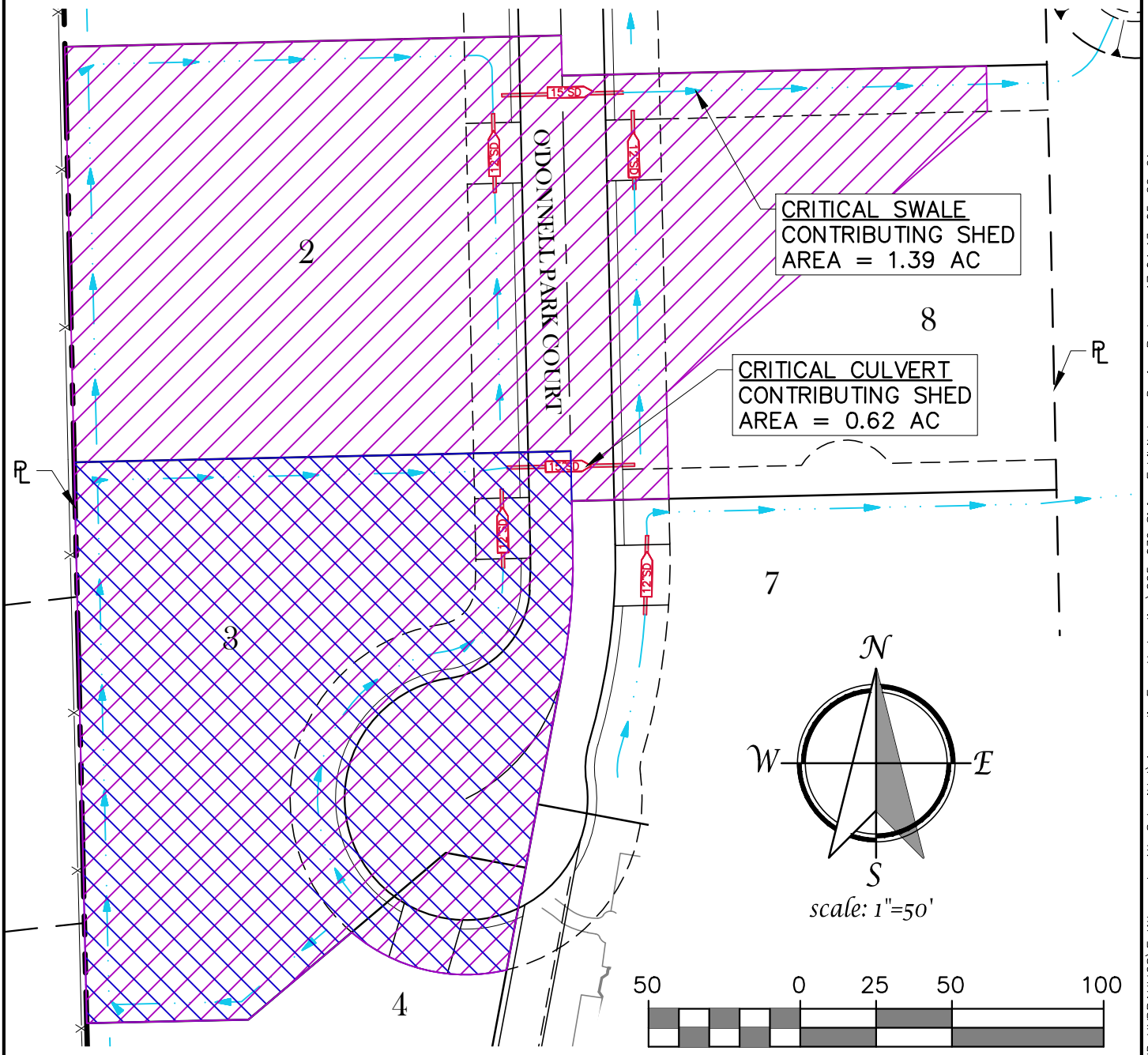
APPENDIX H

Onsite Swale & Culvert Sizing Exhibit
SacCalc – Sacramento Method Results
Critical Swale – FlowMaster Report
Critical Culvert – CulvertMaster Report
Lot 1 Overland Release Swale – FlowMaster Report

ONSITE SWALE & CULVERT SIZING EXHIBIT

O'DONNELL ESTATES

CARMICHAEL, CA



KEY FEATURES LEGEND:

- 12"SD — PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED DRAIN INLET
- PROPOSED SHED TO CRITICAL SWALE
- PROPOSED SHED TO CRITICAL CULVERT

ONSITE SWALE & CULVERT
SIZING EXHIBIT
MAY 26, 2021

TSD ENGINEERING, INC.
expect more.

785 Orchard Drive, Suite #110
Folsom, CA 95630
Phone: (916) 608-0707
Fax: (916) 608-0701

P:\Projects\265-039\03 REPORTS\HYDROLOGY AND HYDRAULICS\Entitlements 4th Submittal\Appendix F - Hydraulics\265-039 Sizing Exhibit.dwg, Denisa Budean, 17:04:13, 05-26-21

View HEC-1 output

Sacramento method results
(Project: 265-039 Onsite)
(100-year, 1-day rainfall)

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
SWALE	4.0	12:05	.00			
CULV	1.8	12:05	.00			

Worksheet for Critical Swale

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00500	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	4.00	ft^3/s

Results

Normal Depth	0.89	ft
Flow Area	2.37	ft^2
Wetted Perimeter	5.62	ft
Hydraulic Radius	0.42	ft
Top Width	5.33	ft
Critical Depth	0.64	ft
Critical Slope	0.02794	ft/ft
Velocity	1.69	ft/s
Velocity Head	0.04	ft
Specific Energy	0.93	ft
Froude Number	0.45	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.89	ft
Critical Depth	0.64	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.02794	ft/ft

Culvert Calculator Report
Critical Culvert

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	0.00	ft	Headwater Depth/Height	0.76	
Computed Headwater Elev	154.38	ft	Discharge	2.25	cfs
Inlet Control HW Elev.	154.29	ft	Tailwater Elevation	153.57	ft
Outlet Control HW Elev.	154.38	ft	Control Type	Entrance Control	

Grades					
Upstream Invert	153.43	ft	Downstream Invert	153.06	ft
Length	40.00	ft	Constructed Slope	0.009250	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	0.56	ft
Slope Type	Steep		Normal Depth	0.56	ft
Flow Regime	Supercritical		Critical Depth	0.60	ft
Velocity Downstream	4.19	ft/s	Critical Slope	0.007463	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.015	
Section Material	Concrete		Span	1.25	ft
Section Size	15 inch		Rise	1.25	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	154.38	ft	Upstream Velocity Head	0.23	ft
Ke	0.50		Entrance Loss	0.12	ft

Inlet Control Properties					
Inlet Control HW Elev.	154.29	ft	Flow Control	Unsubmerged	
Inlet Type	Square edge w/headwall		Area Full	1.2	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

Worksheet for Swale d/s of Critical Culvert

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.03190	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	2.25	ft³/s

Results

Normal Depth	0.51	ft
Flow Area	0.77	ft²
Wetted Perimeter	3.20	ft
Hydraulic Radius	0.24	ft
Top Width	3.04	ft
Critical Depth	0.51	ft
Critical Slope	0.03017	ft/ft
Velocity	2.93	ft/s
Velocity Head	0.13	ft
Specific Energy	0.64	ft
Froude Number	1.03	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.51	ft
Critical Depth	0.51	ft
Channel Slope	0.03190	ft/ft
Critical Slope	0.03017	ft/ft

Worksheet for OVR Swale

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00560	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.00	ft
Discharge	25.00	ft^3/s

Results

Normal Depth	1.12	ft
Flow Area	9.34	ft^2
Wetted Perimeter	12.07	ft
Hydraulic Radius	0.77	ft
Top Width	11.71	ft
Critical Depth	0.78	ft
Critical Slope	0.02201	ft/ft
Velocity	2.68	ft/s
Velocity Head	0.11	ft
Specific Energy	1.23	ft
Froude Number	0.53	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.12	ft
Critical Depth	0.78	ft
Channel Slope	0.00560	ft/ft
Critical Slope	0.02201	ft/ft

Appendix BR-1

ARBORIST REPORT
AND
TREE INVENTORY SUMMARY

O'DONNELL ESTATES
4434 MAPEL LANE PROJECT SITE
Carmichael, County of Sacramento, California

Prepared for:

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July 27, 2021

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APPENDICES:

A. Tree Inventory Summary (sorted by tree number)

COPYRIGHT STATEMENT

This consultant's report, dated July 27, 2021, is for the exclusive and confidential use of Taylor & Wiley concerning potential development of the 4434 Mapel Lane Project Site, located in the County of Sacramento, California. Any use of this report, the accompanying appendices, or portions thereof, other than for project review and approval by appropriate governmental authorities, shall be subject to and require the written permission of Acorn Arboricultural Services, Inc.. Unauthorized modification, distribution and/or use of this report, including the data or portions thereof contained within the accompanying appendices, is strictly prohibited.

QUALIFICATION STATEMENT

Acorn Arboricultural Services, Inc.is a fully insured, Roseville, California-based, professional arboricultural services company which was founded in 2010 following a parent corporation restructuring. The principals are Delinda and Jay Bate. Wayne McKee is an ISA Certified Arborist and is Tree Risk Assessment Qualified. He graduated from Humboldt State University with a B.S. in Forestry. Wayne has more than 36 years' experience in the horticulture, forestry, and arboricultural fields. He has a background working as a consulting arborist compiling tree value assessments, tree inventories, and tree risk assessments, as well as acting as a project arborist on many commercial and residential development projects.

INTRODUCTION

Acorn Arboricultural Services, Inc. is pleased to present this Arborist Report and Tree Inventory Summary for the trees located within and/or overhanging the property located at the 4434 Mapel Lane Project Site, located in Carmichael, County of Sacramento, California. This Arborist Report and Tree Inventory Summary documents tree data obtained by Wayne McKee, ISA Certified Arborist WE-0959A, at the time of field reconnaissance and inventory efforts on July 23rd and 26th 2021.

SCOPE OF INVENTORY EFFORT

The County of Sacramento Tree Preservation Ordinance (Sacramento County Code Title 19, Chapter 19.12) regulates both the removal of protected trees and the encroachment of construction activities within their driplines. The Ordinance defines a "tree" as "any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground." In addition, all native oak and specified non-oak native trees which measure four inches in diameter and larger (or 10-inch aggregate diameter for multi-trunk native oak and Northern California Black Walnut trees) and other non-native trees with trunk diameters of 19 inches and larger are afforded various levels of protection through the County's environmental review policy. These separate requirements are not based solely on the Sacramento County Tree Preservation Ordinance. Tree inventories and arborist reports submitted to the Sacramento County Office of Planning and Environmental Review (PER) are used, among other things, to evaluate project impacts and create appropriate mitigation pursuant to the Sacramento County General Plan policies and CEQA.

At the request of Taylor & Wiley, on July 23rd and 26th, 2021 Wayne McKee of Acorn Arboricultural Services, Inc. visited the property located in the County of Sacramento, California. The purpose of this field reconnaissance effort was to identify and inventory the trees within and/or overhanging the proposed project site which measured four inches in diameter and larger measured at breast height ("DBH"), specifically including the identification of any native oaks, California Sycamore, Northern California Black Walnut, Oregon Ash, Goodding's Black Willow, California Box Elder, White Alder and California Buckeye as requested by the Sacramento County Office of Planning and Environmental Review.

This Arborist Report and Tree Inventory Summary presents information concerning the species, size, and current condition of the trees within the proposed project area, along with pre-development recommendations on a tree-by-tree basis which logically follow the characteristics noted within the trees at the time of field inventory efforts. Information concerning the nature and extent of root system and canopy impacts which will be sustained

by the trees from proposed development activities, along with specific tree-by-tree mitigation recommendations for the trees which will sustain encroachment into their protected root zones can be provided in a Supplemental Arborist Report and Construction Impact Assessment once development plans have been refined and finalized for the proposed project area.

METHODOLOGY

During field reconnaissance and inventory efforts Wayne Mckee of Acorn Arboricultural Services conducted a visual review from ground level of the trees within and/or overhanging the proposed project area. The trees which met the defined criteria were identified in the field by affixing to the tree's trunk a round or square numbering tag with orange or yellow flagging for visibility. The tree data in the Arborist Report dated April 4, 2018 was updated to reflect current tree conditions on-site. The tree numbers utilized in this report and accompanying Tree Inventory Summary correspond to the tree tag which is affixed to the tree in the field, and those tree numbers or grouping of numbers have been rough-plotted on the accompanying Preliminary Grading Plan for O'Donnell Estates dated May 26, 2021 so that the precise vertical and horizontal location of the trees may be surveyed in the field by a licensed land surveyor and data for the trees (i.e., tree number, diameter, dripline, and root protection zone) may be properly depicted on future development plans and Tree Location Exhibit as requested by PER.

At the time of field identification and inventory efforts specific data was gathered for each tagged tree including the tree's species, diameter measured at breast height ("DBH"), and dripline radius ("DLR"). In addition, for the trees which met the criteria of the PER Requirements and/or County of Sacramento Tree Preservation Ordinance an assessment was made of the tree's root crown/collar, trunk, limbs, and foliage. Utilizing this data the trees' overall structural condition and vigor were separately assessed ranging from "poor" to "good" based upon the observed characteristics noted within the tree and the Arborist's best professional judgment. Ratings are subjective and are dependent upon both the structure and vigor of the tree. The vigor rating 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 insect infestation. The structural rating reflects the root crown/collar, trunk and branch configurations; canopy balance; the presence of included bark, weak crotches and other structural defects and decay and the potential for structural failure. Finally, notable characteristics were documented and recommendations on a tree-by-tree basis were made which logically followed the observed characteristics noted within the trees at the time of the field inventory effort. The recommendations are based on the assumption that the tree would be introduced into a developed environment and may require maintenance and/or may not be suitable for retention within a post-development setting.

SUMMARY OF INVENTORY EFFORT

Field reconnaissance and inventory efforts found 223 trees measuring 4 inches in diameter and larger measured at breast height within and/or overhanging the proposed project area. Composition of the 223 inventoried trees includes the following species and accompanying aggregate diameter inches:

SPECIES DIVERSIFICATION			
Almond	=	2 trees	(23 aggregate diameter inches)
American Elm	=	2 trees	(64 aggregate diameter inches)
Blue Gum	=	24 trees	(459 aggregate diameter inches)
Blue Oak	=	36 trees	(634 aggregate diameter inches)
Brazilian Pepper	=	10 trees	(119 aggregate diameter inches)
California Black Walnut	=	4 trees	(74 aggregate diameter inches)
Camphor	=	1 tree	(5 aggregate diameter inches)
Canary Island Palm	=	1 tree	(28 aggregate diameter inches)
Chinese Pistache	=	3 trees	(86 aggregate diameter inches)
Cork Oak	=	2 trees	(66 aggregate diameter inches)
Date Palm	=	1 trees	(28 aggregate diameter inches)
Deodar Cedar	=	2 trees	(20 aggregate diameter inches)
Incense Cedar	=	2 trees	(29 aggregate diameter inches)
Interior Live Oak	=	90 trees	(1373 aggregate diameter inches)
Italian Cypress	=	2 trees	(27 aggregate diameter inches)
Olive	=	27 trees	(27 aggregate diameter inches)
Plum	=	1 tree	(11 aggregate diameter inches)
Pear	=	2 trees	(25 aggregate diameter inches)
Privet	=	2 trees	(21 aggregate diameter inches)
Sweetgum	=	4 trees	(75 aggregate diameter inches)
Valley Oak	=	5 trees	(77 aggregate diameter inches)
TOTAL	**=**	**223 trees**	**(3742 aggregate diameter inches)**

Trees numbered 408, 418, 419, 420, 427, 428, 430, 432, 433, 435, 436, 437, 438, 456, 457, 485, 491, 493, 494, and 497 in the Arborist Report April 4, 2018 were not found.

Recommended Removals

At this time, 38 trees have been recommended for removal from the proposed project area due to the nature and extent of defects, compromised health, and/or structural instability noted at the time of field inventory efforts. If these trees were retained within the proposed project area, it is our opinion that it may be hazardous depending upon their proximity to planned development activities.[1] For reference, the trees which have been recommended for removal due to the severity of noted defects, compromised health, and/or structural instability are highlighted in green within the accompanying Tree Inventory Summary and are briefly summarized as follows:

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
21	Interior Live Oak	*(Quercus wislizeni)*	7,8	15	16	Poor to Fair	Poor to Fair
32	Almond	*(Prunus dulcis)*	4,5,5	14	12	Fair	Poor
51	Interior Live Oak	*(Quercus wislizeni)*		31	30	Poor	Fair
52	Interior Live Oak	*(Quercus wislizeni*		35	32	Poor to Fair	Poor to Fair
84	Olive	*(Olea europaea)*	3,3,4,5,5, 8,1	42	24	Poor	Fair
99	Interior Live Oak	*(Quercus wislizeni)*	8,9	17	21	Poor to Fair	Fair
103	Blue Oak	*(Quercus douglasii)*	14,20	34	28	Poor	Poor to Fair
105	California Black Walnut	*(Juglans Nigra)*		34	22	Poor	Poor
129	Interior Live Oak	*(Quercus wislizeni)*		7	17	Poor	Fair
131	Olive	*(Olea europaea)*	5,5,5,5	20	13	Poor	Poor to Fair
403	Blue Oak	*(Quercus douglasii)*		25	10	Poor	Fair
405	Interior Live Oak	*(Quercus wislizeni)*		25	32	Poor to Fair	Fair
406	Interior Live Oak	*(Quercus wislizeni)*	11,13, 13,16	53	32	Poor	Fair

[1] At this time Tree Hazard Evaluation forms have not been prepared for these trees. In lieu, specific details concerning the nature and extent of defects noted within the tree at the time of field inventory efforts on July 23rd and 26th, 2021 have been included within the "notable characteristics" column of the accompanying inventory summaries. It is our understanding, based upon past conversations with Todd Smith of PER, that this level of detail is sufficient and that Tree Hazard Evaluation forms are unnecessary due to our inability to provide a meaningful "target rating" at this early stage of the project.

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
416	Interior Live Oak	*(Quercus wislizeni)*		19	35	Poor	Fair
423	Interior Live Oak	*(Quercus wislizeni)*		11	12	Poor to Fair	Poor to Fair
425	Chinese Pistache	*(Pistacia chinensis)*	7,11,17	35	20	Poor to Fair	Poor to Fair
426	Interior Live Oak	*(Quercus wislizeni)*		12	23	Poor	Fair
429	Interior Live Oak	*(Quercus wislizeni)*	9,13	22	16	Poor	Poor
435	Chinese Pistache	*(Pistacia chinensis)*		7	10	Poor	Poor to Fair
436	Chinese Pistache	*(Pistacia chinensis)*	5,6	11	9	Poor	Fair
439	Interior Live Oak	*(Quercus wislizeni)*		35	41	Poor	Fair
448	Blue Oak	*(Quercus douglasii)*		38	35	Fair	Poor
460	American Elm	*(Ulmus americana)*		29	30	Poor	Poor
461	Olive	*(Olea europaea)*		11	25	Poor to Fair	Fair
462	Olive	*(Olea europaea)*		12	16	Poor to Fair	Fair
463	Olive	*(Olea europaea)*	8,14	22	23	Poor	Fair
464	Olive	*(Olea europaea)*		10	15	Poor	Fair
465	Olive	*(Olea europaea)*		14	17	Poor	Fair
466	Prunus sp.	*(Prunus spp.)*		11	13	Poor	Poor to Fair
467	American Elm	*(Ulmus americana)*		35	40	Poor to Fair	Fair
468	Pyrus sp.	*(Pyrus spp.)*	6,7	13	16	Poor to Fair	Fair
473	Interior Live Oak	*(Quercus wislizeni)*		15	24	Poor	Fair
474	Olive	*(Olea europaea)*		14	23	Poor to Fair	Fair
475	Olive	*(Olea europaea)*		11	17	Poor	Fair
479	Interior Live Oak	*(Quercus wislizeni)*		33	38	Poor	Fair

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
480	Interior Live Oak	*(Quercus wislizeni)*		40	35	Poor	Fair
483	Incense Cedar	*(Calocedrus)*		16	8	Poor	Poor
492	Incense Cedar	*(Calocedrus)*		13	11	Poor	Poor

It should also be noted that some of the trees within the proposed project area are trees which may be undesirable on residential lots, or are trees which will require periodic/seasonal monitoring to assess the trees' ongoing structural integrity. At this early stage of the project Acorn Arboricultural Services, Inc. has not recommended the removal of these trees since development plans have not yet been finalized and the precise location of these trees in proximity to planned improvement activities is not known. At this time it is recommended that these trees be monitored and thoroughly inspected by a qualified ISA Certified Arborist on at least an annual basis to keep abreast of the trees' changing condition(s) and to assess the trees' ongoing structural integrity and potential for hazard in a developed environment.

CONSTRUCTION IMPACT ASSESSMENT

This Arborist Report and Tree Inventory Summary is intended to provide to Taylor & Wiley, the County of Sacramento, and other members of the development team a detailed *pre-development review* of the species, size, and current structure and vigor of the trees within and/or overhanging the proposed project area. It is not an exhaustive review of the impacts which will be sustained from project implementation. At this early stage of the project specific root system and canopy impacts on a tree-by-tree basis cannot be definitively assessed until the site development, grading, and other improvement plans have been refined and finalized and data from the accompanying inventory summary (i.e., tree numbers, dripline radius, and root protection zones) is properly depicted on the plans.

Sacramento County's Office of Planning and Environmental Review has requested encroachment percentages for the following trees presumably based upon the building footprint areas depicted on the O'Donnell Estates Preliminary Grading Plan dated May 26,2021:

#414 – 25 %; #415 – 33 %; #416 – Recommended removal; #419 – Tree is gone; #421 – No encroachment; #422 – No encroachment; #424 – 19 %; #431 – No encroachment; #434 – No encroachment; #441 – 26 %; #442 – 20 %.

GENERAL COMMENTS AND ARBORISTS' DISCLAIMER

The County of Sacramento regulates both the removal of "protected trees" and the encroachment of construction activities within their driplines. Therefore, a tree permit and/or additional development authorization should be obtained from the County of Sacramento prior to the removal of any trees within the proposed project area. All terms and conditions of the tree permit and/or other Conditions of Approval are the sole and exclusive responsibility of the project applicant. It should be noted that prior to final inspection written verification from an ISA Certified Arborist may be required certifying the approved removal activities and/or implementation of other Conditions of Approval outlined for the retained trees on the site. ***Acorn Arboricultural Services, Inc. will not provide written Certification of Compliance unless we have been provided with a copy of the approved site development plans, applicable permits and/or Conditions of Approval, and are on site to monitor and observe regulated activities during the course of construction.*** Therefore, it will be necessary for the project applicant to notify Acorn Arboricultural Services, Inc. well in advance (at least 72 hours prior notice) of any regulated activities which are scheduled to occur on site so that those activities can be properly monitored and documented for compliance certification.

Please bear in mind that implementation of the recommendations provided within this report will help to reduce adverse impacts of construction on the retained trees; however, implementation of any recommendations should not be viewed as a guarantee or warranty against the trees' ultimate demise and/or failure in the future. Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of the trees and ***attempt to reduce the risk of living near trees***. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. There are some inherent risks with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Entities who choose to construct homes on wooded property are accepting a certain level of risk from unpredictable tree related hazards such as toppling in storms, limbs falling and fires that may damage property at some time in the future. Since trees are living organisms their structure and vigor constantly change over time, and they are not immune to changes in site conditions or seasonal variations in the weather. Further, conditions are often hidden within the tree and/or below ground. Arborists and other tree care professionals cannot guarantee that a tree will be healthy and/or safe under all circumstances or for a specific period of time. Likewise remedial treatments cannot be guaranteed. Trees can be managed but they cannot be controlled. To develop land and live near trees is to accept some degree of risk and the only way to eliminate all risk associated with trees would be to eliminate all of the trees. ***An entity who develops land and builds a home with a tree in the vicinity should be aware of and inform their future residents of this Arborists' Disclaimer, and be further advised that the developer and the future residents assume the risk that a tree could at any time suffer a branch and/or limb failure, blow over in a storm and/or fail for no apparent reason which may cause bodily injury or property damage***. Acorn Arboricultural Services, Inc. cannot predict acts of nature including, without limitation, storms of sufficient strength which can even take down a tree with a structurally sound and vigorous appearance.

Finally, the trees preserved within and/or overhanging the proposed project area will experience a physical environment different from the pre-development environment. As a result, tree health and structural stability should be regularly monitored. Occasional pruning, fertilization, mulch, pest management, replanting and/or irrigation may be required. In addition, ***provisions for monitoring both tree health and structural stability following construction must be made a priority***. As trees age, the likelihood of failure of branches or entire trees increases. Therefore, ***the future management plan must include an annual inspection*** by a qualified ISA Certified Arborist to keep abreast of the trees' changing condition(s) and to assess the trees' ongoing structural integrity and potential for hazard in a developed environment.

Thank you for allowing Acorn Arboricultural Services, Inc. to assist you with this review. Please feel free to give me a call if you have any questions or require additional information and/or clarification.

Sincerely,



Wayne McKee
ISA Certified Arborist WE 0959A, 1992
ISA Tree Risk Assessment Qualified, 2017
B S Forestry, Humboldt State University, 1983

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

4. The consultant shall not be required to give a deposition and/or attend court by reason of this report unless subsequent contractual arrangements are made for in advance, including payment of an additional fee for such services according to our standard fee schedule, adjusted yearly, and terms of the subsequent contract of engagement.

5. Loss or alteration of any part of this report invalidates the entire report. Ownership of any documents produced passes to the Client only when all fess have been paid.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant.

7. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of the consultant, particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant as stated in his qualifications.

8. This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs, drawings and photographs within this report are intended as visual aids and are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by other consultants is for coordination and ease of

reference. Inclusion of such information does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.

10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without laboratory analysis, dissection, excavation, probing or coring, unless otherwise stated.

11. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

12. This report is based on the observations and opinions of Edwin E. Stirtz, and does not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described herein. Neither this author nor Acorn Arboricultural Services, Inc. has assumed any responsibility for liability associated with the trees on or adjacent to this project site, their future demise and/or any damage which may result therefrom.

13. The information contained within this report is true to the best of the author's knowledge and experience as of the date it was prepared; however, certain conditions may exist which only a comprehensive, scientific, investigation might reveal which should be performed by other consulting professionals.

14. The legal description, dimensions, and areas herein are assumed to be correct. No responsibility is assumed for matters that are legal in nature.

15. Any changes to an established tree's environment can cause its decline, death and/or structural failure.

DEFINITIONS

Tree Number:	Corresponds to aluminum tag attached to the tree.
Species Identification:	Scientific and common species name.
Diameter ("DBH"):	This is the trunk diameter measured at breast height (industry standard 4.5 feet above ground level).
Dripline radius ("DLR"):	A radius equal to the horizontal distance from the trunk of the tree to the end of the farthest most branch tip prior to any cutting.
Root Protected Zone:	A circle equal to the largest radius of a protected tree's dripline. plus 1 foot.
Root Crown:	Assessment of the root crown/collar area located at the base of the trunk of the tree at soil level.
Trunk:	Assessment of the tree's main trunk from ground level generally to the point of the primary crotch structure.
Limbs:	Assessment of both smaller and larger branching, generally from primary crotch structure to branch tips.
Foliage:	Tree's leaves.
Overall Condition:	Describes overall condition of the tree in terms of structure and vigor.
Recommendation:	Pre-development recommendations based upon observed characteristics noted at the time of the field inventory effort.
Obscured:	Occasionally some portion of the tree may be obscured from visual inspection due to the presence of dense vegetation which, during the course of inspection for the arborist report, prevented a complete evaluation of the tree. In these cases, if the tree is to be retained on site the vegetation should be removed to allow for a complete assessment of the tree prior to making final decisions regarding the suitability for retention.

TREE CONDITION RATING CRITERIA

RATING TERM	ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR
Good	No apparent injuries, decay, cavities or evidence of hollowing; no anchoring roots exposed; no indications of infestation or disease	No apparent injuries, decay, cavities or evidence of hollowing; no codominant attachments or multiple trunk attachments are observed; no indications of infestation or disease	No apparent injuries, decay, cavities or evidence of hollowing; below average amount of dead limbs or twigs; no major limb failures or included bark; callus growth is vigorous	Leaf size, color and density are typical for the species; buds are normal in size, viable, abundant and uniform throughout the canopy; annual seasonal growth increments are average or above average; no insect or disease infestations/ infections evident	No apparent structural defects; no weak crotches; no excessively weighted branches and no significant cavities or decay	Tree appears healthy and has little or no significant deadwood; foliage is normal and healthy
Fair	Small to moderate injuries, decay, cavities or hollowing may be evident but are not currently affecting the overall structure; some evidence of infestation or disease may be present but is not currently affecting the tree's structure	Small to moderate injuries, decay, cavities or hollowing may be evident; codominant branching or multiple trunk attachments or minor bark inclusion may be observed; some infestation or disease may be present but not currently affecting the tree's structure	Small to moderate injuries, decay or cavities may be present; average or above average dead limbs or twigs may be present; some limb failures or bark inclusion observed; callus growth is average	Leaf size, color and density are typical or slightly below typical for the species; buds are normal or slightly sparse with potentially varied viability, abundance and distribution throughout the canopy; annual seasonal growth increments are average or slightly below average; minor insect or disease infestation/infection may be present	Minor structural problems such as weak crotches, minor wounds and/or cavities or moderate amount of excessive weight; non-critical structural defects which can be mitigated through pruning, cabling or bracing	Tree appears stressed or partially damaged; minimal vegetative growth since previous season; moderate amount of deadwood, abnormal foliage and minor lesions or cambium dieback
Poor	Moderate to severe injuries, decay, cavities or hollowing may be evident and are affecting the overall structure; presence of infestation or disease may be significant and affecting the tree's structure	Moderate to severe injuries, decay, cavities or hollowing may be evident and are affecting the tree's structure; presence of infestation or disease may be significant and affecting the tree's structure	Severe injuries, decay or cavities may be present; major deadwood, twig dieback, limb failures or bark inclusion observed; callus growth is below average	Leaf size, color and density are obviously abnormal; buds are obviously abnormal or absent; annual seasonal growth is well below average for the species; insect or disease problems may be severe	Obvious major structural problems which cannot be corrected with mitigation; potential for major limb, trunk or root system failure is high; significant decay or dieback may be present	Tree health is declining; no new vegetative growth; large amounts of deadwood; foliage is severely abnormal

The ratings "poor to fair and "fair to good" are used to describe trees that fall between the described major categories and have elements of both

GENERAL PROTECTION GUIDELINES FOR TREES PLANNED FOR PRESERVATION

Great care must be exercised when work is conducted upon or around protected trees. The purpose of these General Protection Measures is to provide guidelines to protect the health of the affected protected trees. These guidelines apply to all encroachments into the protected zone of a protected tree, and may be incorporated into tree permits and/or other Conditions of Approval as deemed appropriate by the applicable governing body.

A circle with a radius measurement from the trunk of the tree to the tip of its longest limb, shall constitute the root zone protection area of each protected tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each protected tree. Removing limbs that make up the dripline does not change the protected area.

Any protected trees on site which require pruning shall be pruned by an ISA Certified Arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute (ANSI) A300 pruning standards, ANSI Standard 2133.1-2000 regarding safety practices, and the International Society of Arboriculture (ISA) "Tree Pruning Guidelines" and Best Management Practices.

Prior to initiating construction, temporary protective fencing shall be installed at least one foot outside the root protection zone of the protected trees in order to avoid damage to the tree canopies and root systems. Fencing shall be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the review body. The developer shall contact the Project Arborist and the Planning Department for an inspection of the fencing prior to commencing construction activities on site.

Signs shall be installed on the protective fence in four (4) equidistant locations around each individual protected tree. The size of each sign must be a minimum of two (2) feet by two (2) feet and must contain the following language:

WARNING: THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE COUNTY OF SACRAMENTO

Once approval has been obtained by the County of Sacramento Municipal Services Agency protective fencing shall remain in place throughout the entire construction period and shall not be removed, relocated, taken down or otherwise modified in whole or in part without prior written authorization from the Agency, or as deemed necessary by the Project Arborist to facilitate approved activities within the root protection zone.

Any removal of paving or structures (i.e. demolition) that occurs within the dripline of a protected tree shall be done under the direct supervision of the Project Arborist. To the maximum extent feasible, demolition work within the dripline protection area of the protected tree shall be performed by hand. If the Project Arborist determines that it is not feasible to perform some portion(s) of this work by hand, then the smallest/lightest weight equipment that will adequately perform the demolition work shall be used.

No signs, ropes, cables (except those which may be installed by an ISA Certified Arborist to provide limb support) or any other items shall be attached to the protected trees. Small metallic numbering tags for the purpose of identification in preparing tree reports and inventories shall be allowed.

No vehicles, construction equipment, mobile homes/office, supplies, materials or facilities shall be driven, parked, stockpiled or located within the driplines of protected trees.

Drainage patterns on the site shall not be modified so that water collects, stands or is diverted across the dripline of any protected tree.

No trenching shall be allowed within the root protection zone of protected trees, except as specifically approved by the Planning Department as set forth in the project's Conditions of Approval and/or approved tree permit. If it is absolutely necessary to install underground utilities within the dripline of a protected tree the utility line within the protected zone shall be "bored and jacked" or performed utilizing hand tools to avoid root injury under the direct supervision of the Project Arborist.

Grading within the protected zone of a protected tree shall be minimized. Cuts within the protected zone shall be maintained at less than 20% of the critical root zone area. Grade cuts shall be monitored by the Project Arborist. Any damaged roots encountered shall be root pruned and properly treated as deemed necessary by the Project Arborist.

Minor roots less than one (1) inch in diameter encountered during approved excavation and/or grading activities may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area as deemed necessary by the Project Arborist.

Major roots greater than one (1) inch in diameter encountered during approved excavation and/or grading activities may not be cut without approval of the Project Arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the roots and the tree.

Cut faces, which will be exposed for more than 2-3 days, shall be covered with dense burlap fabric and watered to maintain soil moisture at least on a daily basis (or possibly more frequently during summer months). If any native ground surface fabric within the protected zone must be removed for any reason, it shall be replaced within forty-eight (48) hours.

If fills exceed 1 foot in depth up to 20% of the critical root zone area, aeration systems may serve to mitigate the presence of the fill materials as determined by the Project Arborist.

When fill materials are deemed necessary on two or three sides of a tree it is critical to provide for drainage away from the critical root zone area of the tree (particularly when considering heavy winter rainfalls). Overland releases and subterranean drains dug outside the critical root zone area and tied directly to the main storm drain system are two options.

The construction of impervious surfaces within the dripline of a protected tree shall be minimized. When necessary, a piped aeration system shall be installed under the direct supervision of the Project Arborist.

Preservation devices such as aeration systems, tree wells, drains, special paving and cabling systems must be installed in conformance with approved plans and certified by the Project Arborist.

No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the dripline of a protected tree. An above ground drip irrigation system is recommended. An independent low-flow drip irrigation system may be used for establishing drought-tolerant plants within the protected zone of a protected tree. Irrigation shall be gradually reduced and discontinued after a two (2) year period.

All portions of permanent fencing that will encroach into the protected zone of a protected tree shall be constructed using posts set no closer than ten (10) feet on center. Posts shall be spaced in such a manner as to maximize the separation between the tree trunks and the posts in order to reduce impacts to the tree(s).

Landscaping beneath native oak trees may include non-plant materials such as bark mulch, wood chips, boulders, etc. Planting live material under protected native oak trees is generally discouraged. If planting is to occur within the dripline of native oak trees, only plant species which are tolerant of the natural, semi-arid environs of the tree(s).

Appendix CR-1

Historical and Architectural Evaluation of 4434 Mapel Lane, Carmichael, County of Sacramento, CA

Prepared for:

John Roseberry
Nicksam Properties, LLC
PO Box 255526
Sacramento, CA 95865

Prepared by:

Kathleen A. Crawford, M.A.
Crawford Historic Services
P.O. Box 634,
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August 2018 | NSP-01

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1.0 MANAGEMENT SUMMARY

On behalf of HELIX Environmental Planning, Inc. (HELIX), Kathleen A. Crawford, M.A., Crawford Historic Services, prepared this Historical and Architectural Evaluation of the Property Located at 4434 Mapel Lane, Carmichael, County of Sacramento, California (Evaluation). The property is an approximately 5.4-acre parcel located at 4434 Mapel Lane, Carmichael (Assessor's Parcel Numbers 247-0010-001, -008, and -009).

The owner of the property, Nicksam Properties LLC, proposes to construct multiple new residential lots on the parcel. The parcel currently contains a 7,505 square foot residence which will remain unaltered on the parcel. The tasks for this Evaluation included a review of historic records and files at multiple repositories, including the County of Sacramento Assessor's Office, the County of Sacramento Building Department, the Fair Oaks Historical Society, the Sacramento Central Library's Sacramento Room, and local Carmichael area resources. Additional information regarding the property was obtained from the report entitled "Cultural Resource Assessment of 4434 Mapel Lane, Carmichael, Sacramento County, CA" prepared for John Roseberry, Nicksam Properties LLC, by Carrie D. Wills, M.A., RPA, HELIX Senior Archaeologist on August 3, 2018 (HELIX 2018).

The project location is in the northeastern portion of unincorporated Sacramento County, at 4434 Mapel Lane, in the community of Carmichael, a census-designated place (CDP) (Figure 1). The project is in Section 10 of Township 9 North and Range 6 East, Mount Diablo Meridian, on the U.S. Geological Survey (USGS) 7.5-minute "*Citrus Heights, CA*" 7.5- minute quadrangle map (Figure 2). The surrounding area is predominantly single-family residential properties. However, O'Donnell Heritage Park (approximately 9.4 acres), formerly part of the subject property, is immediately adjacent to the northeast boundary (Figure 3). The project parcel consists of the area surrounding the residence, associated outbuildings, and miscellaneous elements. The property contains a large number of oaks, palm, and eucalyptus trees, as well as non-native bushes. All figures are presented in Appendix A.

Ms. Crawford conducted a pedestrian survey and building evaluation of the subject property on July 17, 2018; her resume is attached in Appendix B. The property is predominantly flat with good ground surface visibility in most areas, although some portions of the property were covered with heavy vegetation. The property contains one large residence that was constructed in two parts. The original residence was constructed c. 1874-1875 and is approximately 2,000 square feet and the large addition (approximately 5,500 square feet) was constructed on the south elevation of the original residence in c. 1985. Numerous modern sheds, outbuildings, a hot tub, and a tennis court/basketball court complex are present on the grounds. The evaluation of the residence concludes that the residence does not meet any of the four criteria for significance under local, state, or federal criteria. The residential building and the other structures on the property are not considered to be eligible for any type of potential designation process, therefore, it appears unlikely that project development would have an impact on historic properties or historic resources. Therefore, no additional historical studies or archaeological work is recommended.

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2.0 PROJECT BACKGROUND

2.1 PROJECT DESCRIPTION

Nicksam Properties LLC (Nicksam) is proposing to subdivide the 5.4-acre subject property into ten individual building sites for single-family residences. The c. 1875-c. 1985 single-family residence on the parcel will remain and will not be altered as part of the proposed project, according to the information provided by Nicksam at the time of the preparation of this report. The various non-historic outbuildings and other elements will be removed as part of the proposed development.

2.2 PROJECT LOCATION

The project is located at 4434 Mapel Lane, in census-designated Carmichael within unincorporated Sacramento County, California. The community of Carmichael is a suburb in the Greater Sacramento Metropolitan Statistical Area (Appendix A: Figure 1). The project area is depicted on the U.S. Geological Survey (USGS) "Citrus Heights, CA" 7.5-minute quadrangle map (Appendix A: Figure 2) and on an aerial overview map (Appendix A: Figure 3).

3.0 RESEARCH METHODOLOGY

3.1 ARCHIVAL RESEARCH

Historic research undertaken as part of the Evaluation included an examination of a variety of resources. The current listings of potentially eligible resources were checked through the National Register of Historic Places (NRHP) website. The historic research also included a review of the following federal, state, and local resource inventories to identify resources within the study area:

- National Register of Historic Places (National Park Service 2017)
- California Register of Historical Resources (California Office of Historic Preservation 1992)
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976)
- California Historical Landmarks (California Office of Historic Preservation 1996)
- California Points of Historical Interest (California Office of Historic Preservation 1992)

Historic aerial photographs and historic USGS quadrangle maps were reviewed and the evolution of the subject property was examined on Historicaerials.com. Historic aerial photographs dating from 1947, 1957, 1964, 1966, 1993, 1998, 2002, 2005, 2009, 2010, 2012, through 2014 and historic USGS quadrangle maps starting in 1902, 1910, 1911, 1952, 1956, 1957, 1965, 1969,1977, 1978, 1980, 1984, 1997, 2012, and ending in 2015 were reviewed for information related to the subject property. In addition, the online map files provided by the Fair Oaks Historical Society were also reviewed for any additional information they could provide regarding the subject property. These maps included: maps of Fair Oaks and the general area from 1880, 1890, 1892, 1894, 1897; USGS maps, 1902, 1903, revised 1911, and a Sacramento County map from 1930.

The Fair Oaks Historical Society files also provided general information about the area, its history and development, and Carmichael pioneer families. Oral interviews were conducted by Kathleen Crawford with Jim Pierce, President of the Fair Oaks Historical Society; Sally Dunbar, local Carmichael realtor and author of the Old Homes articles for the Carmichael Times; and Tom Phillips, local Carmichael realtor.

In addition to the archival data provided by the previously listed sources, the property records of the County of Sacramento Assessor's Office, the County of Sacramento Recorder's Office, and the County of Sacramento Building Department Records, including building permit records, were obtained and reviewed.

The archival research files of the Sacramento Central Library, Sacramento Room, were explored for additional information regarding the history, development, and ownership of the subject property, as well as the surrounding Carmichael and Sacramento County areas. Various vertical files, historic compilations of pioneer biographies, miscellaneous books on Sacramento County history, and ephemera were consulted for background data. Also, the author's personal library of California history and materials provided additional information.

4.0 FIELD SURVEY METHODOLOGY

A field examination of the project area was undertaken on July 17, 2018 by Kathleen Crawford and consisted of a pedestrian survey and building evaluation. The survey was designed to document the historic building environment, both current and past. A search for elements that related to the current use of the property as well as the previous use of the property as a 160-acre wheat farm in the late 1800s was undertaken. The survey included an examination of the area surrounding the main residential building and the various out buildings and structures on the grounds of the property. Additional examination of the property for any elements related to the former farming use was explored. Photographs were taken of the entire exterior of the current two-part residence; all exterior elevations were recorded (Photographs No. 1-8). In addition, the interior of the residence was accessed, and interior photographs were taken of the main architectural details and key elements of the interior of the residence, both the old and new sections. These photographs, both interior and exterior, were used extensively to document any potential alterations, renovations, and additions to the residential building.

After a thorough examination of the primary residence and grounds, photographs were taken of each of the various outbuildings, hot tub area, back yard fountain, and the general landscaping of the property.

5.0 HISTORIC OVERVIEW

Following is a brief overview of the historic background, providing a context in which to understand the background and relevance of the subject property. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview.

5.1 SACRAMENTO COUNTY

Early Spanish explorers and the Franciscan and Jesuit missionaries who followed them were the first Europeans to reach northern California. The interior of the Sacramento Valley, away from the easily defended and more accessible chain of coastal missions and pueblos, was left largely untouched by the Spanish and "Californios" (Hoover et al. 1990). Settlement of the Sacramento area did not begin until

the late 1830s and early 1840s, when entrepreneurs such as John Sutter and Jared Sheldon obtained land grants from the Mexican government, typically in exchange for an agreement to protect Mexican interests in these remote regions (Beck and Haase 1977). In 1839, John Sutter built the earliest Euro-American settlement within Sacramento County. Named Sutter's Fort, it was a well-known outpost that brought with it an increase in Euro-American trappers, hunters, and settlers to the Sacramento area. As a result of the Mexican War (1847-1848), California became part of the territory of the United States. In 1848, gold was discovered at Sutter's Mill in Coloma which resulted in a torrent of gold seekers flooding into the Sacramento region. As the population soared and the gold decreased, many of the settlers who decided to stay turned to alternative vocations, particularly agriculture. Many found that the local land was relatively cheap and provided good crops. Raising grain, livestock, and produce to sell to the thousands of miners heading to the gold fields proved a profitable venture. These combined events hastened the settlement of the area and the development of Sacramento as an economic and transportation center. The designation of Sacramento as the state capital, in 1854, also resulted in the area's increase in socio-political importance.

5.2 HISTORY OF CARMICHAEL

Carmichael is a small community of 13.79 square miles in the unincorporated area of Sacramento County. The community is part of the Greater Sacramento Metropolitan area and currently has a population of approximately 61,000 residents.

The 1957 *Polk Suburban Directory* describes the Carmichael area as follows:

> …Carmichael is a rural community designed by nature to be a place for gracious, leisurely country living. It encompasses over one-hundred square miles, of which an exclusive area bordered the beautiful American River. Slightly rolling hills weave their way backward from the River, with the Sierra Nevada Mountains to the Eastward. The setting provides an ideal and cultured setting for quiet living, with schools, churches, and recreation establishments available.

Prior to the arrival of Europeans in the late 1700s, the area was home to Native American groups. The arrival of the Spanish in the late 1700s to colonize and Christianize Alta California led to major changes in the culture and lifestyle of the indigenous groups. By the 1820s, California had transitioned from Spanish to Mexican control and large land grants, or ranchos, were given to various residents of the Sacramento area and across California.

The Carmichael area was originally part of two Mexican ranchos, the Rancho San Juan and the Rancho Del Paso, whose history and development are intertwined. In 1846-1848, Mexico was engaged in the Mexican War with the United States. At the end of the war, the Treaty of Guadalupe Hidalgo transferred California, as well as other parts of the Southwest to the United States of America. With the advent of California's statehood in 1850, the land was soon opened to American businessmen, farmers, ranchers, and residents of all types. These newcomers established farms, ranches, orchards, businesses, and towns that transformed California, and Sacramento County, into a new land.

5.2.1 Rancho San Juan

The Rancho San Juan was a Mexican land grant comprising 19,983 acres of undeveloped land. The land grant was awarded to Joel P. Dedmond in 1844, by Governor Manuel Micheltorena, the last Mexican

governor of California. The grant bordered Rancho Del Paso on the east. This Rancho was owned by Captain Eliab Grimes, a native of Massachusetts and a merchant and trader in Hawaii. The two land grants were sited along the north side of the American River. The two ranchos eventually became the location of the communities of Orangevale, Fair Oaks, and Carmichael (Bancroft 1885).

Joel P. Dedmond was an American businessman and developer who owned property in San Francisco. He claimed to have arrived in California in 1838 and obtained Mexican citizenship, a common practice for Americans seeking to make their fortune in California.

In 1847 Dedmond sold out his land to Hiram Grimes. Hiram Grimes was nephew of Captain Eliab Grimes. Hiram Grimes later owned Rancho Del Paso and Rancho Pescadero (Bancroft 1885:673).

At the end of the Mexican war between the United States and Mexico, the Treaty of Guadalupe Hidalgo confirmed that the land grants given by the Mexican government to American citizens would be honored. As required by the Land Act of 1851, a claim for Rancho San Juan was filed with the Public Land Commission in 1852 and the land was officially patented to Hiram Grimes in 1860 (Bancroft 1885).

The rancho lands of California were sold and re-sold many times to various entrepreneurs with a variety of plans for the land. Rancho San Juan was purchased by James Ali Ben Haggin and Lloyd Tevis, both lawyers. They established a large horse racing and breeding operation on the property. In 1868, Frederick C. Cox, a senator in California and the president of California National Bank bought Rancho San Juan (*New York Times*, October 8, 1905).

5.2.2 Rancho Del Paso

The Rancho Del Paso, located directly west of the Rancho San Juan and sharing a boundary, was a 44,571-acre land grant given to Eliab Grimes in 1844 by Governor Micheltorena. The former rancho lands encompass the present-day areas of North Sacramento, Del Paso Heights, Rio Linda, and parts of Carmichael.

Captain Eliab Grimes, and his nephew, Hiram Grimes, operated a firm named E & H Grimes. John Sutter had given the land to Eliab and Hiram Grimes and John Sinclair prior to the official granting of the patent by the governor. Sinclair, who had worked for Sutter in 1840, lived on the rancho and raised cattle and wheat for the Grimes family until the grant was legally given to the Grimes family in 1844.

Grimes, who had subsequently become an important trader and political figure in San Francisco, died in 1848, leaving his share of the rancho to his nephew, Hiram Grimes. Three months later, in 1849, John Sinclair sold his share of the property to Hiram Grimes. In 1852, Grimes sold the entire Rancho Del Paso to San Francisco trader Samuel Norris who was an immigrant from Denmark who arrived in California in 1839. After the Land Commission decisions of the 1850s, Norris was officially granted the Rancho Del Paso in 1858. During this period, Norris was in a major legal battle with the Grimes family over the estate and, in 1860, the U.S. Supreme Court awarded the rancho to Norris. As a result of the lengthy legal battle, Norris was heavily in debt to his lawyers, James Ali Ben Haggin and Lloyd Tevis. In 1862, Norris sold the Rancho Del Paso to the two men.

Rancho Del Paso became nationally prominent during the 1880s for its extensive horse breeding facilities. Haggin stopped using the ranch as a horse breeding operation in 1905 and concentrated his

breeding efforts at his Elmendorf Farm in the blue grass area of Lexington, Kentucky (*New York Times*, October 8, 1905.

5.2.3 Carmichael Area

As there is no Carmichael Historical Society, the files of the Fair Oaks Historical Society were accessed for history of the subject property, the Carmichael and Fair Oaks communities, and the San Juan Rancho area. The following information was written by local pioneer Ed Muldrow in 1939 and is titled "An Early Settler Gives an Accurate Account of San Juan Area History" (Fair Oaks History Center website, page 79).

> The Rancho San Juan was originally granted to Joel Dedmond by Manuel Micheltorena, governor of California under Mexican rule, December 21, 1844. The grant covered 19,982.70 acres, Hiram Grimmes obtained a patent to this land, July 1860.
>
> That any right ownership has been given DXX appears not to have been generally known, and when California was ceded to the Americans, at the close of the Mexican war, quite a number of families settled on the land, supposing it to be government land. They remained in possession without disturbance for several years. They earned a livelihood much from the sale of wood and charcoal and possibly many had dairies, it being a good place for cattle. Little attention was given to farming for various reasons; the clearings were small, and the land was thought to be unfit except along the river bottom.
>
> There were no churches, and no schools except one small school on the Del Paso side of the line near where the Carmichael Community Church now stands where the children might attend if there was no work at home.
>
> These squatters wantonly destroyed much fine timber, cutting down large trees, working up the tops and leaving the main trunk to rot on the ground.

5.2.4 Squatters Evicted

> Finally, after a lapse of 16 to 18 years, the owner determined to rid the land of the squatters. The resolve to bring about a new order was problematic and some of the people, not overly satisfied with their lot, went off easily when notified, when others who had evidently done better for themselves, refused to go. However, when it became clear to them that the rights obtained under Mexican rule were still good, they gave up the fight and went away, one by one leaving their houses behind. Old wells from which they had drawn water, or a heap of decaying rubbish marked the spots where their homes had stood for many successive years.
>
> When the last settlers were driven off, the grant reverted to its original state as grazing land. People came from different places, bringing sheep, hogs, horses, and cattle where they found good pasture through the winter months to be taken away again in the spring. A few families came and went at odd intervals, but they were primarily renters. The owners seemed content to hold on looking for higher prices which they were convinced would come later. Some mining on Mississippi Bar, mainly by Chinese, and the old cherry orchard on Sacramento Bar returned a good interest, especially in the orchard, for fruit was not over planted in those days.

Here it may be mentioned that the orchard was originally set out in 1852 by two men, White and Hollister, and it formerly went under the name of White and Hollister orchard, but gradually changed into the more familiar name of the cherry orchard on account of the delicious cherries grown there. White and Hollister were driven off at the time of the general exodus of the squatters. Their house, and a very good one for the time, stood on the banks of the American River. It was the last of the old squatters' houses to be taken down. It was still there and occupied when the Eastern company came into possession of the land about 1895.

Hastings and Curry had now succeeded to ownership with Bruce Lee, the current agent. A division of land was at length determined upon, and Bruce Lee was given a grant of 5,000 acres on the lower end.

5.2.5 Early Sales

Land having advanced to what was considered a good price of $12 an acre, the new owners offered a strip along the north side of the Lee grant. Their first sale was to James Muldrow, already a resident of the San Juan, in December 1874. The following year came Thomas Kelly from Sacramento. Then Jacob Heintz from Lathrop, San Joaquin County. Then came Michael Kelly from Walnut Grove, then came John Vincent, also from Walnut Grove and Phillip Sherry from Yolo County. Sometime afterward Joseph Heintz bought 200 acres adjoining on the south and east of Sherry. Robert and Finley McMillan also purchased land in the San Juan, but not on the Lee grant. There were no more sales. These people were to encounter the same hindrances to agricultural pursuits as the early settlers, the clearings were small. However, they went one better, they had faith in the soil.

Wild grain was planted in these days and a jack rabbit dinner was quite a common thing. Gradually the timber was removed, the clearings made larger, and the raising of wheat and barley became correspondingly more extensive.

In 1880, principally through the efforts of Jacob Heintz, Thomas Kelly, and John Coyle, the San Juan School was established. There being no house ready, the first term of two schools was at the house of Thomas Kelly. The first teach employee was Miss Etta Berg of Sacramento. The first trustees were Thomas Kelly, John Coyle, and James Muldrow.

Several years passed now without anything occurring worthy of note. The little colony of eight families formed a group of themselves we may suppose with as much contentment as it is generally accorded to human nature.

The Rancho San Juan was destined for yet another change. Clarke and Cox finally sold their interest to an eastern company who proceeded at once to survey the ground and sell it in small tracts in 1895. It took on the name of the Sunset Colony. Men were out to work clearing away the forest, and soon fruit-bearing trees took the place of centuries-old oaks.

Improvements followed rapidly, including the laying out of a town named Fair Oaks and the whole aspect of the county changed.

5.3 DEVELOPMENT OF THE CARMICHAEL COLONIES

In the late 19th century, Daniel W. Carmichael moved to the Sacramento County area. The Carmichael family was of Scottish descent and emigrated to America in the early 17th century. The family settled in Georgia and became farmers. Daniel Carmichael's father, William, and his eldest brother, Thomas, moved to California in 1875. The father returned to the east coast but encouraged his younger sons to try their luck in California as they reached maturity. Daniel Carmichael, born in Atlanta, Georgia in 1867, arrived in Sacramento in 1885. He worked on his brother's farm in Sacramento, but wishing to acquire a business education, he enrolled in the Stockton Business College in 1886. After completing his education, he obtained a job working at a printing firm in Sacramento. He moved to a bookkeeping position shortly afterward, and in 1895, he decided to pursue a career in real estate and insurance. After discovery of oil in the 1890s in the Bakersfield area, "he was one of the first to realize the possibilities in this direction and securing a tract of one hundred and sixty acres in the heart of the oil region in Kern County was among the first to strike oil (Irvine 1905)."

Carmichael was a registered Democrat who served as a delegate to the presidential convention in 1900; a Mason and member of the Odd Fellows and Elks Lodges; and became City Treasurer of Sacramento in 1895-1897. In 1895, he formed the real estate company of Curtis, Carmichael, and Brand. The business focused on land development projects in the Sacramento Valley (Irvine 1905: 613).

Carmichael began his developments in the Carmichael area in 1908 but never actually lived in Carmichael. He served as mayor of Sacramento in 1917 (Muther 2004).

In 1908, Daniel W. Carmichael purchased 2,000 acres of the former Rancho San Juan for real estate development purposes. He named the property Carmichael Colony No. 1 and began selling ten-acre parcels. The price was $1,500, and terms of sale required ten percent down and $10 per month until the final payment. Carmichael placed advertisements in national newspapers and magazines, such as *Sunset* (Muther 2004).

Carmichael had plans for expansion of the Colony, and in 1911, he purchased an additional 1,000 acres to the west of the first colony and named it Colony No. 2. Colony No. 2 had originally been part of the Rancho del Paso, a 44,000-acre Mexican grant. The property he acquired had been part of the land homesteaded by James Ben Ali Haggan and used for his horse breeding operation in the 19th century. The new Colony land shared the western boundary with the land encompassed in the original Colony (Muther 2004).

The first permanent settlers in the Carmichael Colony No. 1 were Mary and Charles Deterling. They established a 400-acre ranch named Rancho San Juan Meadows. Originally planted in alfalfa, the ranch developed a substantial orchard of pears, peaches and plums (Muther 2004).

The land along the north side of the American River was good bottom land, but newcomers who purchased land on the higher ground found that it was "hard-pan." Dynamite was used to blast through the dirt to loosen it enough to successfully plant orchards and row crops (Muther 2004).

Carmichael was always considered to be a place for families. Early homes were built of logs, adobe, or wood frame. The homes were simple in design, one-or two stories in height, and constructed of locally produced materials. Most of the early homes were built by the owners with help from family and

friends. Most of the early homes were built along what is now Fair Oaks Boulevard, as well as Palm Drive and California Avenue. Fair Oaks Boulevard was the only paved road until the 1920s. It was a narrow two-lane road all the way to Sacramento (Muther 2004).

Daniel Carmichael's original premise for the colonies was that the farms would be self-sufficient. However, due to difficulties with the soil, farmers had to find additional means to making a living in a rural community. Due to the drop in agricultural prices after World War I, farmers had to diversity to survive. They were farmers, ranchers, orchardists, and dairymen (Muther 2004).

Early families in the Carmichael area included the Barretts, for whom Barrett Road is named. The Barrett family came in 1900 and became part of the Carmichael community. Another family, the Thomas C. Mapel family became real estate developers. Thomas and his wife, Winnona, brought their family from Sacramento to Carmichael in 1926. Mapel had worked in real estate in Sacramento and, in 1946, he purchased a 100-acre parcel to create the first tract housing in Carmichael, known as Mapel Grove. Mapel Lane is named for the family. Mapel served in the Carmichael Irrigation District and Mrs. Mapel was active in the local schools and community events (Muther 2004).

H Street, now Fair Oaks Boulevard, was the business center of the community. Road side stands offered fruit, vegetables, and eggs. In the 1920s, the Arrowhead Store and the Williams family grocery store provided most of the local consumer needs. With the appearance of cars and tractors, service stations and garages were needed. The Triangle Service Station, the Clark's Garage and Sunnydale Garage (owned and operated by Glenn Huges) addressed the community needs. Other stores were gradually added but it was not until 1963 that a shopping center was built. Known as the Crestview Center, it was located at the corner of Manzanita Way and Winding Way (Muther 2004: 45-54).

Education was always important to the residents. The earliest school was the San Juan School, a one-room schoolhouse. The school was located on Winding Way near Dewey Drive and was used from 1880-1917. A new school was built in 1917, on land donated by Daniel Carmichael. It served as the only elementary school in the community until the 1950s. Eventually the system grew to 12 elementary schools, three middle schools, and a high school (Muther 2004).

In 1927, the first church was built, the Carmichael Community Church. The church is now affiliated with the Presbyterian church. As was typical with most small farming communities, the church was the social center of community life. More churches would follow in the coming years, creating a rich diversity of religious opportunities for the residents (Muther 2004).

As is necessary in all communities, a variety of organizations were developed over the years to address the needs of the community. The Carmichael Irrigation District was formed as water was vital to farming operations. The Carmichael Improvement Club and the Carmichael Utility District brought many positive changes to Carmichael as the years went on and the community evolved. Parks, libraries, recreation areas and community organizations were developed over the y6ears, each enhancing the community. Carmichael has developed into a thriving community in the 21st century and still retains its agricultural heritage and remains a good place to build a home and a life (Muther 2004).

5.4 HISTORY OF 4434 MAPEL LANE, CARMICHAEL, CA

The subject property, a single-family residence named Shelterwood by the O'Donnell family, is addressed as 4434 Mapel Lane, Carmichael, Sacramento County, California, (Assessor's Parcel Numbers 247-0010-001, -008, and -009). The property is in an unincorporated area of Sacramento County in the community of Carmichael. The parcel size is listed in the Assessor records as 5.04 acres.

The following information was taken from a document located in the Sacramento Center Library in Vertical File #Carmichael. The information was prepared by Jim O'Donnell on October 1, 1998. The document is entitled "Shelterwood – A History of the O'Donnell Property."

> The ten-acre park currently owned by the Carmichael Park District and soon to be developed for the enjoyment of all who enjoys a rich local history that reaches back to the mid-1800s and California's emerging statehood. It was part of a quarter-section of land (160 acres) purchased by my great-grandfather, Edward O'Donnell in 1898 – and held in the family for three generations until being sold to Marc Turtletaub in 1985, some 87 years later.
>
> The property was originally part of the Rancho San Juan, a parcel of land covering nearly 15,000 acres, granted in 1844 to Joel Dedmond by last Mexican governor, Manuel Micheltorena. For nearly twenty years, this land remained nearly undeveloped, populated only by squatters whose income was largely derived from the sale of wood and charcoal. Eventually, the squatters were driven off and the land use shifted to grazing.
>
> In the early 1870s, two developers, Hastings & Curry, came into ownership of the Rancho San Juan. Bruce Lee, a resident agent, was granted the northernmost 5,000 acres to sell, and it is there that the first farms were carved out of the native land, including the parcel that would eventually become the O'Donnell property. Some of the names of the original owners present today, are found on the names of local streets, schools, parks and housing developments. Included among them are the families Coyle, Barrett, Dewey, and Kelly.
>
> In 1874, Phillip Sherry purchased 160 acres from Bruce Lee, built a two-story home and, after clearing the land, began to farm it for wheat, as did many of his neighbors. Land prices at that time hovered around $12 an acre. The parcel that would soon come to be the O'Donnell property covered the acres bounded by Barrett Road on the west, Winding Way on the north, Lincoln Avenue on the south, and a line near Schweitzer School on the east. Shortly thereafter, ownership of the Rancho San Juan passed to two wealthy cattlemen, Crawford Clark and Frederick Clark, who later sold most of their land to an eastern developer who, near the turn of the century, created dozens of ten-acre parcels. Daniel Carmichael, a Sacramento area realtor, played a pivotal role in the sale of these parcels to easterners who were looking to move west for their piece of the American Dream.
>
> Edward J. O'Donnell purchased the Sherry Ranch in 1898, having emigrated from Donegal, Ireland several years earlier. After stops in Minnesota and Washington states, Mr. O'Donnell, a blacksmith by trade, settled into the business of farming the land of the Rancho San Juan. At the northernmost corner of his property stands a small, one-room schoolhouse named the San Juan School, having been founded a decade earlier by Thomas Keely, Jacob Heintz, and James Muldrow. The school, originally intended to serve the families in and around the Lee grant, began to flourish as residents of the fast-growing Carmichael Colony began to send their

children to the school. Edward O'Donnell served as a trustee of the school, donating time for its operation and improvement until a larger school was built in the Colony in 1917. One of his daughters, Della O'Donnell, served as a teacher in the San Juan grammar school and was appointed the first teacher of the newer school, later serving as its first principal. She also founded one of the first parent-teacher associations in Sacramento County in 1915 or 1916. Dubbed *Shelterwood* by its owner in the popular fashion eastern estates, the O'Donnell family prospered in the early part of the twentieth century. Wheat farming was a collaborative effort among the locals, and harvesting was accomplished in a cooperative effort between many of the "neighbors," even though at that time a trip to the next house was often more than a mile round trip. The harvest was conveyed by a horse-drawn flatbed cart to Sacramento's active river port (known to us today as Front Street in Old Sacramento). It was an all-day trip one-way. Ownership of the farm passed to the next generation of O'Donnells – four siblings who each received a quarter-share of the land. The eldest, Edward, received the portion of the land that include the home and surrounding outbuildings. The other siblings, all sisters, quickly sold off their shares. A portion of the forty acres held by the junior O'Donnell was sold to Thomas Mapel, a real estate developer, in 1949 for $49 an acre. Land prices had quadrupled in the preceding seventy years.

Edward O'Donnell who had operated the farm on behalf of his father during the twenties and thirties, eventually became an employee of the California State Department of Highways (later known as CalTrans). The property, now reduced to fifteen acres in the O'Donnell's name, became primarily a residence and local landmark for the extended family and friends who had grown up with the land and seen the emergence of Carmichael, along with the neighboring communities of Orangevale and Fair Oaks.

Development of the northern Sacramento County was a boom industry in the post-war era, and by the early 1960s the San Juan Unified School District identified its eastern half as most likely to require additional schools to serve the population growth. Through a process of eminent domain, the district acquired two-thirds of the O'Donnell property to accommodate its expansion. The area's population growth curve flattened out, however, over the next decade and San Juan's plans to develop the site never bore fruit. Nearly 10 years after title to the 10-acres passed into government hands, it passed again, this time to Carmichael Park and Recreation District, in a transfer that was described at that time as "value neutral." Even though the property, taken by eminent domain, would not be used for its original purpose, there was no attempt at that time to return its original owners.

In 1965, ownership of Shelterwood, now reduced to five acres of the original 160, was passed to its third generation of O'Donnells, - and, coincidentally, the third owner to have the given name of Edward. Edward Jr. along with his wife Eve and their four children now moved into the family home in July of that year and began a 20-year stint that would end with the sale of the property to Marc Turtletaub.

Ed and Eve spent a good number of years remodeling and restoring the 89-year old home to its original grandeur. Adhering to the architectural style of the period and using materials from similarly constructed homes of the region as well as making much of their own, they added several rooms and renovated the home to current code while maintaining its vintage appeal. Much of the furniture that had adorned the home throughout the O'Donnell tenure remained,

the major pieces having traveled from New York around Cape Horn prior to the turn of the century.

Shelterwood entered the current era of ownership in November 1985, when the home and property were sold to Marc Turtletaub, who like the senior O'Donnells so many years before, was moving westward to find a gentle, comfortable place to live and work.

The following biographical information regarding the life of Edward J. O'Donnell was in the 1923 edition of the *History of Sacramento County: Biographical Sketches,* by G. Walter Reed, located at the Sacramento Central Library.

> Edward J. O'Donnell, Sr. – A well improved and valuable farmer in the San Juan belt pays tribute to the care and labor bestowed upon it by its owners – Edward J. O'Donnell, Sr., who has resided within the borders of the Golden State for a quarter of a century. He is a representative of one of the old and prominent families of Ireland and traces his ancestry in a direct line to the owners of Castle Donegal. There the family have lived for four generations and it was at Ardara that Mr. O'Donnell was born, on June 9, 1855. He is the youngest son and the only surviving member of the family of James and Ellen (Carbarin) O'Donnell and was reared and educated at Ardara. Mr. O'Donnell remained on the Emerald Isle until he reached the age of 22 years and then sought the opportunities of the New World, taking out his first citizenship papers at Rochester, Minn. in 1877. On leaving that state he went to the Puget Sound country located in Seattle, Wash.; and in 1895, while a resident of that city, became a naturalized American citizen. For three years Mr. O'Donnell was employed at the Lake Stevens lumber mill on Lake Stevens, in the capacity of steam engineer. Thereafter he purchased a farm which he continued to operate until 1898. He then came with his family to California and is now the owner of a productive farm of 160 acres, situated 11 miles northeast of Sacramento, in the San Juan belt. He has made a close study of soil and climatic conditions here, and specializes in the growing of grain, in which he has been very successful, his methods being both practical and progressive. Mr. O'Donnell was the only member of his family to come to the West, but he has never had occasion to regret his choice of his location. His brother, Patrick O'Donnell, preceded him to America, settling in Hartford, Conn., where he conducted a blacksmith shop until his death, which occurred about 20 years ago.
>
> In 1898, E.J. O'Donnell married Miss Lucy L. Morris, who was born in Indiana and who was but five years of age at the time her parents made the journey to Minnesota. Mr. and Mrs. O'Donnell have five children: Edna D. who married George C. Strickland of Santa Cruz; Edward J. Jr. who assisted in operating the home ranch; Rosalie Ellen, the wife of Joel F. Barrett; Alice, who married J.E. Stanley, of Lake County, Cal.; and Della L. who is the wife of E.M. Tucker and resides in Northern Sacramento. There are now 14 grandchildren in the family circle.
>
> Mr. O'Donnell is a progressive Republican of the Roosevelt type, and has always taken a deep and helpful interest in community affairs. He is a strong advocate of the cause of education and served for four years as a trustee of the San Juan School. He is a lover of good literature and keeps abreast of the times in every way. He has worked diligently and persistently as the years have passed, and his present success is well merited, for it has been won through methods that neither seek nor require disguise (Reed 1923)."

6.0 ARCHITECTURAL DISCUSSION

6.1 ARCHITECTURAL DESCRIPTION OF 4434 MAPEL LANE, CARMICHAEL

The subject residence, named Shelterwood by the O'Donnell family, is sited on an approximately five-acre parcel addressed as 4434 Mapel Lane in the community of Carmichael in the County of Sacramento. The residential building consists of the original, two-story, c. 1874-1875 residence constructed by Phillip Sherry and the c. 1985, three-story addition constructed by Marc Turtletaub. The original residence comprised 2,022 square feet of space; the c. 1985 addition added 5,483 square feet of space to the original residence, resulting in a residence that now totals 7,505 square feet of space. In addition, there are multiple outbuildings, structures, and additional elements on the grounds of the property. The property currently contains a tennis and basketball court, a large hot tub structure, multiple sheds, several small buildings used for multiple activities, and eight storage buildings. None of these buildings or structures date to the period when the O'Donnell family owned the property. It appears that all the O'Donnell related buildings – barns, sheds, animal enclosures or other farm-related buildings and structures, were removed at an unknown time. The grounds contain numerous heritage trees, including oaks, eucalyptus, palm, and cypress. Department of Parks and Recreation (DPR) forms were prepared for the subject property and are found in Appendix C.

6.2 ORIGINAL RESIDENCE – SHELTERWOOD

6.2.1 Exterior of the Shelterwood Residence

The original residence on the property was built in c. 1874-1875 by Phillip Sherry. The building is a two-story, Folk Victorian with Queen Anne influences style, single-family residence. The building consists of 2,022 square feet of living space.

West/Primary Elevation



Photograph No. 1: West Elevation of c. 1875 Residence.

The building is basically rectangular shaped and has a symmetrical primary elevation, painted wood horizontal siding exterior, a large wrap around porch on the four elevations, and a hipped roof with wood shake shingles, exposed rafters, and skylights. A chimney projects from the center of the roof area. The foundation of the building is wood piers. The front face of the area below the porch is faced with trellis siding. Simple wood steps lead to each of the elevations.

The west, or primary, elevation contains a large porch with a flat roof that is supported by pairs of wood, round, carved, columns with simple capitals and bases. The floor and ceiling of the porch are wood with dovetailed joining at the corners. Simple wood steps lead up to the front porch. Wood trellis type facing is present around the lower edge of the porch to hide the foundation elements. Non-historic ceiling lights have been added to the roof of the porch.

The primary elevation includes a centered entrance flanked by two pairs of large, wood framed, four-pane, double hung sash style windows. The main entrance includes a carved wood door with an oval stained-glass window in the center of the door. Brass hardware is present on the door and includes a small handle that turns and functions as the doorbell. A rectangular shaped, wood framed transom window is present above the front door. The transom contains a stained-glass window. Raised paneling is located on the side walls of the recessed entrance area. A decorative carved section with a tulip motif is present over the transom window and the other windows. This detail is repeated at various points around both the old and new sections of the residence. Small, metal lights are present on each side of the entrance door.

The north facing/south wall of the primary elevation forms an L-shape with the main portion of the façade and contains an additional entrance with a non-historic, carved wood door with stained glass inserts and sidelights. A small wood box structure with multiple compartments is present on the front porch, presumably to store shoes. This appears to be a non-historic addition.

North/Side Elevation



Photograph No. 2: North Elevation of c. 1875 Residence.

The north, or side, elevation includes the same detailing as seen on the primary elevation – open porch with flat roof, pairs of round columns, horizontal siding, and wood framed, multi-lite, double hung sash style windows. The west portion of the residence, both first and second floors, forms a block and includes the open porch that wraps around from the west elevation. The east half of the elevation steps back from this front section.

The second floor of the elevation is basically U-shaped as the center section steps back from the front of the façade. The second floor contains multiple window units that are wood framed, rectangular shaped, four-pane, double hung sash style windows. The ends of the building contain single windows; the center section contains two pairs of windows. The center of the wall contains a single window section which is located directly below a round window. A small, rectangular shaped, slider style window is present on the upper section of the north side wall. Carved detailing that matches the ground floor windows is present over the windows.

The ground floor includes a side entrance with a wood door with upper glass section. This door leads from the interior onto the porch. The major component of the east section of the ground floor of the side elevation is a large glass solarium structure which has been added to the north elevation. The glass walls are metal framed and are curved at the top of the walls to from a roof that attaches to the house walls. This glass structure encloses the east half of the original open porch area on the north elevation. Doors are present into the solarium area from the east and west ends; a short flight of simple wood steps leads to the east entrance area.

The second floor of the north elevation includes multiple windows and a balcony. The west portion of the second floor over the wrap around porch area includes three, large, rectangular shaped, casement style windows. These non-historic windows have semi-circular arched window sections directly over each window. They are placed in a contiguous row. The east half of the second floor, the area directly over the solarium, includes a balcony with a turned wood railing, a slanted shed roof, and a wood framed, multi-lite French door which leads onto the balcony area. Air conditioning units and skylights are noted on the roof.

The east, or rear, elevation, contains the same open porch details with wood columns supporting the flat roof, wood horizontal siding, and multiple single wood and glass door entrances. Some of the entrance doors have decorative carved wood screen doors at each entrance. Simple wood steps lead to the porch area. The same rectangular shaped, four-pane, double hung sash style windows are present. The windows have the same carved wood detailing over the windows as seen on the other elevations. The ceiling of the porch contains non-historic ceiling lights.

The second floor of the residence steps back, leaving a wide, flat porch roof expanse. The second floor contains multiple wood framed windows. Two of the windows are rectangular in shape with arched, fan light window sections above the main, multi-light window. The other window is the same as seen on the other portions of the house – wood framed, rectangular shaped, double hung sash style with four panes of glass and the carved decorative section over the window.

East/Rear Elevation



Photograph No. 3: East Elevation of c. 1875 Residence.

The south, or side, elevation is the location of the large addition constructed in 1985. Only a portion of the original south elevation remains as approximately half of the west end of the south elevation was removed to facilitate the construction of the addition. The remaining east half of the south elevation contains the same exterior siding and open porch details. An additional single wood and glass door entrance is present at the juncture of the old and new portions. Wood stairs with a wood railing lead to the porch area and door entrance area. A large, three-sided, wood framed, full height, fixed pane, multi-lite window section is present on the side wall of the house. Three large window sections comprise this window element, creating a quasi-bay window effect. This area provides a wide viewing area from the dining area on the interior of the house. Double hung sash style windows with the same four-pane configuration, and the carved wood detailing, are present on the south wall.

The second floor is L-shaped. Each section contains a rectangular shaped, multi-lite window with an arched, fan light detail window over the lower portion. This L-shaped area attaches to the new addition on the upper floors.

South/Side Elevation



Photograph No. 4: South and East Elevations of c. 1875 Residence.

6.2.2 Interior of the Shelterwood Residence

The interior of the residence includes many original features. As one enters the residence through the main entrance, it leads to a simple hallway with entrances to the parlor area and the rear of the house. A staircase with carved wood bannisters and carved spiral newel post is present in the entrance hall area. The doors are framed with carved wood moldings. The parlor contains a carved wood and marble fireplace placed on the diagonal across the corner of the room. The ground floor contains the parlor, dining areas, and a large kitchen with storage areas. The walls and ceiling are plaster; some walls are wallpapered with period designs. A room on the south end of the residence contains a mosaic tile floor with a shell border design. Chandeliers and period ceiling lights are present throughout the ground floor rooms. The kitchen has been remodeled and does not retain any of the original historic character of the interior.

The second floor contains multiple bedrooms and a bathroom. Similar wood detailing is present around the doors and windows but has been painted. Skylights are present over the various rooms and hallways. The bathroom has been completely remodeled and retains none of the original features.

6.2.3 Alterations to the Original Residence

West Elevation

The west elevation has undergone changes with the addition of what appears to an historic door, however, this door does not appear to be original to the home. The stained-glass transom window may also be non-original. The side entrance door is non-historic as the opening has been enlarged to accommodate the door.

While no permits were located for many of the changes, it appears that the original windows have been changed. The windows are in pristine condition, which is unlikely in a building that is 143 years old. The windows were replaced with windows that appear to replicate the original windows. Ceiling lights were

added to the porch ceiling. The small shoe storage compartment was added. The trellis facing around the porch bottom was added.

The roof has been re-roofed with wood shake shingles. Also, numerous skylights were added to the roof. Air conditioning units are present on the roof.

North Elevation
The ground floor of the north elevation has been altered by the construction of the metal and glass solarium which obscures the original open porch. New casement windows were added. The window openings appear to have been altered to accommodate the semi-circular fan light detail. The windows on the ground floor also appear to have possibly been changed due to deterioration. The trellis facing was added to the porch base.

East Elevation
The rear elevation appears to have undergone the same door and window changes as seen on the other elevations. Screen doors were added to the door openings. The second-floor windows have been changed with non-historic windows with arched detailing. Trellis facing was added to the base of the porch.

South Elevation
The west half of the south elevation was removed to accommodate the construction of the 1985 Turtletaub addition. The original south wall on the remaining portion of the façade has been altered by the construction of the large, three-sided, full-height, multi-lite windows, creating a bay window effect. A new staircase with a wood railing has been constructed to reach the west end entrance into the side of the residence.

The second-floor windows have been replaced with non-historic windows. The windows are a different shape than the originals, requiring a reshaping of the original openings.

6.3 TURTLETAUB ADDITION

Marc and Paula Turtletaub purchased the residence in 1985 and were responsible for the construction of the large addition that was constructed on the south elevation of the original residence in c. 1985-1986. The addition includes 5,483 square feet of space and consists of a three-story section with multiple rooms, a three-story elevator on the rear of the building, and a four-story tower section on the primary elevation.

The building has horizontal wood siding, similar to the original residence. The addition features many curvilinear design elements which are displayed in the window treatments, the curved balconies, balcony railings, and the tower design. A chimney is present on the north elevation. The building has a hipped roof with shake shingles. Skylights are present within the roof system.

West/Primary Elevation



Photograph No. 5: West Elevation of Turtletaub Addition.

The west, or primary, elevation contains numerous components on the various levels of the residence. The main entrance is centered on the west elevation and contains a carved wood door with stained glass inserts and rectangular transoms. The entrance is recessed under an open porch area. The roof of the porch is supported by pairs of round, wood columns with simple capitals. The underside of the porch roof contains exposed rafters. A secondary entrance with glass panels is located north of the main entrance. Metal lights are present at various points along the ground floor elevation.

The dominant feature of the west elevation is a four-story, round tower with fish scale shingles. The upper portion of the tower includes a round, metal railing and small balcony area. Windows are present on each level of the tower and the windows contain the same carved detailing as seen on the original residence windows.

The second floor contains multiple windows which match the rectangular shaped, four-pane, double hung sash style windows on the original residence. Balconies with turned wood railings are present on both the second and third floors. Large equipment units are present on the roof system. A small dormer window with a front gable roof and decorative carving is present on the roof of the west elevation. A cupola style element is present on the top of the tower and includes dormer style windows.

The south, or side, elevation includes two short sets of stairs, one at the west end to access the front porch area, and the other at the east end of the elevation to provide access to the rear elevation. The south side of the porch section has a curved roofline.

The ground floor of this elevation contains two large, rectangular shaped windows, flanking a smaller, vertically oriented window with multiple lights. The window on the west end of the façade contains multiple panels and arched detailing at the top of the window. The window located on the east section of the façade is a curved, bay window with multiple windows with multiple lights.

South/Side Elevation



Photograph No. 6: South Elevation of Turtletaub Addition.

The second floor contains a wood balcony with a turned wood railing. The balcony extends along the width of the façade and is supported by wood braces. Access to the balcony is from a bathroom with a hot tub on the second floor. A large bay window with multiple lights is present on the east end of the façade; a rectangular shaped, multi-lite window with carved detailing is present in the middle of the façade; a large section houses a sauna and steam room; and a dark wood framed, multi-lite door is present on the west end of the elevation.

The third floor contains two large, curved balconies with turned wood railings and wood supports. Rectangular shaped, multi-light windows are present along the elevation. Two front gable roof sections project above the main roof line above the rectangular window sections.

East/Rear Elevation



Photograph No. 7: East Elevation of Turtletaub Addition.

The east, or rear elevation contains an open porch on the ground floor with a flat roof supported by round columns with simple capitals. Arches fill the spaces between the columns. Large, wood framed, French doors lead onto the porch from the interior. A large, wood framed window with multiple lights is present on the ground floor of the rear elevation.

A three-story elevator with a fish scale shingle pattern is present at the southeast corner of the elevation. The elevator is housed in a square shaped structure and extends up the side of the rear elevation. A wood staircase with turned wood railing wraps around the various elevations of the elevator. Each level ha a landing to access the interior of the house.

North/Side Elevation



Photograph No. 8: North Elevation of Turtletaub Addition.

The second and third floors have large balconies with turned wood railings. Multi-lite French doors lead onto the balconies from the interior. The second-floor balcony has round wood columns to support the third-floor balcony. Arches separate the columns and match the ground floor column detail. The second-floor balcony is rectangular shaped; the third-floor balcony is curved.

The third-floor balcony is covered by a front gable style roof. A large ceiling fan and electric lights are present over the third-floor balcony.

The north, or side, elevation has two components. The west half of the north elevation is not present as this is the location of the addition and the north wall opens into the original residence. The east half of the elevation contains a side entrance door. The door leads onto a small brick terrace which is covered by a flat, semi-circular roof. The roof contains horizontal wood supports constructed in a fan shape and this portion is covered with screen. Underneath this roof section is a large bay window with wood framing and multiple windows.

The upper floors contain large, rectangular shaped, multi-lite window sections. A front gable roof is present at the top of the third floor.

6.3.1 Interior of the Turtletaub Addition

The Turtletaub Addition includes multiple rooms used for multiple purposes as living spaces. The ground floor contains an open area accessed from the original residence. An entry hall with black marble columns is present and is accessed by the secondary front door or the non-historic door on the south wall of the original residence. From this area, one steps down marble steps into a large room with gold incised columns. This room contains the main entrance into this portion of the resident. This large space is basically divided into a U-shaped space by the presence of a wet bar area with an L-shaped counter, preparation areas, and storage spaces. This room has a large, recessed, dome shaped, stained glass window with ornate designs. The area on the back of the bar section on the east side of the room contains a wood and black marble fireplace. Multiple doors lead onto the north and east porch areas. A narrow, curving staircase leads from the ground floor to the second level. This staircase contains a small window in the east wall and is painted with a mural of Italy. The staircase opens out into the second-floor landing.

The second floor contains multiple rooms including three bedrooms, a bathroom, an additional bathroom with a hot tub and an adjacent outdoor sauna/steam room reached by the outside balcony, and a library. The bedroom at the rear of the second floor contains a fireplace, wood French doors leading onto the east elevation balcony and multiple lighting fixtures (13 to be exact). The other bedrooms contain large Murphy beds and one is used as an office as well. The library has a large marble fireplace with carved Egyptian figures supporting the mantle. An additional marble figure is located in the main hallway outside the library. The south wall of the library contains floor to ceiling bookshelves with a library ladder and light fixtures. The west wall contains a large multi-lite window and the curving staircase of the tower which leads to the upper levels of the tower. The north wall of the library contains wood bookshelves that disguise a secret opening in the bookshelves. When the bookshelves are opened, it leads into a laundry room space. A staircase leads from the library to the upper floors. The third floor contains more bedrooms, a space used for massage purposes, and additional bathrooms.

6.3.2 Alterations to the Turtletaub Addition

A variety of permits were filed for additions and renovations for several years in the 1990s. Some of the permits and available drawings detail the complete renovation of the kitchen which is located in the original residence. Not enough detail was provided in the available permits to determine which changes happened to which section of the residence. The exterior of the Turtletaub addition appears to be basically intact, without any major changes noted. However, due to the lack of documentation available, changes may have been made from the original design which are not apparent upon visual inspection.

6.3.3 Outbuildings and Additional Structures

There are a number of outbuildings on the subject property in the eastern portion of the property. None of the buildings appear to be of historic age. No original building permits were located for any of the buildings or structures on this portion of the property.

A fenced tennis court and basketball court is located north of the residence. This tennis court was constructed by the Turtletaub family in 2002.

Two, small, rectangular shaped, one-story, out buildings are located on the south side of the residence. The buildings have wood shingle exteriors, shed style roofs, and metal framed windows that vary in size and shape. The buildings are in poor condition.

A group of eight, wood, one-story, rectangular shaped storage buildings are located at the southeast corner of the property. These buildings have wood walls, gabled roofs, and wood floors. The buildings are numbered from one to eight. The buildings appear to be in good condition.

A two-story building is located directly east of the residence, a short distance from the back-porch area. The building is rectangular in shape with wood exterior siding, a gambrel roof system, and a wood staircase leading to the second-floor area. A large open shed area is attached to the rear of the structure and is filled with outdoor equipment. The shed has a wood roof with wood supports and is open on three sides. The building appears to be in poor condition.

A small wood shed is located behind the two-story building. The one-story, rectangular shaped wood shed has a gabled roof and wood walls. The shed appears to be in good condition.

A tall, wood framed, hot tub structure is present to the north of the gambrel-roofed residence. The hot tub rests on a concrete slab. It is unclear if the hot tub is functional at this time. It appears to be in fair condition.

A small, one-story, rectangular shaped out building is present to the north of the hot tub in the area behind the original residence. The building has wood framed windows, a gable roof, red painted wood horizontal siding exterior and multiple entrances. The interior of the building contains mirrored walls, a pool table, and a disco ball hanging from the ceiling. The building has been altered extensively and is in fair condition.

An additional storage shed is located in the northeast area of the property behind the original residence. The wood shed is rectangular shaped, with a gable roof and wood walls. Large equipment is present in front of the shed. The shed appears to be in fair condition.

An additional storage shed, painted white, is present near the northeast corner of the house. This structure has wood walls, a gable roof and wood entrance doors. The building is in fair condition. A fenced, wood structure that appears to have been used for chickens or other types of poultry is present behind the shed. The structure is in poor condition.

A circular, concrete foundation is present behind the house and is located near the rear elevation. The fountain has multiple levels of water basins. The fountain is encircled with curved concrete benches.

6.4 OWNERHSIP INFORMATION

The original residence on the property was built in c. 1874 by Phillip Sherry, according to the family history completed by Jim O'Donnell and the document prepared by Ed Muldrow in 1939. The information contained in the document prepared by Ed Muldrow stated that the residence had been constructed in 1875. No other information was located regarding Mr. Sherry or his time of residency on the property. The property, including the original residence and 160 acres of land, were purchased from Phillip Sherry by Edward J. O'Donnell Sr. in 1898, according to the O'Donnell family history.

The property was held by Edward J. and Lucy O'Donnell Sr. who raised wheat on the 160 acres. The O'Donnells had four children – Edward Jr, Alice, Rosalie, and Della. Eventually, in the 1940s, the farm passed to the O'Donnell's son, Edward J. O'Donnell Jr. and his three sisters. Each of the four siblings received a quarter-share of the land. Edward O'Donnell Jr. received the quarter-share of the original 160-acre property that included the main family home, Shelterwood, and the surrounding outbuildings. The sisters each sold their individual quarter-shares, thereby removing 120 acres from the ownership of the O'Donnell family. A portion of the property, approximately 25 acres, held by Edward O'Donnell Jr. was sold to Thomas Mapel, a local Carmichael real estate developer, in 1949. Mapel proceeded to build a housing tract on the former O'Donnell property.

In the early 1960s, the San Juan Unified School District was in a process of expansion due to a rapid rise in local population. The District took approximately 10 acres of the O'Donnell farm through a process of eminent domain for the construction of a new school. The school was never built, and the land was not returned to the O'Donnell family but, instead, was transferred to the Carmichael Recreation and Parks Department. The approximate 10-acre parcel is currently used as the O'Donnell Heritage Park. The Park contains a gravel nature path, a butterfly garden, a playground, a picnic area, drinking fountain and stone marker.

According to the O'Donnell family history document referenced in this report, Edward O'Donnell, grandson of Edward J. O'Donnell Sr., took possession of the c. 1874-1875 Shelterwood residence and the remaining five acres of land with his wife Eve and their four children in 1965. The O'Donnells spent several years renovating and remodeling the home, with materials either salvaged from local homes or elements that they constructed themselves to replace missing pieces of the c. 1874-1875 residence. Various permits were filed in the 1960s for their remodeling projects and the O'Donnell family history document also comments on their efforts.

Edward and Eve O'Donnell sold the original residence and the remaining five acres of land to Marc and Paula Turtletaub on October 16, 1985 (Sacramento County Recorder Office document). Marc Turtletaub owned the family business, The Money Store, a money lending operation specializing in real estate loans. Mr. Turtletaub operated the business from a large ziggurat style building designed by Edwin Kado in Sacramento. Mr. Turtletaub sold the business in 1998 and now is a producer and director of independent films.

Over the next several years, the Turtletaubs embarked on the construction of a massive addition to the original residence. The Turtletaubs constructed a 5,483 square foot, three-story addition with a four-story tower, a three-story elevator and numerous rooms. The addition was added to the original building on the south elevation which resulted in removal of a large portion of the original c. 1874-1875 south façade. The construction project was estimated to have cost $9.2 million. No architect or contractor were identified as the persons or firms responsible for the design and construction of the addition to the original residence (Dunbar, n.d.).

According to the Sacramento County Assessor Office, the following owners held the subject property. On November 30, 1966, Edward and Eve O'Donnell became the owners of the family property. The O'Donnells sold the property to Marc and Paula Turtletaub on October 16, 1985. The Turtletaubs transferred the property into the Paula Turtletaub Trust in 2001. At this time, the Turtletaubs official residence was listed as 425 California Street, San Francisco, California. The Turtletaubs sold the property to the Bella Propriedad LLC on May 8, 2012.

On June 8, 2015, the Bella Propriedad LLC sold the property to Sunmark Capital LLC. On December 1, 2017, Nicksam Properties LLC acquired the property and remains as the current owner.

6.5 CONSTRUCTION HISTORY

Given the original rural nature of the property, and the limited government control over properties prior to the 1950s, no original building permits were filed for the property. Later changes to the building were probably also never formally recorded and were simply done by the O'Donnell family as they moved through their renovation process. No documents were located for the original construction of Shelterwood, few of the renovations and changes made by various members of the O'Donnell family over the decades, or the large-scale addition and renovation undertaken by the Turtletaubs in c. 1985-1986.

The single-family residence was constructed in two parts: the original two-story home was built in c. 1874-1875; and a three-story addition was constructed in 1985. According to the Assessor's records, the ground floor of the original residence contains 1,230 square feet; the upper floor area comprises 792 square feet. The square footage of the "additional area" (the c. 1985 addition) listed in the record states that it contains 5,483 square feet of space. The total living area of the combined residence is listed as 7,505 square feet. The residence contains nine bedrooms, eight bathrooms, one dining room, one family room, and nine miscellaneous rooms. The residence contains three fireplaces, one in the original residence and two in the addition.

The residence does not contain a basement or a garage structure. In addition to the main residence, the property contains multiple outbuildings. These buildings include a small residential structure, approximately 14 storage/shed buildings, a hot tub, and a combined tennis court and basketball court.

No architect or contractor was located for the construction of the original c. 1874-1875 residence. Due to the rural setting, and the realities of the late 19th century, it is presumed that Phillip Sherry most probably designed and constructed the residence. Given the communal nature of farming communities, it is likely that he received assistance from other area residents, but no information was located to determine how the residence was constructed or who was responsible for its design and construction. According to the Assessor's records, the effective year built for the main residence is 1990 which clearly reflects the c. 1985 addition to the original residence.

The Sacramento County Assessor's Residential Building Record includes the following information about the subject property. The Residential Building Record uses the year 1880 as the construction date for the original residence. The building is listed on the Record as two stories with a pier foundation, a hipped roof with shingles, and double hung sash style windows. The building is of standard frame construction. Fixtures are listed as standard. The residence has hardwood of tongue and groove grade and vinyl floor, combined with carpet. Walls and ceilings are plaster with wallpaper on many walls. The appraiser's notes dated January 24, 1969, state that the valuation of the land is $35,000 and the value of the residence or "improvements" is $1,000 for a total property value of $36,000.

Additional records provided by the Assessor state the following information regarding "improvements" to the property. The "Miscellaneous Records" include the following data.

A Tack Room is listed as having a 14-foot slab foundation, wood exterior siding, gable roof with shake shingles, and was built in 1972. A Storage Room, with a wood exterior, was built at an unknown time. A

Vehicle Storage structure with a dirt floor was built at an unknown time. A Tank Storage House with a slab foundation, frame construction, wood siding, hip roof with shingles, and a dirt floor was built in 1900. A Tennis Court and Basketball Court, with a slab foundation and slab floor, were built in 2002.

The Residential Building Record included the information that permits were filed for the property. Permit #5111522 dated September 26, 1965 was filed for changes to the building. The valuation was $5,913. No information was included as to the nature of the changes.

An additional permit, with no identifying number, was filed on June 1, 1967 for a "RENOV." No valuation was given or further information as to the renovation project.

Permit #5120114 was filed on August 21, 1968. No valuation or project information was listed. Permit #RB064862 was filed on December 4, 2004. The valuation was $24,000 for the project and no other information was listed.

The Record addresses the addition to the original building. The Record states that Permit #CBN19900351 was filed on January 20, 2000 for an "ADD" which was valued at $43,000. The Effective Year was listed as 2006.

Permit #RB068021 was filed on June 5, 2007. The valuation was listed as $1,000 with no further information listed as to the scope of the project.

The following information was taken from the Assessor's Records regarding the Turtletaub Addition. The construction is "standard," with a concrete foundation, a hip roof with shingles, and double hung sash style windows. Plumbing, heating, air conditioning, and electrical elements are of standard construction. The interior contains hardwood, marble and vinyl, and mosaic tile floors. The ceilings are nine feet. The addition has two wet bars and a central vacuum system. No information was located regarding the individuals or firm responsible for the design and/or construction of the Turtletaub addition.

6.5.1 Additional Construction/Permit History

The files of the Sacramento County Assessor's Office and the files of the Sacramento County Building Department were accessed for information related to the subject property. These files are presumed to relate to the Turtletaub addition of the mid-1980s and later construction projects.

The Sacramento County Assessor Office records include the following permits for the property. The Assessor Office stated that other permits may have been filed for the property but were not listed in their files at the time of retrieval of the following documents.

A permit was filed on November 20, 1999 for an "addition (Case No. RBO648620)." No further information was available regarding the size, location or configuration of the "addition." A "miscellaneous plumbing permit was filed at the same time, with no further information regarding the project. The property owner was Marc Turtletaub.

A permit was filed in November 1999 for "water heater piping (Case No. RMO317450)." The property owner was Marc Turtletaub.

A permit was filed on January 20, 2000 for a "structure for generator/chiller area 8 (Case No. CBN2000-00043)." The property owner was Marc Turtletaub.

A 10-foot electric light pole was installed on the property in May 2004 (Case No. RBO708760). The property owner was Marc Turtletaub.

On December 22, 2015, a permit was filed for "RES – 5 Inspection, kitchen remodel, like for like hall, bathroom remodel, sink to move to opposite wall, adding pass through door to laundry. Master bathroom remodel, remove spa, tub, add double sink with tub/shower and fill in pocket door with wall (Case No. CBAR2015-01309). The property owner was Marc Turtletaub.

On January 6, 2016, a permit was filed for "A Boundary Line adjustment for parcels 247-0010-008, and 247-0010-009 (Case No. PLNB2016-0004)." The property owner was Sunmark Capital LLC.

On January 25, 2016, a permit was filed for a "residential 3 inspection tear off/reroof existing sheathing 12 squares of wood shakes this only partial part of roof (Case No. REROOF2016-00088)." The property owner was Sunmark Capital LLC.

On December 8, 2017, a permit was filed for "A Tree Permit to Remove (3) dead Oaks and Prune (1) Blue Oak (Case No. TREE2017-00624)." The property owner was Nicksam Properties LLC.

On January 30, 2018, a permit was filed for a "pre-application meeting to propose a subdivision of approximately 5 acres limited to ten lots with surrounding open space (Case No. PAMP2018-0008)." The property owner was Nicksam Properties LLC.

On May 10, 2018, a violation was filed for removal of multiple native oaks (Case No. TREE201800199). The property owner was Nicksam Properties LLC.

Permits located at the Sacramento County Building Department included the following information:

- A permit was filed on February 2, 1990 by property owner Marc Turtletaub for a "service change." The construction valuation was listed as $0.00 and no contractor information was included (Case No. RM0033660).

- A permit was filed on July 13, 2004 by property owner Marc Turtletaub for an "addition" to the residence. The construction valuation was listed as $3,000. The permit was also listed as "expired" and no contractor was listed for the project (Case No. RB0854090).

- A permit was filed by property owner Marc Turtletaub on May 19, 2004 for the construction of a "10 fence elec/light pole" with a construction valuation of $0.00. No contractor was listed (Case No. RB0708760).

- A permit was filed on December 22, 2015 by property owner Sunmark Capital LLC for "RES – 5 INSPECTION – kitchen remodel, like for like, hall bathroom remodel, sink to move to opposite wall, adding pass through door to laundry, master bathroom remodel, remove spa tub, add duel (sic) sink with tub/shower, and fill in pocket door with wall." The construction valuation for these changes was $30,000. The contractor was listed as "owner/builder." Case No. for this project was CBAR2015-01309.

- A permit was filed on January 25, 2016 by property owner Sunmark Capital LLC for "residential – 3 inspections tear-off/reroof existing sheathing 12 squares of wood shakes, this only partial part of roof." The construction valuation for the reroofing project was $4,140.00 and the contractor was listed as California Cool Roofing and Demo (Case No. RERR2016-00088).

6.6 HISTORIC MAPS AND AERIAL PHOTOGRAPHS

The evolution of the subject property was reviewed on Historicaerials.com. Historic aerial photographs (1947, 1957, 1964, 1966, 1993, 1998, 2002, 2005, 2009, 2010, 2012, and 2014) and historic USGS quadrangle maps (1902, 1910, 1911, 1952, 1956, 1957, 1965, 1969,1977, 1978, 1980, 1984, 1997, 2012, and 2015) were reviewed for information related to the subject property. In addition, the online map files provided by the Fair Oaks Historical Society were also reviewed for additional information regarding the subject property.

The 1947 aerial photograph shows the original c. 1875 residence in place at its current location. Surrounding the property on all sides are agricultural fields, clearly delineated. Orchards are present at some distance from the residence on the east side and may not be located on the O'Donnell property. The property is clearly a working, well established farm property.

The 1957 aerial photograph shows changes to the property. The property is still primarily agriculture, but some roads have been built through the general area. It appears that the 25 acres purchased by Thomas Mapel in 1949 now are the location of multiple single-family residences.

The 1964 aerial photograph shows that the agricultural use of the property has been essentially terminated. The Shelterwood residence now appears as an island in the midst of new streets and extensive housing development in the surrounding area. By this time, the 120 acres sold by the three sisters previously have been built on with new housing tracts, additional streets, and significant landscaping. The five acres surrounding the original house are basically open land, but it does not appear that any type of significant agricultural use of the property is taking place. The 1966 aerial photograph shows even more dense infill development of the former O'Donnell acreage with additional streets and homes.

The 1993 and 1998 aerial photographs show the acceleration of the infill process with extensive and dense development of the area surrounding the original residence. The property, now owned by the Turtletaubs, is shown as an island with more vegetation in the midst of very dense infill development. The large addition built by the Turtletaubs in the mid-1980s is present in the photographs. However, the vegetation is dense, and it could not be determined which outbuildings were present on the property. The remaining aerial photographs, from 2002-2014, show the same patterns on the property and surrounding area. Dense infill development was combined with increased vegetation which obscures much of the detail of the subject property, in addition to the surrounding area.

The USGS maps confirm the information seen on the historic aerial photographs. The original residence appears on the 1902 quadrangle map and remains in its current location through the entire series of maps. The area is agricultural with no roads appearing until the 1952 map. An unpaved road leads into the subject property and is seen on the maps up until the 1969 map when Mapel Lane has been added to the area. Originally the lane was spelled "Maple," not the current Mapel. The name was changed to the current spelling in 2012.

The Fair Oaks Historical Society maps show general delineations of the former rancho properties and provide basic contextual information for the subject property. However, no specific information related to the subject property was gleaned from the map collection.

7.0 APPLICATION OF SIGNIFICANCE CRITERIA

7.1 RURAL HISTORIC LANDSCAPE DISCUSSION

Evaluation of the subject property as a potential "rural historic landscape" is part of the overall historic and architectural assessment of the property. The following information was taken from the National Register Bulletin, *Guidelines for Evaluating and Documenting Rural Historic Landscapes*.

As defined by the Bulletin, a "rural historic landscape" is "one of the categories of properties qualifying for listing in the National Register of Historic Places as a site or a district." For the purposes of the National Register, a rural historic landscape is defined as *the geographical area* that has historically been used by people, or shaped or modified by human activity, occupancy, intervention, and that possesses a significant concentration, lineage, or continuity of areas of land use, vegetation, buildings, structures, roads and waterways, and natural features."

7.1.1 Types of Rural Historic Landscapes

Rural historic landscapes usually fall within one of the following types based upon historic occupation or use:

- Agriculture (including various types of cropping or grazing)
- Industry (including mining, lumbering, fish-culturing and milling)
- Marine activities such as fishing
- Shellfishing, and shipbuilding recreation (including hunting or fishing camps)
- Transportation systems
- Migration trails
- Conservation (including nature reserves)
- Sites adapted for ceremonial, religious, or other cultural activities, such as camp meeting grounds.

The subject property, located at 4434 Mapel Lane, Carmichael, Sacramento County is a former farmstead property. According to historic records, the owners raised wheat on the original 160 acres. None of the other types of rural historic properties apply to the subject property. The property was used for farming purposes from the 1870s to approximately the 1950s. The property now includes approximately 5 acres of the original 160-acre farm. The main building on the property is a 7,505 square foot, single-family residence. The original residence, approximately 2,000 square feet, was built in c. 1875, and was significantly altered by the construction of a 5,000 square foot addition in c. 1985. No buildings or structures that date to the period in which the property was used as a working farm are still extant.

7.1.2 Characteristics of the Rural Landscape

A classification system of eleven characteristics have been developed for reading a rural landscape and for understanding the natural and cultural forces that have shaped it. Landscape characteristics are the tangible evidence of the activities and habits of the people who occupied, developed, used, and shaped the land to serve human needs; they may reflect the beliefs, attitudes, traditions, and values of these people.

The first four characteristics are processes that have been instrumental in shaping the land, such as the response of farmers to fertile soil. The remaining seven are physical components that are evident on the land, such as barns or orchards. Many, but not all, rural properties contain all 11 characteristics. When historic processes are linked to existing components, the rural landscape can be viewed as a unified whole.

7.1.3 Landscape Use and Activities:

Land uses are the major human forces that shape and organize rural communities. Human activities such as farming, mining, ranching, recreation, social events, commerce, or industry, have left an imprint on the landscape. An examination of changing and continuing land uses may lead to a general understanding of how people have interacted with their environment and provide clues about the kinds of physical features and historic properties that should be present.

Topographic variations, availability of transportation, the abundance or scarcity of natural resources (especially water), cultural traditions and economic factors influence the ways people used the land. Changing land uses may have resulted from improved technology, exhausted soil or mineral deposits, climatic changes, or economic conditions, as well as previous successes or failures. Activities today may reflect traditional practices or be innovative, yet compatible adaptations of historic resources.

The subject property was used as a farm from the 1870s to, possibly, the early 1950s. A review of historic aerial photographs and historic maps indicates that the property was used as a farmstead for many decades. The photographs clearly show the delineation of the fields and the arrangement of the fields. However, by the early 1960s, aerial photographs show that the agricultural use of the land has been terminated. Large sections of the original farmstead have been converted to housing tracts.

During the 1940s, with a change in ownership to the next generation of family members, 120-acres of the original 160-acres were sold. In addition, the family member who inherited the original family home and 40-acres, Edward J. O'Donnell, grandson of the original Edward J. O'Donnell Sr., sold 25-acres of his inherited 40-acre parcel to local real estate developer, Thomas Mapel. Mapel built housing tracts on the land. An additional 10-acres was taken in an eminent domain process for the purpose of building a new school which was never built. The 10-acre parcel is now used as a local park. What remains of the original farmstead is a five-acre parcel.

This five-acre parcel currently contains a large, single-family residence constructed in two time periods. The original residence was built in the 1870s; the large addition was built in the 1980s. The original residence has been substantially altered with both the over-large addition, and replacement or repair of its original design features. The original building has lost all integrity of design and does not reflect a c. 1870s residence. A survey of the property did not indicate the presence of any barns, outbuildings, or other structures related to the period in which the property operated as a working farm. While a variety

of outbuildings are present on the property currently, it does not appear from visual inspection and a review of the available records that any of the buildings or structures relate to, or date to, the period in which the property was a working farm.

As a result of the initial clearing of the land in the 1870s to begin farming, whatever natural terrain elements were there would have been reduced or eliminated. The land is essentially flat with large native oak trees. It does not appear that there was a local water source on the original property. The property is located too far from the American River for it to be used as a water source. There was no evidence of any type of irrigation system or water procurement system on the property at the present time. Also, no evidence of these types of systems was evident in the historic maps and photographs. It is assumed, given the information in the various historical record, that dry farming and reliance on the weather to provide water was how the property was irrigated.

The elements that would define this property as a historic rural environment, a c. 1870s-1950s working farm, no longer exist. All elements of an early working farmstead appear to have been removed in the process of building tract houses on the original acreage, the construction of the c. 1980s addition, and the construction of the current outbuildings.

7.1.4 Patterns of Spatial Organization:

The organization of land on a large scale depends on the relationship between major physical components, predominant landforms, and natural features. Politics, economics, and technology, as well as the natural environment, have influenced the organization of communities by determining settlement patterns, proximity to markets, and availability of transportation.

Organization is reflected in road systems, field patterns, distance between farmsteads, proximity to water sources, orientation of structures to sun and wind. Large-scale patterns characterizing the settlement and history of a rural area may remain constant, with individual features, such as buildings and vegetation, changing over time.

The current organization of the property reflects a random, haphazard, unplanned arrangement of elements. No elements from the working farmstead or the spatial relationship of the barns, livestock areas, outbuildings, and other elements necessary to successfully farm 160-acres, have remained. The original 155-acres have been obliterated with massive changes to facilitate the construction of housing tracts. The land has been extensively graded, natural vegetation has been removed, and virtually nothing remains of the original farmstead. The five-acre parcel that remains contains the original residence which has lost all integrity, and the various outbuildings and elements are of non-historic origin. These elements were placed on the land with no attempt at a coherent organization of the elements for use or logical placement of these elements. There are no road systems, connections to other farms of the era, connection to water systems or other elements that remain. The property has lost all the historic elements that would define a c. 1870s working farm

7.1.5 Response to the Natural Environment:

Major natural features, such as mountains, prairies, rivers, lakes, and grasslands, influence both the location and organization of rural communities. Climate, similarly, influences the siting of buildings, construction materials, and the location of clusters of buildings and structures. Traditions in land use,

construction methods, and social customs commonly evolved as people responded to the physiographical and ecological systems of the area where they settled.

Early settlers frequently depended on natural resources, such as water, for transportation, irrigation, or mechanical power. Mineral or soil deposits, likewise, determined the suitability of the region for particular activities. Available materials, such as stone or wood, commonly influenced the construction of houses, barns, fences, bridges, roads and community buildings.

None of the elements listed above that commonly define a working farmstead property are present, at this time, on the subject property. All early elements that would have connected the property to the natural environment, transportation networks, water systems, other community developments, and natural resources such as water that would be essential, are no longer in existence. The changes to the land over time have removed elements that were possibly present on the property, but no evidence remains of these early elements or their connections to the larger community or the natural environment in any way.

7.1.6 Cultural Traditions:

Cultural traditions affect the way the land was used, occupied and shaped. Religious beliefs, social customs, ethnic identity, and trades and skills may be evident today in both physical features and use of the land. Ethnic customs, predating the origins of a community, were often transmitted by early settlers and perpetuated by successive generations. Others originated during a community's early development and evolution. Cultural groups have interacted with the natural environment, manipulating and perhaps altering it, and sometimes modifying their traditional responses to it.

No evidence was located to indicate that the subject property represented any specific cultural traditions, religious practices, ethnic identities, social customs, or trades and skills. If there were such elements, they were removed at an unknown time. No evidence remains that would connect this property to any significant cultural traditions.

7.1.7 Circulation Networks:

Circulation networks are systems for transporting people, goods, and raw materials from one point to another. They range in type from livestock trails and footpaths, to roads, canals, major highways, and even airstrips. Sometimes, such as farms or lumbering roads, internally serve a community, while others, such as railroads and waterways connect it to the larger region.

No evidence was located to indicate that any type of circulation system is now, or was ever, present on the property. The site visit undertaken in July 2018 did not indicate the presence, or remains, of any type of circulation network system. In addition, the review of the historic maps and photographs did not reveal any indications that any type of system existed on the property or in its connections to the larger community environment.

7.1.8 Boundary Demarcations:

Boundary demarcations delineate areas of ownership and uses, such as an entire farmstead or open range.

No boundary demarcations were noted during the site visit or in a review of any of the historic maps and photographs. Again, if they were there originally, these elements have been removed at an unknown time.

7.1.9 Vegetation Relative to Land Use:

Various types of vegetation bear a direct relationship to long-established patterns of land use. Vegetation not only includes crops, trees, or shrubs planted for agricultural or ornamental purposes, but also trees that have grown up incidentally along fence lines, beside roads, or in abandoned fields. Vegetation may include indigenous, naturalized, and introduced species.

While many features change over time, vegetation is, perhaps, the most dynamic. It grows and changes with time, whether or not people care for it. Certain functional or ornamental plantings, such as wheat or peonies, may be evident only during select seasons. Each species has a unique pattern of growth and life span, making the presence of historic specimens questionable or unlikely in many cases. Current vegetation may differ from historic vegetation, suggesting different uses of the land.

The subject property, as it currently stands, appears to bear little resemblance to the property in earlier decades in terms of vegetation present on the land. Visual observation and review of historic aerial photographs, maps, and documents indicate that the land has undergone a variety of steady changes over the decades.

Prior to pioneer settlement in the 1870s, the Rancho San Juan area was home to squatters who cut down trees to make and sell charcoal, according to historic accounts. The subject property land was initially cleared in the 1870s to begin the farming process. There was no way to determine how much or what type of vegetation was removed in the process. Historic accounts of early settlers mention the need to clear the land of large trees to facilitate the planting process and obtain more usable land. Currently, there is little vegetation on the property in terms of shrubs, grass, or flowers on the property. Most of the property appears to have been cleared in a substantive way to remove brush, clear space for construction of new buildings or elements, and perhaps as a fire safety measure.

At this time, a large number of mature trees are present on the property. Several stumps of removed trees are located on the property. The trees represent native and introduced species. There are currently no orchards of fruit-bearing trees on the property.

In April 2018, “An Arborist Report and Tree Inventory Summary” was prepared by Acorn Arboricultural Services, Inc. to assess and evaluate the large trees that remain on the property. The report examined 104 trees currently located on the property. The species included in the report were: American Elm (2), Blue Oak (17), Brazilian Pepper (3), California Black Walnut (2), Canary Island Palm (1), Chinese Pistachio (9), Date Palm (1), Eucalyptus sp. (11), Incense Cedar (2), Interior Live Oak (36), Italian Cypress (2), Olive (10), Prunus sp. (1), Pyrus sp. (1), Spruce (1), Sweetgum (4), and Valley Oak (1). The trees are scattered across the property with no apparent pattern. None of the trees were planted as a windbreak for crops, for example. They appear to be randomly placed on the land.

Therefore, the various phases of removal of trees and surrounding vegetation have reduced the original vegetation level. Nothing in the current pattern of vegetation suggests patterns of activity, use of the land, or an attempt to create a cohesive design that enhances the property. Much vegetation has been

removed from the remaining five acres of the subject parcel, resulting in a landscape that is limited and does not display any significant historic features or elements.

7.1.10 Buildings, Structures and Objects:

Various types of buildings, structures, and objects serve human needs relative to the occupation and use of the land. Their function, materials, date, condition, construction methods, and location reflect the historic activities, customs, tastes, and skills of the people who built and used them.

Rural buildings and structures often exhibit patterns of vernacular design that may be common in their region or unique to their community. Residences may suggest family size and relationships, population density, and economic fluctuations. The repeated use of methods, forms, and materials of construction may indicate successful solutions to building needs or demonstrate the unique skills, workmanship, or talents of a local artisan.

The buildings, structures and objects that remain on the subject property are of non-historic construction dates or have lost all integrity due to extensive alterations. The original c. 1870s residence has been altered significantly with the large c. 1980s addition and thus, does not reflect any historic use of materials, methods of construction or design concepts. The outbuildings, sheds, and other elements such as the tennis court and basketball court were built post mid-1980s and, therefore, are of no historic significance. They do not reflect any historic use of materials, methods of construction or elements that tie them to the historic period of the property. They are generic, nondescript elements placed haphazardly on the property.

7.1.11 Clusters:

Groupings of buildings, fences, and other features, as seen in farmsteads, ranching, or mining complex, result from function, social tradition, climate, or other influences, cultural or natural. The arrangement of clusters may reveal information about historical and continuing activities, as well as the impact of varying technologies and the preferences of particular generations. The repetition of similar clusters throughout a landscape may indicate vernacular patterns of spatial organization and land use.

There are no clusters of buildings, structures, or elements that would reflect the historic period of occupation of the subject property. All original buildings and elements have been removed, with the exception of the much-altered original residence, and the elements that are now present have no historic significance. These elements do not convey any type of cluster effect as they were randomly constructed and sited on the property.

7.1.12 Archaeological Sites

The sites of prehistoric or historic activities or occupation might be marked by foundations, ruins, changes in vegetation, and surface remains. They may provide valuable information about the ways the land has been used, patterns of social history, or the methods and extent of activities, such as shipping, milling, lumbering, or quarrying. The ruins of mills, charcoal kilns, canals, outbuildings, piers, quarries and mines commonly indicate previous uses of the land. Changes in vegetation may indicate abandoned roadways, homesites and fields. The spatial distribution of features, surface disturbances, subsurface remains, patterns of soil erosion and deposition, and soil condition may also yield information about the past uses and evolution of the land.

No prehistoric or historic sites were located on the property. No elements of a prehistoric or historic nature are present on the property (HELIX 2018). All evidence of any such activity or remnants of previous occupations or usage of the property were removed during the process of developing the farmstead in the 1870s, the continual maintenance and upgrading of the property during the 20th century, and the loss of the farmland and associated outbuildings and structures from the 1960s to the present.

7.1.13 Small-scale Elements:

Small-scale elements, such as foot bridges or road signs, add to the historic setting of a rural landscape. These features may be characteristic of a region and occur repeatedly throughout an area, such as limestone fence posts in Kansas, or cattle gates in the Buffalo Valley of Arkansas. While most- small-scale elements are long-standing, some such as bales of hay, are seasonal. Collectively, they often form larger components, such as circulation networks, or boundary demarcations. Small-scale elements also include minor remains, such as canal stones, road traces, mill stones, individual fruit trees, abandoned machinery, or fence posts – that mark the location of historic activities but lack significance or integrity as archaeological sites.

No small-scale elements were located on the property. If they ever existed, they have been removed in the various changes that have taken place on the property over the last 140 years. No evidence of their existence was located in the review of historic documents, photographs or maps.

7.2 RURAL HISTORIC LANDSCAPE SUMMARY

The property was evaluated as a rural historic landscape under National Register of Historic Places and California Register of Historical Resources criteria. The property meets none of the established criteria for association with an important event, person, design and construction or information potential. Of the seven aspects of integrity, the subject property has retained only the location aspect of integrity; the other six aspects of integrity have not been met. The removal of the original setting due to farming activities and the subsequent reduction of acreage in the post-1950s period of occupation have eliminated the key aspects of integrity of the property. The subject property, a c. 1870s working farm, does not meet the criteria as a rural historic landscape. Due to the extensive changes to the property over its 143-year history, the property no longer has the ability to convey its historic significance and has not retained its historic integrity. The removal of all elements related to the working farmstead of the 1870s have been removed due to the sale of 155-acres of the original property, the construction of tract housing on the former farm property, the massive alterations to the original residence, the removal of all elements connected to the farming activities of the property from the 1870s-1950s, and the construction of new outbuildings and structures which have irrevocably altered the original setting. Nothing remains that would suggest that the property was a working farm in the 19th and 20th centuries. Therefore, the subject property is not considered to meet the criteria as an example of a rural historic landscape.

7.3 COUNTY OF SACRAMENT0 GENERAL PLAN

The 2030 General Plan for the County of Sacramento was reviewed for information related to cultural resources, historic properties and other related topics. No guidelines or criteria for evaluation, assessment, and potential nomination of historic properties to a County of Sacramento historic register

was located in the General Plan. Further investigation revealed that there is no local County of Sacramento register of historic resources. Further consultation was undertaken with the State of California Office of Historic Preservation. Ms. Kathleen Forrest, Senior Planner, stated that, to her knowledge, the County of Sacramento had no historic guidelines or criteria in place to evaluate historic properties. Therefore, the property was not evaluated under any type of County of Sacramento guidelines.

8.0 APPLICATION OF SIGNIFICANCE CRITERIA

8.1 CALIFORNIA REGISTER OF HISTORICAL RESOURCES AND NATIONAL REGISTER OF HISTORIC PLACES CRITERIA FOR SIGNIFICANCE

8.1.1 California Register of Historical Resources Criterion 1: Event and National Register of Historic Places Criterion A: Event

Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;

The property was assessed under California Register of Historical Resources **Criterion 1: Event** and National Register of Historic Places **Criterion A: Event** for its potential significance as part of any historic trends or events that may have made a significant contribution to the broad patterns of our history.

The subject property, the Phillip Sherry/Edward O'Donnell Sr. farm and family residence, known as Shelterwood, was built in the mid-1870s. Sherry and three generations of the O'Donnell family farmed the land, raising wheat on the land as part of the local Carmichael community. The historical record has little to say about either of the families and their activities on the farm and in the local community, unlike other families who are well documented in various forms.

Carmichael was a small farming community, developed in the 1870s on the former Rancho San Juan lands. In the 1870s and 1880s, only eight families lived in the Carmichael area. A historical narrative written in 1939 by Ed Muldrow, son of the first land owner in Carmichael, Edward Muldrow, referring to the period between 1880 and 1900, commented that "Several years passed now without anything occurring worthy of note. The little colony of eight families formed a group of themselves we may suppose with as much contentment as it is generally accorded to human nature."

The subject property was located on land that had first been settled by Native American groups, then came under the control of the Spanish in the 1700s, then became part of the Mexican empire in the first half of the 1800s, and finally, transitioned to American control in 1848. The advent of statehood in 1850 created land claim issues between the old Hispanic families and the incoming Americans. During the confusion over land ownership during the 1850s and 1860s, squatters lived on the land. By the 1870s, most of the land claims had been sorted out, new settlers moved in, bought large sections of land and began creating small, rural farming communities. During the late 19th and early 20th century, real estate developers began developing communities, selling land for orchards, ranches and farms to Eastern newcomers. By the early 20th century, farming communities had been formed, churches and schools had

been built, and small local businesses began to develop. This pattern of land use and development was seen across the entire state of California and is the standard pattern of building small communities.

This pattern of land use and development characterized the development of Carmichael and subsequently, the development of the subject property. No significant event associated with the development of Carmichael or the Phillip Sherry and O'Donnell family occupation of the subject property was identified. The subject property reflects the standard process of land development in small, rural communities and there was no indication that events that were significant in any way were associated with the subject property.

No evidence was located to indicate that the subject property played a greater role or was more significant than the other farms or families in Carmichael in the 19th or 20th centuries. **Therefore, the property does not appear to meet the criteria for significance under Criterion 1: Event and Criterion A: Event.**

8.1.2 California Register of Historical Resources Criterion 2: Person and National Register of Historic Places Criterion B: Person

Associated with the lives of persons important to local, California or national history;

The subject property was evaluated under California Register of Historical Resources **Criterion 2: Person** and National Register of Historic Places **Criterion B: Person** for its potential significance and association with a person of importance in national history.

The only information located regarding Phillip Sherry was that he came to Carmichael from Yolo County, purchased the subject property and built a home in approximately 1875, and farmed wheat on the property. This information is limited in scope and does not indicate that he played any type of significant role in the community.

Edward J. O'Donnell Sr. purchased the subject property in 1898. He served several terms on the local San Juan Elementary School Board, and his daughter, Della, was a teacher at the school for one year. She went on to become principal of the replacement school for a brief period. No other information was located regarding any members of the O'Donnell family to indicate that they played any type of significant role in the development of their property, the Carmichael area, the County of Sacramento, or the nation.

There is no evidence to suggest that any of the persons involved with the construction, development, and use of the subject property were considered important in the history of the state or nation. None of the persons associated with the property appear to be historically significant at the level necessary to meet the criteria for potential nomination to the California Register of Historical Resources or the National Register of Historic Places. **Therefore, the property does not appear to meet the criteria for significance under Criterion 2: Person and Criterion B: Person.**

8.1.3 California Register of Historical Resources Criterion 3: Architecture and National Register of Historic Places Criterion C: Design/Construction

Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values;

The property was assessed under California Register of Historical Resources **Criterion 3: Architecture** and National Register of Historic Places **Criterion C: Design/Construction** for its potential significance as a property which embodies the distinctive characteristics of a type, period, region, method of construction or style of Folk Victorian architecture, represents the work of a master architect, builder or craftsman, possesses high artistic values, or represents a significant distinguishable entity whose components lack individual distinction.

The "type of construction" refers to the form and materials clearly demonstrate, through the presence of essential physical features, a specific purpose and/or function. This aspect of Criterion 3 and Criterion C encompasses all architectural styles and construction practices.

Due to the time frame, and general architectural trends of the c. 1870s for this type of single-family residential building, it was determined that the building was designed and constructed as an example of the Folk Victorian style. The c. 1985 addition attempted to blend the new structure with the original building by bringing some of the original Victorian era design elements into the new construction. In addition, Queen Anne architectural style elements were added to the new construction. These Queen Anne elements did not appear on the original c. 1875 building. The subject property, both old and new sections, was evaluated for the purposes of this report accordingly.

Folk Victorian Architectural Style
1870-1910

"Like that of the National folk forms on which they were based, the spread of Folk Victorian houses was made available by the railroads. The growth of the railroad system made heavy woodworking machinery widely available at local trade centers, where they produced inexpensive Victorian detailing. The railroads also provided local lumber yards with abundant supplies of pre-cut detailing from distant mills. Many builders simply grafted pieces of this newly available trims onto the traditional folk house forms familiar to local carpenters. Fashion-conscious home owners also updated the older folk houses with new Victorian porches. These dwellings make strong statements and therefore are treated here as distinctive styled houses, rather than pure folk forms… (McAlester 2015)."

The major character defining elements of the Folk Victorian style include: full- or partial-width porches; spindle work or turned detailing; variety of house shapes; symmetrical façade; hipped roof; cornice-line brackets; front or side gables; one or two-stories; wood horizontal siding exterior; round columns as porch supports; and rectangular shaped windows.

The five principal subtypes are: Front Gabled, two-story forms with front gables with Victorian detailing; Gable Front and Wing, both one and two-story versions; Side Gable Roof, One-Story, includes two versions of the hall-and-parlor one-room deep and the two-room deep configuration; Side Gable, Two-Story, usually one-room deep with Victorian detailing in various degrees of exuberance; and Pyramidal, both one and two-story versions with Victorian detailing (McAleeter 2015).

The original c. 1875 single-family residence was probably designed and/or constructed by Phillip Sherry. No information was located to indicate who the architect, builder, or craftsman was who was responsible for the design and construction of the building. Given the rural nature of the property, and that it was a working farm, it was likely built by Phillip Sherry and/or in conjunction with local Rancho San Juan craftsmen.

The design of the building contains some of the Folk Victorian design concepts. The building's design includes:

- Wrap around porch supported by round columns with simple capitals
- Wood horizontal siding
- Rectangular shaped windows
- Hipped roof

However, the details seen on the current version of the residence may not be original to the building. Various permits were located that had been filed by the O'Donnell family in the 1960s for changes to the building. In addition, the family history of the property written by Jim O'Donnell in 1998 stated that Edward and Eve O'Donnell, the owners from 1965-1985, had embarked on a several year process of restoration and renovation of the old family home. Replacement materials were found locally and salvaged from old homes or, if not available, they were simply made from local materials.

At this time, the house would have been approximately 90 years old in 1965, and presumably, portions of the wood residence might have been subject to dry rot, termites, weathering, and general deterioration. Unfortunately, no historic photographs of the residence were located during the research phase for comparison purposes. It appears upon visual inspection that a variety of non-historic, or if historic, non-original elements were added to the residence. The original doors and windows have been replaced (sometimes with historic doors and hardware), screen doors were added, skylights have changed the roof system, the roof has been replaced with shake shingles, a solarium was added to the north elevation, and the windows on the second floor of the north and east elevations have arched elements and are probably not original to the house. The 1998 O'Donnell family history stated that additional rooms were added; it is not clear which rooms were added or what might have been changed. The interior was changed with kitchen, laundry room, and bathroom remodels. The fireplace in the parlor on the ground floor has been refurbished with non-original black tile on the front face of the fireplace. The original windows in the dining room have been replaced with a three-section, full-height, fixed pane, multi-lite windows to form a large viewing window.

Queen Anne Architectural Style
1880-1910

"This style was named and popularized by a group of 19th century English architects led by Richard Norman Shaw. The name is rather inappropriate, as the historical precedent used by Shaw and his followers had little to do with Queen Anne or the formal Renaissance architecture that was dominant during her reign (1702-1714). Instead, it borrowed most heavily from the late Medieval models of the preceding Elizabethan and Jacobean eras (McAlester 2015)."

"…despite having been introduced by architects and illustrated in *AABN*, the Queen Anne style was not widely favored by architects, who favored the contemporaneous Shingle and experimented with early

Eclectic styles. Instead, the style owed its popularity to the public's enthusiastic embrace and the patent books and mail- order house plans that allowed them to build a Queen Anne style house. The expanding railroad network expedited this process by making pre-cut architectural details conveniently available through much of the nation…While the earliest American examples followed Shaw's early half-timbered designs, during the 1880s the inventive American spindle work became dominant. Between the 1880s and 1890s, a relatively few high-style urban examples imitated Shaw's later models, which were executed in masonry. In the 1890s, encouraged by Classical themes of Chicago's Columbian Exposition of 1893, the free classical adaptations became widespread. It was but a short step from these early Colonial Revival houses and the symmetrical Neo-Classical houses, which along with the other competing styles, fully supported the Queen Anne style until about 1910 (McAlester 2015)."

Character defining features of the Queen Anne style include: Steeply pitched roof of irregular shape, usually with a dominant front-facing gable; patterned shingles; cutaway bay windows; other devices to avoid a smooth-walled appearance; asymmetrical façade with a partial or full-width porch; porch is usually one-story in height and extends along one or both side walls; spindle work detailing; wood exteriors and irregular shape (McAlester 2015).

Two principal subtypes are present: one is based on shape and the other is based on decorative detailing. These principal shape-based subtypes include: Hipped roof with lower cross gables, many with gables on multiple elevations flanking hipped center section; Cross-gabled roof, many without the hipped center section; Front-gabled roof, full-width front gable which dominates entire facade; and Town House, with front-gable roof, attached row houses (McAlester 2015).

The decorative detailing subtypes include: Spindle work, delicate, turned, lacy or knob-like woodwork added to gables, porches and other elements as type of frieze; Free Classic, using columns, Palladian type windows, cornice-line details, swags and garlands along with other Classical elements; Half-Timbered, wood timbering in gables or upper-story walls, heavy turned porch supports with spandrels; and Patterned Masonry, with patterned brickwork or stonework, little wood detailing, terra cotta or decorative panels inserted into walls (McAlester 2015).

The Queen Anne style elements that were used in the design of the c. 1985 addition include:

- Patterned, fish scale shingle details on tower and elevation
- Balconies with turned spindles
- Columns supporting the front porch
- Full-width front porch

The c. 1985 addition does not contain many of the key details of the Queen Anne style. The design, while enthusiastic, is unbalanced, with a large light-house style tower attached to the front elevation. The tower does not reflect the types of towers seen on better examples of Victorian architecture. The overall design is an exuberant conglomeration of a wide range of disparate elements. The intrusion of large air conditioning units, a three-story elevator attached to the back of the building, the variety of balcony styles and window styles, the multiple door styles and locations add to the confusion of the overall design.

The Folk Victorian and Queen Anne stylistic elements can be found in a wide range of Victorian architectural styles. The 5,000 square foot addition overwhelms the two-story original residence. These elements are not combined in the two parts of the residential building in a way that would reflect a

balanced, coherent, integrated architectural style. The disparities between the two side-by-side styles is evident. The Queen Anne detailing on the addition does not augment or contribute to the historic appearance of the original residence as the original residence does not contain any significant Queen Anne details. The Queen Anne elements on the addition do not enhance the original c. 1875 structure, and in fact, they detract from the overall original design with the attempts to create a "Victorian" looking house. The elements are limited in execution and do not convey the main design characteristics of the Victorian architectural styles to the level necessary to qualify for the California Register of Historical Resources or the National Register of Historic Places. The overall design of the subject building cannot be considered to exemplify the main character defining features of the Folk Victorian and/or Queen Anne architectural styles.

The "type of construction," the subject building was originally designed and constructed as a single-family residence. The c. 1985 addition was constructed to provide more single-family living space. The subject property is a standard type of residential building construction that is seen in hundreds of similar buildings across the state. The Assessor's Residential Building Record states that the various elements of the building are of "standard" construction. No unusual or innovative types of building practices were noted on the Assessor's Record.

The "method of construction" means it is a rare or an important example of building practices, construction innovations, or technological advances during a specific time in history.

No information was located to establish that either phase of the subject building's construction was a rare or an important example of building practices, construction innovations, or technological advances during a specific time in history.

The "period of construction" refers to the age and physical features reflect the era when the specific recognized architectural style, building type, or method of construction became popular.

The subject building was originally constructed in c. 1875 as a single-family residence using design elements from the Folk Victorian architectural style. The secondary construction of the c. 1985 addition uses elements from the Queen Anne style. The building is a limited example of this type of single-family residential architecture and does not serve as a significant example of either c. 1870s or c. 1980s architectural design concepts. The building does not display unusual or innovative elements in its overall design.

"Master architect, builder, or craftsman" means that the building was designed, constructed or created by a master in their respective fields.

No information was located to determine who the architect or contractor was who was responsible for the design and/or construction and alterations of the original building or the subsequent c. 1980s addition. Therefore, the subject building cannot be considered to represent the work of a master in their respective fields. Therefore, the building is not considered to be important under this element of evaluation.

In its current condition, the subject Folk Victorian with Queen Anne architectural style building does not meet the criteria for significance under Criterion 3 and Criterion C: Design/Construction as it is a limited example of the Folk Victorian with Queen Anne influences architectural styles.

Due to the fact that no indigenous materials went into the construction of the building, the subject building is not a valuable example of the use of indigenous materials or craftsmanship.

The Victorian design style of the subject building does not rise to the necessary level of significance to qualify for the California Register of Historical Resources or National Register of Historic Places as it is a limited example of Folk Victorian architecture. In addition, the various phases of alterations, renovations and remodeling have destroyed the architectural integrity of the subject property. **Therefore, the property does not appear to meet the criteria for significance under Criterion 3: Architecture and Criterion C: Design/Construction as a good example of the Folk Victorian with Queen Anne influences style of architecture**.

8.1.4 California Register of Historical Resources Criterion 4: Information and National Register of Historic Places Criterion D: Information Potential

Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

The property was assessed under California Register of Historical Resources **Criterion 4: Information** and National Register of Historic Places **Criterion D: Information Potential** for its potential significance and its ability to convey information. The property does not yield, or may not be likely to yield, information important in prehistory or history. In order for buildings, structures, or objects to be significant under Criterion 4, they need to "be, or must have been, the principal source of information." This is not the case with this property. **Therefore, the property does not appear to meet the criteria for significance under Criterion 4: Information and Criterion D: Information Potential.**

8.2 INTEGRITY

In addition to determining the significance of a property under local, state and federal criteria, it is necessary to assess whether the property has integrity. Integrity is the ability of a property to convey and maintain its significance. A property must not only be shown to be significant under the established criteria, it must also have integrity. In order to retain historic integrity, a property must possess several, and usually most, of the seven key aspects of integrity, which are location, design, setting, materials, workmanship, feeling and association.

1. Integrity is the authenticity of a historical resource's physical integrity clearly indicated by the retention of characteristics that existed during the resource's period of significance.

2. Integrity relates to the presence or absence of historic materials and character defining features.

Application of the seven aspects of integrity:

Location*: Location is the place where the historic property was constructed or the place where the historic event occurred.*

The subject property, the former O'Donnell family residence and farm, remains in its original location in the Carmichael community. Therefore, the property retains this element of integrity.

Design: *Design is the combination of elements that create the form, plan, space, structure, and style of a property.*

The subject property which includes the c. 1874-1875 residence occupied by the O'Donnell family for 89 years and the subsequent addition constructed by Marc Turtletaub c. 1985 have not retained their original design elements. The c. 1874 Folk Victorian style residence is two stories in height and has retained limited elements of its original design, i.e., the horizontal wood exterior, a wraparound porch with double columns, and basic configuration of design elements. However, review of a variety of documents and aerial photographs, in addition to the visual inspection of the single-family residence, indicates that the building has undergone extensive, multiple renovations and remodeling efforts. The third generation O'Donnell family members renovated the home in the 1960s during their occupation of the residence. During the period of the Turtletaub ownership, additional renovations of the original home were done at the same time as the construction of the massive addition, in an attempt to blend the two very separate structures. During these various phases of renovation, many elements were replaced with salvaged materials or re-created the elements as necessary. The majority of the doors and windows have been replaced; a modern glass solarium structure was added to the north elevation, thereby enclosing the north open porch; skylights were added to the roof of the home; new rooms were added to the residence; and new door and window openings were added to the building.

In c. 1985, a 5,500+ square foot addition was constructed on the south elevation of the original residence. This construction necessitated the removal of more than 50 percent of the original south elevation. The new addition dwarfs the original, c. 1874-1875, approximately 2,000 square foot, residence. The new addition is three stories in height, and the design includes a four-story round tower with Queen Anne design elements and a three-story exterior elevator. The addition attempts to incorporate similar columnar design elements but they do not match the original. Since the entire addition is new, doors and windows have stained glass elements, but they do not blend with the stained-glass elements on the original home. They add a jarring note to the overall design. Balconies, air conditioning units, skylights, a semi-circular roof is present over an open area on the east elevation, and, while an attempt was made to incorporate "Victorian" elements into the design of the new addition, the new addition fails to successfully blend the old and the new into an integrated, coherent design. Therefore, the subject property has not retained this aspect of integrity.

Setting*: Setting is the physical environment of a historic property.*

A review of historic aerial photographs, combined with historical documents, and the visual observation of the property during the site visit indicates that the subject property has undergone steady transitions over the decades.

Prior to the 1870s, the subject property and the surrounding area was largely undeveloped, rural property. Some small homes existed in the general area of the Rancho San Juan, cattle grazing took place on the Rancho lands, and generally, the Carmichael area was open space heavily vegetated with native oaks and other local plant species.

Starting in the 1870s and continuing until the turn of the 20th century, the Carmichael area transitioned to small family farms. Generally, most of the families purchased quarter sections of land, with some purchasing as many as 200-acres. Phillip Sherry purchased 160-acres of land, the subject property, and began raising wheat and barley which required removal of some of the vegetation to create farm land. In 1898, Edward J. O'Donnell Sr. purchased the Shery farm and continued to farm the property. Wheat

and barley farming became the primary crop in the local community. As a result, the residents cleared much of the land of the larger trees and vegetation in order to create more viable farming land. This resulted in a significant loss of heritage trees during this period across the subject property and the general surrounding environment.

The process of growth and more land utilization continued after the 20th century began. The creation of the two Carmichael Colonies by Daniel Carmichael in the early 20th century accelerated the land clearing process as more farms and homes were built in the area. At the beginning of the 20th century, prior to the Daniel Carmichael developments, the Carmichael area include only eight farming families. After the development of the Carmichael Colonies No. 1 and 2, the population grew significantly, resulting in more changes to the local setting as homes and farms were built, a business district was built, and the community expanded with churches and schools.

The O'Donnell family continued to farm their land through the first half of the 20th century, adding barns, animal enclosures, and other elements of farming life to the land, thereby continually changing the overall setting. In the late 1940s, Thomas Mapel, a local real estate developer, built a complex of tract homes on 25-acres of land purchased from the O'Donnell family in 1949, thereby changing the family farm dynamic of the area into single-family suburban housing.

A similar process was taken place across the Carmichael area, as the old family farms underwent changes with loss of land, construction of new buildings, and general urban development in the form of new streets, business development and population expansion. By 1950, what had been traditional farm land had shrunk to just a few acres left for each of the old farms. By 1950, the O'Donnell family only retained 15-acres of the original 160-acres purchased in 1898 by Edward O'Donnell Sr.

The 160-acres of the Sherry and O'Donnell property had been used from 1870 up to the 1950s as a working farm, raising wheat. Farms are self-sufficient entities and each farm family raises its own chickens and other animals, has large vegetable gardens and fruit trees, all of which require outbuildings, barns, and other storage areas to facilitate the working of the land. By the 1960s, when the third generation of O'Donnells took over the property, the land was in transition. Gradually, the outbuildings and barns were removed as they had deteriorated or were no longer needed. Little remained of the working farm atmosphere of the property.

The setting changed significantly starting in the 1980s and continuing to the present time. The property was sold to Marc Turtletaub who proceeded to construct a large 5,000 story addition to the original residence. This changed the original setting irrevocably. In addition, the Turtletaubs and subsequent owners added a variety of storage buildings, a hot tub, a tennis court and basketball court, paved driveways and other element that completely changed the setting. Historic aerial photographs show the property with extensive vegetation and large trees, to the point where much of the property is obscured by the trees. The current setting has been altered by the removal of many of these trees and a general clearing of the property. Therefore, the subject property has not retained the setting aspect of integrity.

***Materials**: Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.*

The subject single-family residential building has not retained its original materials due to the multiple renovations and remodeling projects that have significantly altered both the interior and exterior of the residence.

The original c. 1874 residence underwent recorded renovations in the 1960s. The family history of the property prepared by James O'Donnell stated that the family had spent several years remodeling the family home. He stated that the remodeling had been accomplished with salvaged materials from local buildings or the replacement materials had been crafted by the family. Some of these changes were identified in the Assessor's Residential Building Record.

In addition, subsequent owners, beginning in 1985 remodeled the residence with changes to the original residence and also, changes to the large addition constructed in the late 1980s. Various permits and plans were filed for the successive remodeling of the now two-part building. Therefore, the subject building has not retained the materials aspect of its integrity.

Workmanship: *Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.*

According to the Assessor's Residential Building Record, the original single-family residence was constructed of standard materials. From what little remains of the original residence, the quality of the original workmanship appears to be of standard quality, reflecting the general standards of the time and place. However, since much of the original residence has been removed, replaced, altered, or otherwise changed by the various phases of remodeling, the quality of the original workmanship could no longer be determined. The non-historic, c. 1985 addition appears to be of standard workmanship, but again, since this portion of the building has also undergone changes, the quality of the workmanship could not be determined. Therefore, this aspect of the subject building's integrity has not been maintained.

Feeling: *Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.*

The property has not maintained the original feeling of the property as a 19th century working farm and family residence property. Due to the extensive changes to the land and setting over the decades, the construction of a massive addition to the original building in the 1980s, the various phases of remodeling of the original family residence by the O'Donnells and subsequent owners, combined with the removal of original outbuildings and vegetation and the addition of numerous outbuildings and other elements in the 1980s-2010s, the feeling of a 19th century farmstead has been completely obliterated. Therefore, this aspect of integrity has not been maintained.

Association: *Association is the direct link between an important historic event or person and a historic property.*

The subject property has not been determined to be directly linked to an important historic person or event. Phillip Sherry purchased 160-acres of land in 1875 and built the original single-family residence. He was one of eight families in the Carmichael area in the period between 1870 and the turn of the 20th century. However, no information could be located regarding his background, his activities on the farm or the local community, or the nature of his family. Other local families were written about extensively, but the historical record is silent on Phillip Sherry.

The O'Donnell family owned the property from 1898-1985, a total of 87 years. Edward O'Donnell Sr. was a school trustee for several years and, his daughter, Della O'Donnell, taught in the local schools for several years. Again, the historic record does not reveal that the O'Donnells had any strong associations with any historic events or developments. There is a paucity of information regarding the O'Donnells and their life in the Carmichael community. They appear to be a typical farm family in a small rural

community, living their life by farming the land, working hard to build their family, and maintaining a quiet, simple lifestyle. Therefore, the subject property does not have an associative element.

Conclusion: Of the seven aspects of integrity, the subject building has retained only one of the seven aspects of integrity – location. The property is still located on its original site, although greatly diminished from its original 160-acre site. The subject property does not meet the criteria for the other six elements of integrity – design, setting, materials, workmanship, feeling or association. Therefore, the subject property has not retained a sufficient amount of integrity for historic significance.

In summary, the subject property does not appear to qualify for the National Register of Historic Places and/or California Register of Historical Resources under any of the established criteria. In addition, the subject property does not retain the key aspects of integrity due to the alterations and changes to the building's design, the loss of the overall setting and feeling, combined with the fact that there is no significant event or person associated with the property. Therefore, the subject property is not considered to be an historic resource for the purposes of the National Historic Preservation Act.

9.0 SUMMARY AND RECOMMENDATIONS

In accordance with the CEQA regulations, Kathleen A. Crawford, Crawford Historic Services, has prepared this Evaluation of the property located at 4434 Mapel Lane, Carmichael, CA for Nicksam Properties LLC. Ms. Crawford assessed the effects of development for the project area.

The current survey and evaluation determined that there are no historic properties or resources located within the boundaries of the project parcel that are potentially eligible for nomination to any local, state, or federal historic registers. Therefore, no mitigation measures are required as no historic properties or historic resources will be affected or impacted by the proposed project.

10.0 PERSONNEL

Kathleen A. Crawford, M.A. conducted the field survey and all archival research and authored this report; her resume is attached as Appendix B.

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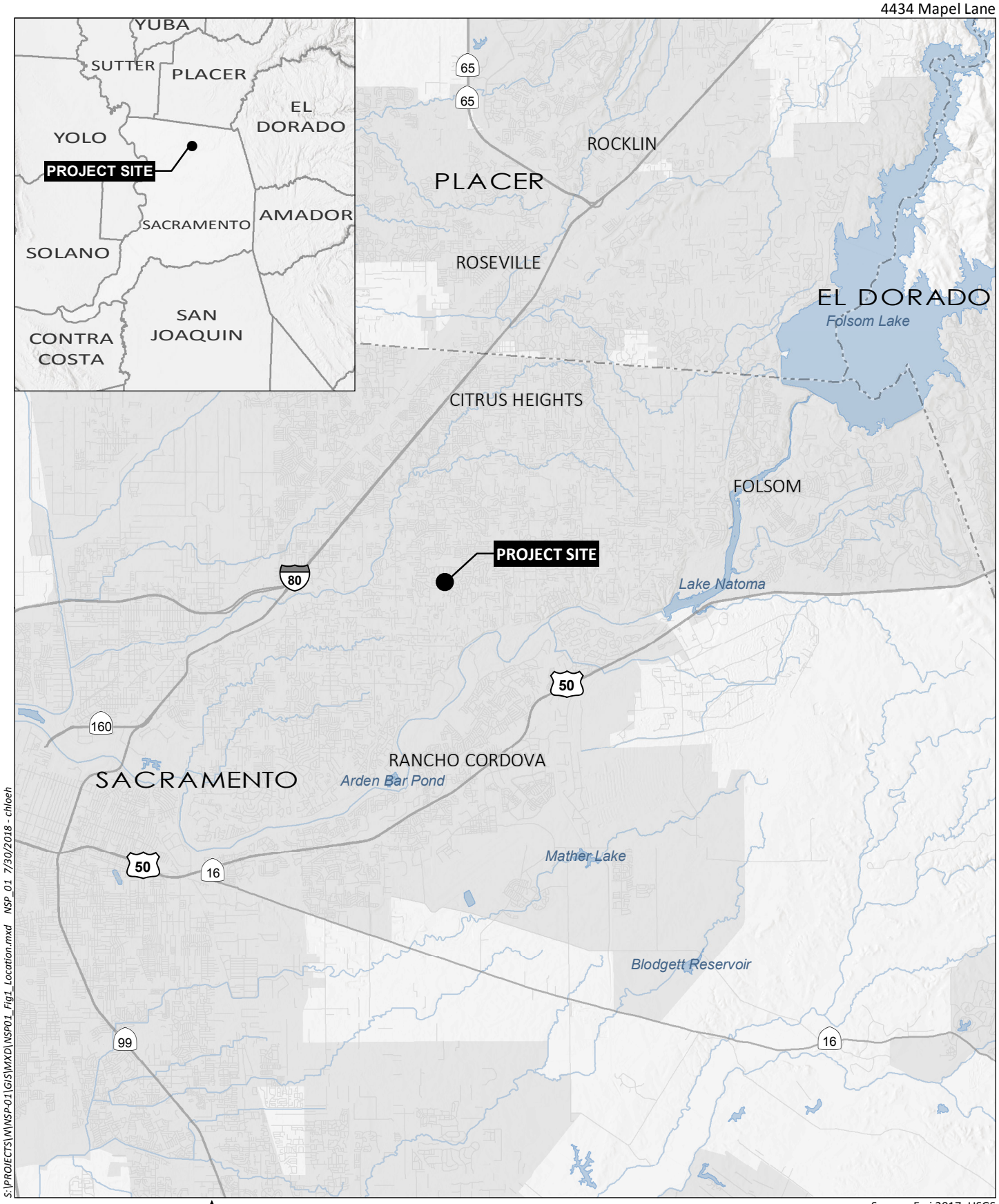
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Appendix A

Figures



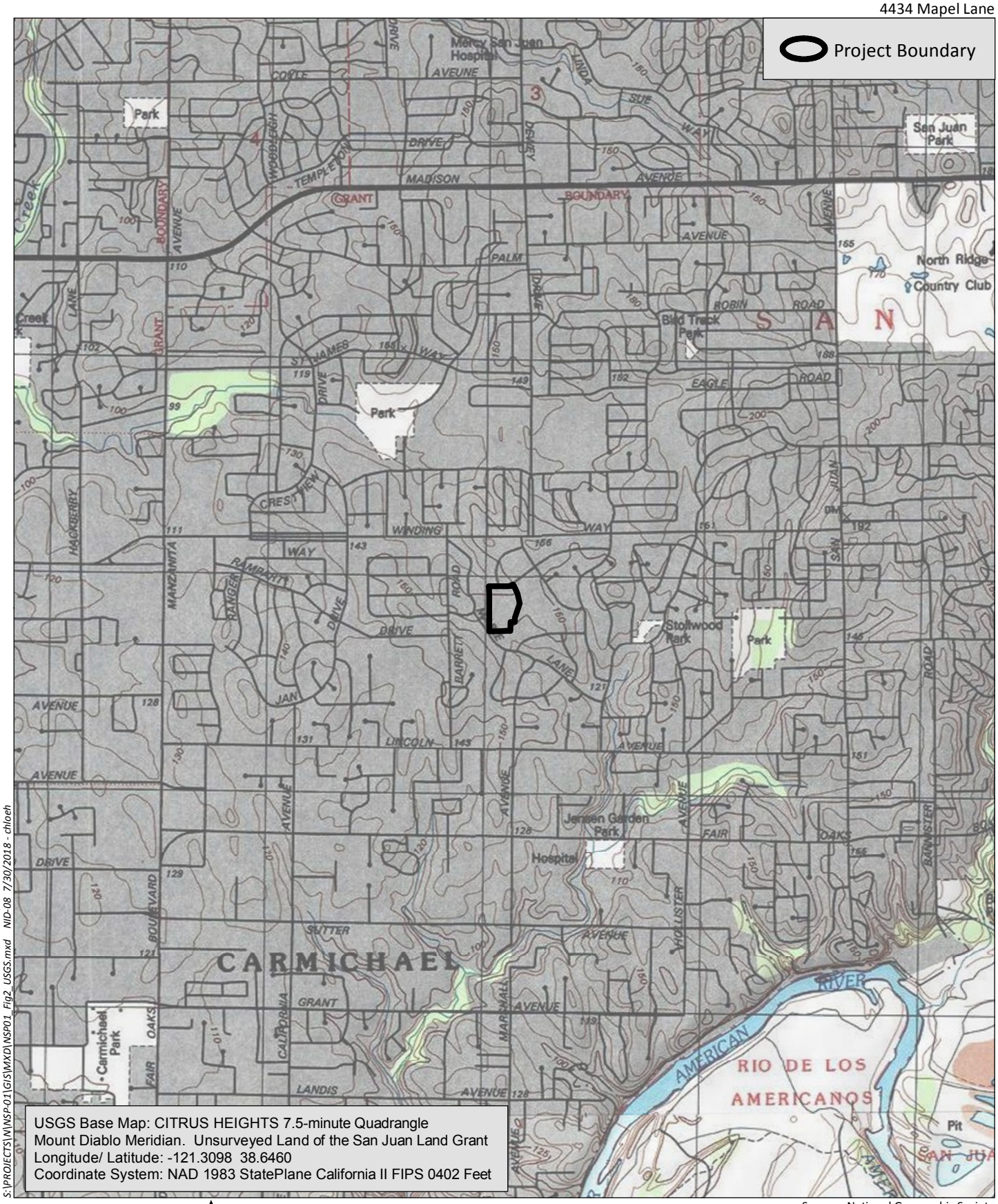
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HELIX Environmental Planning

Regional Vicinity and Project Location

Figure 1

4434 Mapel Lane



USGS Base Map: CITRUS HEIGHTS 7.5-minute Quadrangle
Mount Diablo Meridian. Unsurveyed Land of the San Juan Land Grant
Longitude/ Latitude: -121.3098 38.6460
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

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0 2,000 Feet

Source: National Geographic Society

HELIX Environmental Planning

USGS 7.5-minute Quadrangle Map

Figure 2

4434 Mapel Lane



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0 150 Feet

Source: USGS, NGA, NASA

HELIX Environmental Planning

Aerial Map

Figure 3

Appendix B

Resume

Kathleen A. Crawford
Consulting Architectural Historian

Summary of Qualifications
Ms. Crawford has 30 years of experience in the preparation of a wide range of historical and architectural projects. She meets the Secretary of the Interior Standards for Architectural History and History (36 CFR Part 61). She also meets the California Department of Transportation (Caltrans) standards as an Architectural Historian. She has extensive experience with 19th- and 20th-century architecture in California and has prepared over 12,000 historic and architectural assessments of structures in California for a variety of historical projects conducted for various types of city, state, and federal agencies. The majority of these projects required compliance with Section 106 of the National Historic Preservation Act. Ms. Crawford has extensive experience in the implementation of Section 106 in reference to historic buildings from all historic periods and architectural styles. The vast majority of these projects required preparation of California Department of Parks and Recreation (DPR) 523 forms for submittal to the State Historic Preservation Office. She has prepared several Historic American Building Survey (HABS) surveys and documentation over the years and has worked with the Secretary of the Interior's Standards for the Treatment of Historic Properties in the course of the historic and architectural evaluations. In addition, she has participated in the production of numerous cultural resources reports and assessments, environmental impact reports, and historic building surveys of potential historic districts in California, Arizona, and Kentucky. Ms. Crawford has been a lecturer in the History Department at San Diego State University since 1989, and her extensive teaching experience in U.S. History has aided her understanding of the historical assessment and evaluation process.

Education
Master of Arts, History, University of San Diego, 1987

Bachelor of Arts, History, University of San Diego1984

Bachelor of Arts, Anthropology, University of San Diego, 1984

Selected Experience
Crawford Historic Services, Historical and Architectural Consulting (1985 - Present). Sole proprietor of historical projects consulting service with clients including:

Michael Brandman and Associates, Irvine, California (2001 - Present). Ms. Crawford meets the Secretary of the Interior's Standards as an Architectural Historian and has prepared over 2000 Section 106 Compliance Reports for Historical and Architectural Assessments for Cell Tower sites in California, Nevada, Arizona, Texas, and New Mexico. All projects required Section 106 compliance level assessments and preparation of DPR 523 forms for the project sites and submittal to the State Historic Preservation Office for concurrence with the findings of effect. Clients include AT&T, T-Mobile, Verizon, Pacific Bell, and Cingular. Assessments include 19th- to 20th-century historic buildings (civic, hospitals, private residences, businesses, churches, schools), cemeteries, structures, telephone poles, water tanks, and steel lattice towers. Over 1,000 projects have taken place in Southern California. Over 500 of the projects have taken place in Northern California in Alameda, San Francisco, Sacramento, and San Jose counties.

- **Oakland International Airport, Oakland**. Preparation of Historic and Architectural Assessment of circa 1960s Airport Structures for National Register of Historic Places eligibility. January 2012.

- **California State Capitol Building Complex, Sacramento**. Preparation of Historic and Architectural Assessment of circa 1860s–1950s California State Capitol Building for installation of new cell tower service for entire State Capitol complex. April 2011

- **Independent Order of Odd Fellows Cemetery, Sacramento**. Preparation of Historic and Architectural Assessment of circa 1890s National Register-eligible historic Sacramento cemetery. January 2011

- **Leamington Hotel, Oakland**. Preparation of Historic and Architectural Assessment of circa 1920s National Register-eligible hotel in downtown Oakland. July 2010

- **East Bay Alliance Chinese Church, Oakland**. Preparation of Historic and Architectural Assessment of circa 1940s church complex. September 2010

- **Piedmont Apartments, Oakland**. Historic and Architectural Assessment of circa 1930s apartment complex, Oakland. December 2010

- **Sheraton Palace Hotel, San Francisco**. Preparation of Historic and Architectural Assessment of circa 1900 National Register-listed landmark historic hotel for cell tower construction, November 2010

- **Swedish American Hall, San Francisco**. Preparation of Historic and Architectural Assessment of circa 1890s National Register-eligible building for proposed cell tower placement. May 2010

- **Seton Medical Center, San Francisco**. Preparation of Historic and Architectural Assessment of circa 1950s Seton Medical Center for cell tower construction. August 2010

Publications

- Crawford, Kathleen A., "Fifty Years of the Journal of San Diego History," *Journal of San Diego History*, Fall 2006.

- Engstrand, Iris H.W. and Kathleen A. Crawford, *Reflections: A History of the San Diego Gas & Electric Company*, 1881–1991, Heritage Press: Los Angeles, 1991.

- Davie, Theodore and Kathleen A. Crawford, *A History of San Diego Trust & Savings Bank, 1888–1988*, San Diego Trust and Savings Bank: San Diego, 1988.

- Crawford, Kathleen A, *A History of the San Diego Transit Corporation, 1886–1986*, San Diego Transit Corporation: San Diego, 1986.

- Crawford, Kathleen A. "God's Garden: A History of the Grossmont Art Colony," *Journal of San Diego History*, Volume XX, Summer, 1985.

- Crawford, Kathleen A. and Bruce Kammerling, "The Serra Museum and its Collections, Some Reminiscences of Fray Junipero Serra,' Santa Barbara Mission Press: Santa Barbara, 1984.

- Crawford, Kathleen A., "The General's Lady: Maria Amparo Ruiz Burton," *Journal of San Diego History*, Volume XIX, Fall, 1984.

Appendix C

DPR FORMS

State of California ♦ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code Reviewer Date

Page 1 **of** 44 ***Resource Name or #:** (Assigned by recorder) 4434 Mapel Lane Carmichael
P1. Other Identifier:

*P2. **Location:** ☐ **Not for Publication** ■ **Unrestricted**
*a. **County** Sacramento **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
*b. **USGS 7.5' Quad** Citrus Heights **Date** 1996 **T** 9N ; **R** 6E **of** **Sec** 10 ; Mt. Diablo **B.M.**
c. Address 4434 Mapel Lane City Carmichael Zip 95608
d. UTM: (Give more than one for large and/or linear resources) Zone 10S, 647088.61 mE/4378849.12 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
APNs 247-0010-001, -008, and -009

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) See Continuation Sheets

***P3b. Resource Attributes:** (List attributes and codes) HP2 – Single Family Residence

***P4. Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) View East; July 2018

***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both 1875; Various Sources

***P7. Owner and Address:** Nicksam Properties, LLC PO Box 255526 Sacramento, CA 95865

***P8. Recorded by:** (Name, affiliation, and address)
Kathleen Crawford, M.A.
Crawford Historic Services
PO Box 634 La Mesa, CA 91944

***P9. Date Recorded:** July 17, 2018

***P10. SurveyType:** Reconnaissance

***P11. Report Citation:** Historical and Architectural Evaluation of 4434 Mapel Lane, Carmichael CA. Kathleen Crawford August 2018

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



***Attachments:** ☐NONE ☐Location Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) 4434 Mapel Lane Carmichael CA ***NRHP Status Code**

B1. Historic Name: Shelterwood/ O'Donnell Family Home
B2. Common Name: None
B3. Original Use: Residential/Single Family B4. Present Use: Residential/Single Family
***B5. Architectural Style:** Folk Victorian with queen Anne influences
***B6. Construction History:** (Construction date, alterations, and date of alterations)

The primary residence was built c. 1874-1875 and substantially altered in 1985. See Continuation Sheets for additional information

***B7. Moved?** ■**No** □**Yes** □**Unknown** **Date:** **Original Location:**
***B8. Related Features:** Sheds, outbuildings, tennis and basketball courts, hot tub, fountain

B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** N/A **Area** Carmichael
Period of Significance N/A **Property Type** Residential **Applicable Criteria** N/A (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

B11. Additional Resource Attributes: (List attributes and codes)

See Continuation Sheets

***B12. References:**

See Continuation Sheets

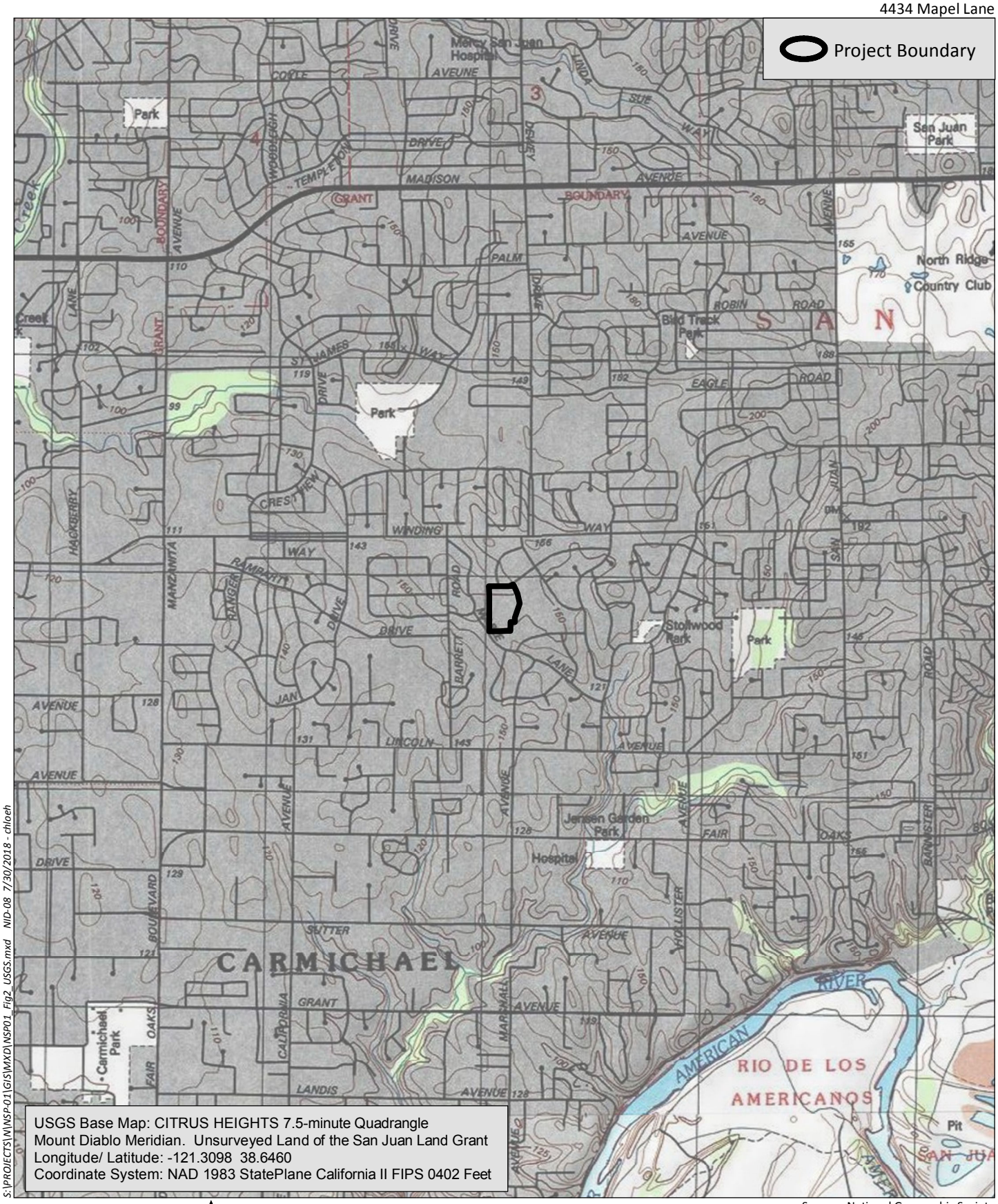
B13. Remarks:

***B14. Evaluator:** Kathleen Crawford, M.A.
***Date of Evaluation:** July 17, 2018

(Sketch Map with north arrow required.)

(This space reserved for official comments.)

4434 Mapel Lane



USGS Base Map: CITRUS HEIGHTS 7.5-minute Quadrangle
Mount Diablo Meridian. Unsurveyed Land of the San Juan Land Grant
Longitude/ Latitude: -121.3098 38.6460
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

S:\PROJECTS\N\NSP-01\GIS\MXD\NSP01_Fig2_USGS.mxd NID-08 7/30/2018 - chloeh

0 2,000 Feet

Source: National Geographic Society

HELIX Environmental Planning

USGS 7.5-minute Quadrangle Map

Figure 2

Resource Name or # (Assigned by recorder) 4434 Mapel Lane Carmichael
***Recorded by:** Kathleen Crawford/ Crawford Historic Services ***Date** July 2018 ☙
Continuation ☙ Update

1.1 ARCHITECTURAL DESCRIPTION OF 4434 MAPEL LANE, CARMICHAEL

The subject residence, named Shelterwood by the O'Donnell family, is sited on an approximately five-acre parcel addressed as 4434 Mapel Lane in the community of Carmichael in the County of Sacramento. The residential building consists of the original, two-story, c. 1874-1875 residence constructed by Phillip Sherry and the c. 1985, three-story addition constructed by Marc Turtletaub. The original residence comprised 2022 square feet of space; the c. 1985 addition added 5,483 square feet of space to the original residence, resulting in a residence that now totals 7505 square feet of space. In addition, there are multiple outbuildings, structures, and additional elements on the grounds of the property. The property currently contains a tennis and basketball court, a large hot tub structure, multiple sheds, several small buildings used for multiple activities, and eight storage buildings. None of these buildings or structures date to the period when the O'Donnell family owned the property. It appears that all the O'Donnell related buildings – barns, sheds, animal enclosures or other farm-related buildings and structures, were removed at an unknow time. The grounds contain numerous heritage trees, including oaks, eucalyptus, palm, and cypress trees.

1.2 ORIGINAL RESIDENCE – SHELTERWOOD

1.2.1 Exterior of the Shelterwood Residence

The original residence on the property was built in c. 1874-1875 by Phillip Sherry. The building is a two-story, Folk Victorian with Queen Anne influences style, single-family residence. The building consists of 2,022 square feet of living space.

West/Primary Elevation

Resource Name or # (Assigned by recorder) 4434 Mapel Lane Carmichael
***Recorded by:** Kathleen Crawford/ Crawford Historic Services ***Date** July 2018 ☉
Continuation ☉ Update



Photograph No. 1: West Elevation of c. 1875 Residence

The building is basically rectangular shaped and has a symmetrical primary elevation, painted wood horizontal siding exterior, a large wrap around porch on the four elevations, and a hipped roof with wood shake shingles, exposed rafters, and skylights. A chimney projects from the center of the roof area. The foundation of the building is wood piers. The front face of the area below the porch is faced with trellis siding. Simple wood steps lead to each of the elevations.

The west, or primary, elevation contains a large porch with a flat roof that is supported by pairs of wood, round, carved, columns with simple capitals and bases. The floor and ceiling of the porch are wood with dovetailed joining at the corners. Simple wood steps lead up to the front porch. Wood trellis type facing is present around the lower edge of the porch to hide the foundation elements. Non-historic ceiling lights have been added to the roof of the porch.

The primary elevation includes a centered entrance flanked by two pairs of large, wood framed, four-pane, double hung sash style windows. The main entrance includes a carved wood door with an oval stained-glass window in the center of the door. Brass hardware is present on the door and includes a small handle that turns and functions as the doorbell. A rectangular shaped, wood framed transom window is present above the front door. The transom contains a stained-glass window. Raised paneling is located on the side walls of the recessed entrance area. A decorative carved section with a tulip motif is present over the transom window and the other windows. This detail is repeated at various points around both the old and new sections of the residence. Small, metal lights are present on each side of the entrance door.

The north facing/south wall of the primary elevation forms an L-shape with the main portion of the façade and contains an additional entrance with a non-historic, carved wood door with stained glass

inserts and sidelights. A small wood box structure with multiple compartments is present on the front porch, presumably to store shoes. This appears to be a non-historic addition.

North/Side Elevation



Photograph No. 2: North Elevation of c. 1875 Residence

The north, or side, elevation includes the same detailing as seen on the primary elevation – open porch with flat roof, pairs of round columns, horizontal siding, and wood framed, multi-lite, double hung sash style windows. The west portion of the residence, both first and second floors, forms a block and includes the open porch that wraps around from the west elevation. The east half of the elevation steps back from this front section.

The second floor of the elevation is basically U-shaped as the center section steps back from the front of the façade. The second floor contains multiple window units that are wood framed, rectangular shaped, four-pane, double hung sash style windows. The ends of the building contain single windows; the center section contains two pairs of windows. The center of the wall contains a single window section which is located directly below a round window. A small, rectangular shaped, slider style window is present on the upper section of the north side wall. Carved detailing that matches the ground floor windows is present over the windows.

The ground floor includes a side entrance with a wood door with upper glass section. This door leads from the interior onto the porch. The major component of the east section of the ground floor of the side elevation is a large glass solarium structure which has been added to the north elevation. The glass walls are metal framed and are curved at the top of the walls to from a roof that attaches to the house

walls. This glass structure encloses the east half of the original open porch area on the north elevation. Doors are present into the solarium area from the east and west ends; a short flight of simple wood steps leads to the east entrance area.

The second floor of the north elevation includes multiple windows and a balcony. The west portion of the second floor over the wrap around porch area includes three, large, rectangular shaped, casement style windows. These non-historic windows have semi-circular arched window sections directly over each window. They are placed in a contiguous row. The east half of the second floor, the area directly over the solarium, includes a balcony with a turned wood railing, a slanted shed roof, and a wood framed, multi-lite French door which leads onto the balcony area.
Air conditioning units and skylights can be seen on the roof.

East/Rear Elevation



Photograph No. 3: East Elevation of c. 1875 Residence

The east, or rear, elevation, contains the same open porch details with wood columns supporting the flat roof, wood horizontal siding, and multiple single wood and glass door entrances. Some of the entrance doors have decorative carved wood screen doors at each entrance. Simple wood steps lead to the porch area. The same rectangular shaped, four-pane, double hung sash style windows are present. The windows have the same carved wood detailing over the windows as seen on the other elevations. The ceiling of the porch contains non-historic ceiling lights.

The second floor of the residence steps back, leaving a wide, flat porch roof expanse. The second floor contains multiple wood framed windows. Two of the windows are rectangular in shape with arched, fan

light window sections above the main, multi-light window. The other window is the same as seen on the other portions of the house – wood framed, rectangular shaped, double hung sash style with four panes of glass and the carved decorative section over the window.

South/Side Elevation



Photograph No. 4: South and East Elevations of c. 1875 Residence

The south, or side, elevation is the location of the large addition constructed in 1985. Only a portion of the original south elevation remains as approximately half of the west end of the south elevation was removed to facilitate the construction of the addition. The remaining east half of the south elevation contains the same exterior siding and open porch details. An additional single wood and glass door entrance is present at the juncture of the old and new portions. Wood stairs with a wood railing lead to the porch area and door entrance area. A large, three-sided, wood framed, full height, fixed pane, multi-lite window section is present on the side wall of the house. Three large window sections comprise this window element, creating a quasi-bay window effect. This area provides a wide viewing area from the dining area on the interior of the house. Double hung sash style windows with the same four-pane configuration, and the carved wood detailing, are present on the south wall.

The second floor is L-shaped. Each section contains a rectangular shaped, multi-lite window with an arched, fan light detail window over the lower portion. This L-shaped area attaches to the new addition on the upper floors.

1.2.2 Interior of the Shelterwood Residence

The interior of the residence includes many original features. As one enters the residence through the main entrance, it leads to a simple hallway with entrances to the parlor area and the rear of the house. A staircase with carved wood bannisters and carved spiral newel post is present in the entrance hall area. The doors are framed with carved wood moldings. The parlor contains a carved wood and marble fireplace placed on the diagonal across the corner of the room. The ground floor contains the parlor, dining areas, and a large kitchen with storage areas. The walls and ceiling are plaster; some walls are wallpapered with period designs. A room on the south end of the residence contains a mosaic tile floor with a shell border design. Chandeliers and period ceiling lights are present throughout the ground floor rooms. The kitchen has been remodeled and does not retain any of the original historic character of the interior.
The second floor contains multiple bedrooms and a bathroom. Similar wood detailing is present around the doors and windows but has been painted. Skylights are present over the various rooms and hallways. The bathroom has been completely remodeled and retains none of the original features.

1.2.3 Alterations to the Original Residence

West Elevation
The west elevation has undergone changes with the addition of what appears to an historic door, however, this door does not appear to be original to the home. The stained-glass transom window may also be non-original. The side entrance door is non-historic, and the opening has been enlarged to accommodate the door.

While no permits were located for many of the changes, it appears that the original windows have been changed out. The windows are in pristine condition, which is unlikely in a building that is 143 years old. The windows were replaced with windows that appear to replicate the original windows.
Ceiling lights were added to the porch ceiling. The small shoe storage compartment was added. The trellis facing around the porch bottom was added.

The roof has been re-roofed with wood shake shingles. Also, numerous skylights were added to the roof. Air conditioning units are present on the roof.

North Elevation
The ground floor of the north elevation has been altered by the construction of the metal and glass solarium which obscures the original open porch. New casement windows were added. The window openings appear to have been altered to accommodate the semi-circular fan light detail. The windows on the ground floor also appear to have possibly been changed due to deterioration.
The trellis facing was added to the porch base.

East Elevation

The rear elevation appears to have undergone the same door and window changes as seen on the other elevations. Screen doors were added to the door openings. The second-floor windows have been changed out with non-historic windows with arched detailing. Trellis facing was added to the base of the porch.

South Elevation

The west half of the south elevation was removed to accommodate the construction of the 1985 Turtletaub addition. The original south wall on the remaining portion of the façade has been altered by the construction of the large, three-sided, full-height, multi-lite windows, creating a bay window effect. A new staircase with a wood railing has been constructed to reach the west end entrance into the side of the residence.

The second-floor windows have been replaced with non-historic windows. The windows are a different shape than the originals, requiring a reshaping of the original openings.

1.3 TURTLETAUB ADDITION

Marc and Paula Turtletaub purchased the residence in 1985 and were responsible for the construction of the large addition that was constructed on the south elevation of the original residence in c. 1985-1986. The addition includes 5,483 square feet of space and consists of a three-story section with multiple rooms, a three-story elevator on the rear of the building, and a four-story tower section on the primary elevation.

The building has horizontal wood siding, similar to the original residence. The addition features many curvilinear design elements which are displayed in the window treatments, the curved balconies, balcony railings, and the tower design. A chimney is present on the north elevation. The building has a hipped roof with shake shingles. Skylights are present within the roof system.

West/Primary Elevation

Resource Name or # (Assigned by recorder) 4434 Mapel Lane Carmichael
***Recorded by:** Kathleen Crawford/ Crawford Historic Services ***Date** July 2018 ☉
Continuation ☉ Update



Photograph No. 5: West Elevation of Turtletaub Addition

The west, or primary, elevation contains numerous components on the various levels of the residence. The main entrance is centered on the west elevation and contains a carved wood door with stained glass inserts and rectangular transoms. The entrance is recessed under an open porch area. The roof of the porch is supported by pairs of round, wood columns with simple capitals. The underside of the porch roof contains exposed rafters. A secondary entrance with glass panels is located north of the main entrance. Metal lights are present at various points along the ground floor elevation.
The dominant feature of the west elevation is a four-story, round tower with fish scale shingles. The upper portion of the tower includes a round, metal railing and small balcony area. Windows are present on each level of the tower and the windows contain the same carved detailing as seen on the original residence windows.

The second floor contains multiple windows which match the rectangular shaped, four-pane, double hung sash style windows on the original residence. Balconies with turned wood railings are present on both the second and third floors. Large equipment units are present on the roof system.
A small dormer window with a front gable roof and decorative carving is present on the roof of the west elevation. A cupola style element is present on the top of the tower and includes dormer style windows.

<u>South/Side Elevation</u>

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Photograph No. 6: South Elevation of Turtletaub Addition

The south, or side, elevation includes two short sets of stairs, one at the west end to access the front porch area, and the other at the east end of the elevation to provide access to the rear elevation. The south side of the porch section has a curved roofline.

The ground floor of this elevation contains two large, rectangular shaped windows, flanking a smaller, vertically oriented window with multiple lights. The window on the west end of the façade contains multiple panels and arched detailing at the top of the window. The window located on the east section of the façade is a curved, bay window with multiple windows with multiple lights.

The second floor contains a wood balcony with a turned wood railing. The balcony extends along the width of the façade and is supported by wood braces. Access to the balcony is from a bathroom with a hot tub on the second floor. A large bay window with multiple lights is present on the east end of the façade; a rectangular shaped, multi-lite window with carved detailing is present in the middle of the façade; a large section houses a sauna and steam room; and a dark wood framed, multi-lite door is present on the west end of the elevation.

The third floor contains two large, curved balconies with turned wood railings and wood supports. Rectangular shaped, multi-light windows are present along the elevation. Two front gable roof sections project above the main roof line above the rectangular window sections.

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***Recorded by:** Kathleen Crawford/ Crawford Historic Services ***Date** July 2018 ☙
Continuation ☙ Update

East/Rear Elevation



Photograph No. 7: East Elevation of Turtletaub Addition

The east, or rear elevation contains an open porch on the ground floor with a flat roof supported by round columns with simple capitals. Arches fill the spaces between the columns. Large, wood framed, French doors lead onto the porch from the interior. A large, wood framed window with multiple lights is present on the ground floor of the rear elevation.

A three-story elevator with a fish scale shingle pattern is present at the southeast corner of the elevation. The elevator is housed in a square shaped structure and extends up the side of the rear elevation. A wood staircase with turned wood railing wraps around the various elevations of the elevator. Each level ha a landing to access the interior of the house.

North/Side Elevation



Photograph No. 8: North Elevation of Turtletaub Addition

The second and third floors have large balconies with turned wood railings. Multi-lite French doors lead onto the balconies from the interior. The second-floor balcony has round wood columns to support the third-floor balcony. Arches separate the columns and match the ground floor column detail. The second-floor balcony is rectangular shaped; the third-floor balcony is curved.

The third-floor balcony is covered by a front gable style roof. A large ceiling fan and electric lights are present over the third-floor balcony.

The north, or side, elevation has two components. The west half of the north elevation is not present as this is the location of the addition and the north wall opens into the original residence. The east half of the elevation contains a side entrance door. The door leads onto a small brick terrace which is covered by a flat, semi-circular roof. The roof contains horizontal wood supports constructed in a fan shape and this portion is covered with screen. Underneath this roof section is a large bay window with wood framing and multiple windows.

The upper floors contain large, rectangular shaped, multi-lite window sections. A front gable roof is present at the top of the third floor.

1.3.1 Interior of the Turtletaub Addition

The Turtletaub Addition includes multiple rooms used for multiple purposes as living spaces. The ground floor contains an open area accessed from the original residence. An entry hall with black marble columns is present and is accessed by the secondary front door or the non-historic door on the south wall of the original residence. From this area, one steps down marble steps into a large room with gold incised columns. This room contains the main entrance into this portion of the resident. This large

space is basically divided into a U-shaped space by the presence of a wet bar area with an L-shaped counter, preparation areas, and storage spaces. This room has a large, recessed, dome shaped, stained glass window with ornate designs. The area on the back of the bar section on the east side of the room contains a wood and black marble fireplace. Multiple doors lead onto the north and east porch areas. A narrow, curving staircase leads from the ground floor to the second level. This staircase contains a small window in the east wall and is painted with a mural of Italy. The staircase opens out into the second-floor landing.

The second floor contains multiple rooms including three bedrooms, a bathroom, an additional bathroom with a hot tub and an adjacent outdoor sauna/steam room reached by the outside balcony, and a library. The bedroom at the rear of the second floor contains a fireplace, wood French doors leading onto the east elevation balcony and multiple lighting fixtures (13 to be exact). The other bedrooms contain large Murphy beds and one is used as an office as well. The library has a large marble fireplace with carved Egyptian figures supporting the mantle. An additional marble figure is located in the main hallway outside the library. The south wall of the library contains floor to ceiling bookshelves with a library ladder and light fixtures. The west wall contains a large multi-lite window and the curving staircase of the tower which leads to the upper levels of the tower. The north wall of the library contains wood bookshelves that disguise a secret opening in the bookshelves. When the bookshelves are opened, it leads into a laundry room space. A staircase leads from the library to the upper floors. The third floor contains more bedrooms, a space used for massage purposes and additional bathrooms.

1.3.2 Alterations to the Turtletaub Addition

A variety of permits were filed for additions and renovations for several years in the 1990s. Some of the permits and available drawings detail the complete renovation of the kitchen which is located in the original residence. Not enough detail was provided in the available permits to determine which changes happened to which section of the residence. The exterior of the Turtletaub addition appears to be basically intact, without any major changes noted. However, due to the lack of documentation available, changes may have been made from the original design which are not apparent upon visual inspection.

1.3.3 Outbuildings and Additional Structures

There are a number of outbuildings on the subject property in the eastern portion of the property. None of the buildings appear to be of historic age. No original building permits were located for any of the buildings or structures on this portion of the property.

A fenced tennis court and basketball court is located north of the residence. This tennis court was constructed by the Turtletaub family in 2002.

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Two, small, rectangular shaped, one-story, out buildings are located on the south side of the residence. The buildings have wood shingle exteriors, shed style roofs, and metal framed windows that vary in size and shape. The buildings are in poor condition.

A group of eight, wood, one-story, rectangular shaped storage buildings are located at the southeast corner of the property. These buildings have wood walls, gabled roofs, and wood floors. The buildings are numbered from one to eight. The buildings appear to be in good condition.

A two-story building is located directly east of the residence, a short distance from the back-porch area. The building is rectangular in shape with wood exterior siding, a gambrel roof system, and a wood staircase leading to the second-floor area. A large open shed area is attached to the rear of the structure and is filled with outdoor equipment. The shed has a wood roof with wood supports and is open on three sides. The building appears to be in poor condition.

A small wood shed is located behind the two-story building. The one-story, rectangular shaped wood shed has a gabled roof and wood walls. The shed appears to be in good condition.

A tall, wood framed, hot tub structure is present to the north of the gambrel-roofed residence. The hot tub rests on a concrete slab. It is unclear if the hot tub is functional at this time. It appears to be in fair condition.

A small, one-story, rectangular shaped out building is present to the north of the hot tub in the area behind the original residence. The building has wood framed windows, a gable roof, red painted wood horizontal siding exterior and multiple entrances. The interior of the building contains mirrored walls, a pool table, and a disco ball hanging from the ceiling. The building has been altered extensively and is in fair condition.

An additional storage shed is located in the northeast area of the property behind the original residence. The wood shed is rectangular shaped, with a gable roof and wood walls. Large equipment is present in front of the shed. The shed appears to be in fair condition.

An additional storage shed, painted white, is present near the northeast corner of the house. This structure has wood walls, a gable roof and wood entrance doors. The building is in fair condition. A fenced, wood structure that appears to have been used for chickens or other types of poultry is present behind the shed. The structure is in poor condition.

A circular, concrete foundation is present behind the house and is located near the rear elevation. The fountain has multiple levels of water basins. The fountain is encircled with curved concrete benches.

Resource Name or # (Assigned by recorder) 4434 Mapel Lane Carmichael
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1.4 OWNERHSIP INFORMATION

The original residence on the property was built in c. 1874 by Phillip Sherry, according to the family history completed by Jim O'Donnell and the document prepared by Ed Muldrow in 1939. The information contained in the document prepared by Ed Muldrow stated that the residence had been constructed in 1875. No other information was located regarding Mr. Sherry or his time of residency on the property. The property, including the original residence and 160 acres of land, were purchased from Phillip Sherry by Edward J. O'Donnell Sr. in 1898, according to the O'Donnell family history.

The property was held by Edward J. and Lucy O'Donnell Sr. who raised wheat on the 160 acres. The O'Donnells had four children – Edward Jr, Alice, Rosalie, and Della. Eventually, in the 1940s, the farm passed to the O'Donnell's son, Edward J. O'Donnell Jr. and his three sisters. Each of the four siblings received a quarter-share of the land. Edward O'Donnell Jr. received the quarter-share of the original 160-acre property that included the main family home, Shelterwood, and the surrounding outbuildings. The sisters each sold their individual quarter-shares, thereby removing 120 acres from the ownership of the O'Donnell family. A portion of the property, approximately 25 acres, held by Edward O'Donnell Jr. was sold to Thomas Mapel, a local Carmichael real estate developer, in 1949. Mapel proceeded to build a housing tract on the former O'Donnell property.

In the early 1960s, the San Juan Unified School District was in a process of expansion due to a rapid rise in local population. The District took approximately ten acres of the O'Donnell farm through a process of eminent domain for the construction of a new school. The school was never built, and the land was not returned to the O'Donnell family but, instead, was transferred to the Carmichael Recreation and Parks Department. The approximate ten-acre parcel is currently used as the O'Donnell Heritage Park. The Park contains a gravel nature path, a butterfly garden, a playground, a picnic area, drinking fountain and stone marker.

According to the O'Donnell family history document referenced IN THIS REPORT, Edward O'Donnell, grandson of Edward J. O'Donnell Sr., took possession of the c. 1874-1875 Shelterwood residence and the remaining five acres of land with his wife Eve and their four children in 1965. The O'Donnells spent several years renovating and remodeling the home, with materials either salvaged from local homes or elements that they constructed themselves to replace missing pieces of the c. 1874-1875 residence. Various permits were filed in the 1960s for their remodeling projects and the O'Donnell family history document also comments on their efforts.

Edward and Eve O'Donnell sold the original residence and the remaining five acres of land to Marc and Paula Turtletaub on October 16, 1985. (Sacramento County Recorder Office document). Marc Turtletaub owned the family business, The Money Store, a money lending operation specializing in real estate loans. Mr. Turtletaub operated the business from a large ziggurat style building designed by

Edwin Kado in Sacramento. Mr. Turtletaub sold the business in 1998 and now is a producer and director of independent films.
Over the next several years, the Turtletaubs embarked on the construction of a massive addition to the original residence. The Turtletaubs constructed a 5,483 square foot, three-story addition with a four-story tower, a three-story elevator and numerous rooms. The addition was added to the original building on the south elevation which resulted in removal of a large portion of the original c. 1874-1875 south façade. The construction project was estimated to have cost $9.2 million. No architect or contractor were identified as the persons or firms responsible for the design and construction of the addition to the original residence (Dunbar, n.d.).

According to the Sacramento County Assessor Office, the following owners held the subject property. On November 30, 1966, Edward and Eve O'Donnell became the owners of the family property. The O'Donnells sold the property to Marc and Paula Turtletaub on October 16, 1985. The Turtletaubs transferred the property into the Paula Turtletaub Trust in 2001. At this time, the Turtletaubs official residence was listed as 425 California Street, San Francisco, California. The Turtletaubs sold the property to the Bella Propriedad LLC on May 8, 2012.

On June 8, 2015, the Bella Propriedad LLC sold the property to Sunmark Capital LLC. On December 1, 2017, Nicksam Properties LLC acquired the property and remains as the current owner.

1.5 CONSTRUCTION HISTORY

Given the original rural nature of the property, and the limited government control over properties prior to the 1950s, no original building permits were filed for the property. Later changes to the building were probably also never formally recorded and were simply done by the O'Donnell family as they moved through their renovation process. No documents were located for the original construction of Shelterwood, few of the renovations and changes made by various members of the O'Donnell family over the decades, or the large-scale addition and renovation undertaken by the Turtletaubs in c. 1985-1986.

The single-family residence was constructed in two parts: the original two-story home was built in c. 1874-1875; and a three-story addition was constructed in 1985. According to the Assessor's records, the ground floor of the original residence contains 1230 square feet; the upper floor area comprises 792 square feet. The square footage of the "additional area" (the c. 1985 addition) listed in the record states that it contains 5,483 square feet of space. The total living area of the combined residence is listed as 7505 square feet. The residence contains nine bedrooms, eight bathrooms, one dining room, one family room, and nine miscellaneous rooms. The residence contains three fireplaces, one in the original residence and two in the addition.

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The residence does not contain a basement or a garage structure. In addition to the main residence, the property contains multiple outbuildings. These buildings include a small residential structure, approximately fourteen storage/shed buildings, a hot tub, and a combined tennis court and basketball court.

No architect or contractor was located for the construction of the original c. 1874-1875 residence. Due to the rural setting, and the realities of the late 19th century, it is presumed that Phillip Sherry most probably designed and constructed the residence. Given the communal nature of farming communities, it is likely that he received assistance from other area residents, but no information was located to determine how the residence was constructed or who was responsible for its design and construction. According to the Assessor's records, the effective year built for the main residence is 1990 which clearly reflects the c. 1985 addition to the original residence.

The Sacramento County Assessor's Residential Building Record includes the following information about the subject property. The Residential Building Record uses the year 1880 as the construction date for the original residence. The building is listed on the Record as two stories with a pier foundation, a hipped roof with shingles, and double hung sash style windows. The building is of standard frame construction. Fixtures are listed as standard. The residence has hardwood of tongue and groove grade and vinyl floor, combined with carpet. Walls and ceilings are plaster with wallpaper on many walls. The appraiser's notes dated January 24, 1969, state that the valuation of the land is $35,000 and the value of the residence or "improvements" is $1000.00 for a total property value of $36,000.

Additional records provided by the Assessor state the following information regarding "improvements" to the property. The "Miscellaneous Records" include the following data.

A Tack Room is listed as having a 14' footprint, a slab foundation, wood exterior siding, gable roof with shake shingles, and was built in 1972. A Storage Room, with a wood exterior, and a14 x 42 configuration, was built at an unknown time. A Vehicle Storage structure, 30 x 22, with a dirt floor was built at an unknown time. A Tank Storage House, 12 x 22, with a slab foundation, frame construction, wood siding, hip roof with shingles, and a dirt floor was built in 1900. A Tennis Court and Basketball Court, each 74 x 42, with a slab foundation and slab floor, were built in 2002.

The Residential Building Record included the information that permits were filed for the property. Permit #5111522 dated September 26, 1965 was filed for changes to the building. The valuation was $5913. No information was included as to the nature of the changes.

An additional permit, with no identifying number, was filed on June 1, 1967 for a "RENOV." No valuation was given or further information as to the renovation project.

Permit #5120114 was filed on August 21, 1968. No valuation or project information was listed.

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Permit #RB064862 was filed on December 4, 2004. The valuation was $24,000 for the project and no other information was listed.

The Record addresses the addition to the original building. The Record states that Permit #CBN19900351 was filed on January 20, 2000 for an "ADD" which was valued at $43,000. The Effective Year was listed as 2006.

Permit #RB068021 was filed on June 5, 2007. The valuation was listed as $1000.00 with no further information listed as to the scope of the project.

The following information was taken from the Assessor's Records regarding the Turtletaub Addition. The construction is "standard," with a concrete foundation, a hip roof with shingles, and double hung sash style windows. Plumbing, heating, air conditioning, and electrical elements are of standard construction. The interior contains hardwood, marble and vinyl, and mosaic tile floors. The ceilings are nine feet. The addition has two wet bars and a central vacuum system. No information was located regarding the individuals or firm responsible for the design and/or construction of the Turtletaub addition.

1.5.1 Additional Construction/Permit History

The files of the Sacramento County Assessor's Office and the files of the Sacramento County Building Department were accessed for information related to the subject property. These files are presumed to relate to the Turtletaub addition of the mid-1980s and later construction projects.

The Sacramento County Assessor Office records include the following permits for the property. The Assessor Office stated that other permits may have been filed for the property but were not listed in their files at the time of retrieval of the following documents.

A permit was filed on November 20, 1999 for an "addition (Case No. RBO648620)." No further information was available regarding the size, location or configuration of the "addition." A "miscellaneous plumbing permit was filed at the same time, with no further information regarding the project. The property owner was Marc Turtletaub.

A permit was filed in November 1999 for "water heater piping (Case No. RMO317450)." The property owner was Marc Turtletaub.

A permit was filed on January 20, 2000 for a "structure for generator/chiller area 8 (Case No. CBN2000-00043)." The property owner was Marc Turtletaub.

A 10' electric light pole was installed on the property in May 2004 (Case No. RBO708760). The property owner was Marc Turtletaub.

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On December 22, 2015, a permit was filed for "RES – 5 Inspection, kitchen remodel, like for like hall, bathroom remodel, sink to move to opposite wall, adding pass through door to laundry. Master bathroom remodel, remove spa, tub, add double sink with tub/shower and fill in pocket door with wall (Case No. CBAR2015-01309). The property owner was Marc Turtletaub.

On January 6, 2016, a permit was filed for "A Boundary Line adjustment for parcels 247-0010-008, and 247-0010-009 (Case No. PLNB2016-0004)." The property owner was Sunmark Capital LLC.

On January 25, 2016, a permit was filed for a "residential 3 inspection tear off/reroof existing sheathing 12 squares of wood shakes this only partial part of roof (Case No. REROOF2016-00088)." The property owner was Sunmark Capital LLC.

On December 8, 2017, a permit was filed for "A Tree Permit to Remove (3) dead Oaks and Prune (1) Blue Oak (Case No. TREE2017-00624)." The property owner was Nicksam Properties LLC.

On January 30, 2018, a permit was filed for a "pre-application meeting to propose a subdivision of approximately 5 acres limited to ten lots with surrounding open space (Case No. PAMP2018-0008)." The property owner was Nicksam Properties LLC.

On May 10, 2018, a violation was filed for removal of multiple native oaks (Case No. TREE201800199). The property owner was Nicksam Properties LLC.

Permits located at the Sacramento County Building Department included the following information. A permit was filed on February 2, 1990 by property owner Marc Turtletaub for a "service change." The construction valuation was listed as $0.00 and no contractor information was included (Case No. RM0033660).

A permit was filed on July 13, 2004 by property owner Marc Turtletaub for an "addition" to the residence. The construction valuation was listed as $3,000.00. The permit was also listed as "expired" and no contractor was listed for the project (Case No. RB0854090).

A permit was filed by property owner Marc Turtletaub on May 19, 2004 for the construction of a "10 fence elec/light pole" with a construction valuation of $0.00. No contractor was listed (Case No. RB0708760).

A permit was filed on December 22, 2015 by property owner Sunmark Capital LLC for "RES – 5 INSPECTION – kitchen remodel, like for like, hall bathroom remodel, sink to move to opposite wall, adding pass through door to laundry, master bathroom remodel, remove spa tub, add duel (sic) sink with tub/shower, and fill in pocket door with wall." The construction valuation for these changes was

$30,000.00. The contractor was listed as "owner/builder." Case No. for this project was CBAR2015-01309.

A permit was filed on January 25, 2016 by property owner Sunmark Capital LLC for "residential – 3 inspections tear-off/reroof existing sheathing 12 squares of wood shakes, this only partial part of roof." The construction valuation for the reroofing project was $4,140.00 and the contractor was listed as California Cool Roofing and Demo (Case No. RERR2016-00088).

1.6 HISTORIC MAPS AND AERIAL PHOTOGRAPHS

The evolution of the subject property was reviewed on Historicaerials.com. Historic aerial photographs (1947, 1957, 1964, 1966, 1993, 1998, 2002, 2005, 2009, 2010, 2012, and 2014) and historic USGS quadrangle maps (1902, 1910, 1911, 1952, 1956, 1957, 1965, 1969,1977, 1978, 1980, 1984, 1997, 2012, and 2015) were reviewed for information related to the subject property. In addition, the online map files provided by the Fair Oaks Historical Society were also reviewed for additional information regarding the subject property.

The 1947 aerial photograph shows the original c. 1875 residence in place at its current location. Surrounding the property on all sides are agricultural fields, clearly delineated. Orchards are present at some distance from the residence on the east side and may not be located on the O'Donnell property. The property is clearly a working, well established farm property.

The 1957 aerial photograph shows changes to the property. The property is still primarily agriculture, but some roads have been built through the general area. It appears that the 25 acres purchased by Thomas Mapel in 1949 now are the location of multiple single-family residences.

The 1964 aerial photograph shows that the agricultural use of the property has been essentially terminated. The Shelterwood residence now appears as an island in the midst of new streets and extensive housing development in the surrounding area. By this time, the 120 acres sold by the three sisters previously have been built on with new housing tracts, additional streets, and significant landscaping. The five acres surrounding the original house are basically open land, but it does not appear that any type of significant agricultural use of the property is taking place. The 1966 aerial photograph shows even more dense infill development of the former O'Donnell acreage with additional streets and homes.

The 1993 and 1998 aerial photographs show the acceleration of the infill process with extensive and dense development of the area surrounding the original residence. The property, now owned by the Turtletaubs, is shown as an island with more vegetation in the midst of very dense infill development. The large addition built by the Turtletaubs in the mid-1980s is present in the photographs. However, the vegetation is dense, and it could not be determined which outbuildings were present on the property.

The remaining aerial photographs, from 2002-2014, show the same patterns on the property and surrounding area. Dense infill development was combined with increased vegetation which obscures much of the detail of the subject property, in addition to the surrounding area.

The USGS maps confirm the information seen on the historic aerial photographs. The original residence appears on the 1902 quadrangle map and remains in its current location through the entire series of maps. The area is agricultural with no roads appearing until the 1952 map. An unpaved road leads into the subject property and is seen on the maps up until the 1969 map when Mapel Lane has been added to the area. Originally the lane was spelled "Maple," not the current Mapel. The name was changed to the current spelling in 2012.

The Fair Oaks Historical Society maps show general delineations of the former rancho properties and provide basic contextual information for the subject property. However, no specific information related to the subject property was gleaned from the map collection.

2.0 APPLICATION OF SIGNIFICANCE CRITERIA

2.1 RURAL HISTORIC LANDSCAPE DISCUSSION

Evaluation of the subject property as a potential "rural historic landscape" is part of the overall historic and architectural assessment of the property. The following information was taken from the National Register Bulletin, *Guidelines for Evaluating and Documenting Rural Historic Landscapes*.

As defined by the Bulletin, a "rural historic landscape" is "one of the categories of properties qualifying for listing in the National Register of Historic Places as a site or a district." For the purposes of the National Register, a rural historic landscape is defined as *the geographical area* that has historically been used by people, or shaped or modified by human activity, occupancy, intervention, and that possesses a significant concentration, lineage, or continuity of areas of land use, vegetation, buildings, structures, roads and waterways, and natural features."

2.1.1 Types of Rural Historic Landscapes

Rural historic landscapes usually fall within one of the following types based upon historic occupation or use:
*Agriculture (including various types of cropping or grazing)
*Industry (including mining, lumbering, fish-culturing and milling)
*Marine activities such as fishing
*Shellfishing, and shipbuilding recreation (including hunting or fishing camps)
*Transportation systems
*Migration trails

*Conservation (including nature reserves)
*Sites adapted for ceremonial, religious, or other cultural activities, such as camp meeting grounds.

The subject property, located at 4434 Mapel Lane, Carmichael, Sacramento County is a former farmstead property. According to historic records, the owners raised wheat on the original 160 acres. None of the other types of rural historic properties apply to the subject property. The property was used for farming purposes from the 1870s to approximately the 1950s. The property now includes approximately 5 acres of the original 160-acre farm. The main building on the property is a 7,505 square foot, single-family residence. The original residence, approximately 2000 square feet, was built in c. 1875, and was significantly altered by the construction of a 5,000 square foot addition in c. 1985. No buildings or structures that date to the period in which the property was used as a working farm are still extant.

2.1.2 Characteristics of the Rural Landscape

A classification system of eleven characteristics have been developed for reading a rural landscape and for understanding the natural and cultural forces that have shaped it. Landscape characteristics are the tangible evidence of the activities and habits of the people who occupied, developed, used, and shaped the land to serve human needs; they may reflect the beliefs, attitudes, traditions, and values of these people.

The first four characteristics are processes that have been instrumental in shaping the land, such as the response of farmers to fertile soil. The remaining seven are physical components that are evident on the land, such as barns or orchards. Many, but not all, rural properties contain all eleven characteristics. When historic processes are linked to existing components, the rural landscape can be viewed as a unified whole.

2.1.3 Landscape Use and Activities:

Land uses are the major human forces that shape and organize rural communities. Human activities such as farming, mining, ranching, recreation, social events, commerce, or industry, have left an imprint on the landscape. An examination of changing and continuing land uses may lead to a general understanding of how people have interacted with their environment and provide clues about the kinds of physical features and historic properties that should be present.

Topographic variations, availability of transportation, the abundance or scarcity of natural resources (especially water), cultural traditions and economic factors influence the ways people used the land. Changing land uses may have resulted from improved technology, exhausted soil or mineral deposits, climatic changes, or economic conditions, as well as previous successes or failures. Activities today may reflect traditional practices or be innovative, yet compatible adaptations of historic resources.

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The subject property was used as a farm for approximately 7-8 decades from the 1870s to, possibly, the early 1950s. A review of historic aerial photographs and historic maps indicates that the property was used as a farmstead for many decades. The photographs clearly show the delineation of the fields and the arrangement of the fields. However, by the early 1960s, aerial photographs show that the agricultural use of the land has been terminated. Large sections of the original farmstead have been converted to housing tracts.

During the 1940s, with a change in ownership to the next generation of family members, 120 acres of the original 160 acres were sold. In addition, the family member who inherited the original family home and forty acres, Edward J. O'Donnell, grandson of the original Edward J. O'Donnell Sr., sold twenty-five acres of his inherited forty-acre parcel to local real estate developer, Thomas Mapel. Mapel built housing tracts on the land. An additional ten acres was taken in an eminent domain process for the purpose of building a new school which was never built. The ten-acre parcel is now used as a local park. What remains of the original farmstead is a five-acre parcel.

This five-acre parcel currently contains a large, single-family residence constructed in two time periods. The original residence was built in the 1870s; the large addition was built in the 1980s. The original residence has been substantially altered with both the over-large addition, and replacement or repair of its original design features. The original building has lost all integrity of design and does not reflect a c. 1870s residence. A survey of the property did not indicate the presence of any barns, outbuildings, or other structures related to the period in which the property operated as a working farm. While a variety of outbuildings are present on the property currently, it does not appear from visual inspection and a review of the available records that any of the buildings or structures relate to, or date to, the period in which the property was a working farm.

As a result of the initial clearing of the land in the 1870s to begin farming, whatever natural terrain elements were there would have been reduced or eliminated. The land is essentially flat with large native oak trees. It does not appear that there was a local water source on the original property. The property is located too far from the American River for it to be used as a water source. There was no evidence of any type of irrigation system or water procurement system on the property at the present time. Also, no evidence of these types of systems was evident in the historic maps and photographs. It is assumed, given the information in the various historical record, that dry farming and reliance on the weather to provide water was how the property was irrigated.

The elements that would define this property as a historic rural environment, a c. 1870s-1950s working farm, no longer exist. All elements of an early working farmstead appear to have been removed in the process of building tract houses on the original acreage, the construction of the c. 1980s addition, and the construction of the current outbuildings.

2.1.4 Patterns of Spatial Organization:

The organization of land on a large scale depends on the relationship between major physical components, predominant landforms, and natural features. Politics, economics, and technology, as well as the natural environment, have influenced the organization of communities by determining settlement patterns, proximity to markets, and availability of transportation.

Organization is reflected in road systems, field patterns, distance between farmsteads, proximity to water sources, orientation of structures to sun and wind. Large-scale patterns characterizing the settlement and history of a rural area may remain constant, with individual features, such as buildings and vegetation, changing over time.

The current organization of the property reflects a random, haphazard, unplanned arrangement of elements. No elements from the working farmstead or the spatial relationship of the barns, livestock areas, outbuildings, and other elements necessary to successfully farm 160 acres, have remained. The original 155 acres have been obliterated with massive changes to facilitate the construction of housing tracts. The land has been extensively graded, natural vegetation has been removed, and virtually nothing remains of the original farmstead. The five-acre parcel that remains contains the original residence which has lost all integrity, and the various outbuildings and elements are of non-historic origin. These elements were placed on the land with no attempt at a coherent organization of the elements for use or logical placement of these elements. There are no road systems, connections to other farms of the era, connection to water systems or other elements that remain. The property has lost all the historic elements that would define a c. 1870s working farm

2.1.5 Response to the Natural Environment:

Major natural features, such as mountains, prairies, rivers, lakes, and grasslands, influence both the location and organization of rural communities. Climate, similarly, influences the siting of buildings, construction materials, and the location of clusters of buildings and structures. Traditions in land use, construction methods, and social customs commonly evolved as people responded to the physiographical and ecological systems of the area where they settled.

Early settlers frequently depended on natural resources, such as water, for transportation, irrigation, or mechanical power. Mineral or soil deposits, likewise, determined the suitability of the region for particular activities. Available materials, such as stone or wood, commonly influenced the construction of houses, barns, fences, bridges, roads and community buildings.

None of the elements listed above that commonly define a working farmstead property are present, at this time, on the subject property. All early elements that would have connected the property to the natural environment, transportation networks, water systems, other community developments, and natural resources such as water that would be essential, are no longer in existence. The changes to the

land over time have removed elements that were possibly present on the property, but no evidence remains of these early elements or their connections to the larger community or the natural environment in any way.

2.1.6 Cultural Traditions:

Cultural traditions affect the way the land was used, occupied and shaped. Religious beliefs, social customs, ethnic identity, and trades and skills may be evident today in both physical features and use of the land. Ethnic customs, predating the origins of a community, were often transmitted by early settlers and perpetuated by successive generations. Others originated during a community's early development and evolution. Cultural groups have interacted with the natural environment, manipulating and perhaps altering it, and sometimes modifying their traditional responses to it.

No evidence was located to indicate that the subject property represented any specific cultural traditions, religious practices, ethnic identities, social customs, or trades and skills. If there were such elements, they were removed at an unknown time. No evidence remains that would connect this property to any significant cultural traditions.

2.1.7 Circulation Networks:

Circulation networks are systems for transporting people, goods, and raw materials from one point to another. They range in type from livestock trails and footpaths, to roads, canals, major highways, and even airstrips. Sometimes, such as farms or lumbering roads, internally serve a community, while others, such as railroads and waterways connect it to the larger region.

No evidence was located to indicate that any type of circulation system is now, or was ever, present on the property. The site visit undertaken in July 2018 did not indicate the presence, or remains, of any type of circulation network system. In addition, the review of the historic maps and photographs did not reveal any indications that any type of system existed on the property or in its connections to the larger community environment.

2.1.8 Boundary Demarcations:

Boundary demarcations delineate areas of ownership and uses, such as an entire farmstead or open range.

No boundary demarcations were noted during the site visit or in a review of any of the historic maps and photographs. Again, if they were there originally, these elements have been removed at an unknown time.

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2.1.9 Vegetation Relative to Land Use:

Various types of vegetation bear a direct relationship to long-established patterns of land use. Vegetation not only includes crops, trees, or shrubs planted for agricultural or ornamental purposes, but also trees that have grown up incidentally along fence lines, beside roads, or in abandoned fields. Vegetation may include indigenous, naturalized, and introduced species.

While many features change over time, vegetation is, perhaps, the most dynamic. It grows and changes with time, whether or not people care for it. Certain functional or ornamental plantings, such as wheat or peonies, may be evident only during select seasons. Each species has a unique pattern of growth and life span, making the presence of historic specimens questionable or unlikely in many cases. Current vegetation may differ from historic vegetation, suggesting different uses of the land.

The subject property, as it currently stands, appears to bear little resemblance to the property in earlier decades in terms of vegetation present on the land. Visual observation and review of historic aerial photographs, maps, and documents indicate that the land has undergone a variety of steady changes over the decades.

Prior to pioneer settlement in the 1870s, the Rancho San Juan area was home to squatters who cut down trees to make and sell charcoal, according to historic accounts. The subject property land was initially cleared in the 1870s to begin the farming process. There was no way to determine how much or what type of vegetation was removed in the process. Historic accounts of early settlers mention the need to clear the land of large trees to facilitate the planting process and obtain more usable land. Currently, there is little vegetation on the property in terms of shrubs, grass, or flowers on the property. Most of the property appears to have been cleared in a substantive way to remove brush, clear space for construction of new buildings or elements, and perhaps as a fire safety measure.

At this time, a large number of mature trees are present on the property. Several stumps of removed trees are located on the property. The trees represent native and introduced species. There are currently no orchards of fruit-bearing trees on the property.

In April 2018, "An Arborist Report and Tree Inventory Summary" was prepared by Acorn Arboricultural Services, Inc. to assess and evaluate the large trees that remain on the property. The report examined 104 trees currently located on the property. The species included in the report were: American Elm (2), Blue Oak (17), Brazilian Pepper (3), California Black Walnut (2), Canary Island Palm (1), Chinese Pistachio (9), Date Palm (1), Eucalyptus sp. (11), Incense Cedar (2), Interior Live Oak (36), Italian Cypress (2), Olive (10), Prunus sp. (1), Pyrus sp. (1), Spruce (1), Sweetgum (4), and Valley Oak (1). for the individual trees The trees are scattered across the property with no apparent pattern. None of the trees were planted as a windbreak for crops, for example. They appear to be randomly placed on the land.

Therefore, the various phases of removal of trees and surrounding vegetation have reduced the original vegetation level. Nothing in the current pattern of vegetation suggests patterns of activity, use of the land, or an attempt to create a cohesive design that enhances the property. Much vegetation has been removed from the remaining five acres of the subject parcel, resulting in a landscape that is limited and does not display any significant historic features or elements.

2.1.10 Buildings, Structures and Objects:

Various types of buildings, structures, and objects serve human needs relative to the occupation and use of the land. Their function, materials, date, condition, construction methods, and location reflect the historic activities, customs, tastes, and skills of the people who built and used them.

Rural buildings and structures often exhibit patterns of vernacular design that may be common in their region or unique to their community. Residences may suggest family size and relationships, population density, and economic fluctuations. The repeated use of methods, forms, and materials of construction may indicate successful solutions to building needs or demonstrate the unique skills, workmanship, or talents of a local artisan.

The buildings, structures and objects that remain on the subject property are of non-historic construction dates or have lost all integrity due to extensive alterations. The original c. 1870s residence has been altered significantly with the large c. 1980s addition and thus, does not reflect any historic use of materials, methods of construction or design concepts. The outbuildings, sheds, and other elements such as the tennis court and basketball court were built post mid-1980s and, therefore, are of no historic significance. They do not reflect any historic use of materials, methods of construction or elements that tie them to the historic period of the property. They are generic, nondescript elements placed haphazardly on the property.

2.1.11 Clusters:

Groupings of buildings, fences, and other features, as seen in farmsteads, ranching, or mining complex, result from function, social tradition, climate, or other influences, cultural or natural. The arrangement of clusters may reveal information about historical and continuing activities, as well as the impact of varying technologies and the preferences of particular generations. The repetition of similar clusters throughout a landscape may indicate vernacular patterns of spatial organization and land use.
There are no clusters of buildings, structures, or elements that would reflect the historic period of occupation of the subject property. All original buildings and elements have been removed, with the exception of the much-altered original residence, and the elements that are now present have no historic significance. These elements do not convey any type of cluster effect as they were randomly constructed and sited on the property.

2.1.12 Archaeological Sites

The sites of prehistoric or historic activities or occupation might be marked by foundations, ruins, changes in vegetation, and surface remains. They may provide valuable information about the ways the land has been used, patterns of social history, or the methods and extent of activities, such as shipping, milling, lumbering, or quarrying. The ruins of mills, charcoal kilns, canals, outbuildings, piers, quarries and mines commonly indicate previous uses of the land. Changes in vegetation may indicate abandoned roadways, homesites and fields. The spatial distribution of features, surface disturbances, subsurface remains, patterns of soil erosion and deposition, and soil condition may also yield information about the past uses and evolution of the land.

No prehistoric or historic sites were located on the property. No elements of a prehistoric or historic nature are present on the property. All evidence of any such activity or remnants of previous occupations or usage of the property were removed during the process of developing the farmstead in the 1870s, the continual maintenance and upgrading of the property during the 20th century, and the loss of the farmland and associated outbuildings and structures from the 1960s to the present.

2.1.13 Small-scale Elements:

Small-scale elements, such as foot bridges or road signs, add to the historic setting of a rural landscape. These features may be characteristic of a region and occur repeatedly throughout an area, such as limestone fence posts in Kansas, or cattle gates in the Buffalo Valley of Arkansas. While most- small-scale elements are long-standing, some such as bales of hay, are seasonal. Collectively, they often form larger components, such as circulation networks, or boundary demarcations. Small-scale elements also include minor remains, such as canal stones, road traces, mill stones, individual fruit trees, abandoned machinery, or fence posts – that mark the location of historic activities but lack significance or integrity as archaeological sites.

No small-scale elements were located on the property. If they ever existed, they have been removed in the various changes that have taken place on the property over the last 140 years. No evidence of their existence was located in the review of historic documents, photographs or maps.

2.2 RURAL HISTORIC LANDSCAPE SUMMARY

The property was evaluated as a rural historic landscape under National Register of Historic Places and California Register of Historical Resources criteria. The property meets none of the established criteria for association with an important event, person, design and construction or information potential. Of the seven aspects of integrity, the subject property has retained only the location aspect of integrity; the other six aspects of integrity have not been met. The removal of the original setting due to farming activities and the subsequent reduction of acreage in the post-1950s period of occupation have

eliminated the key aspects of integrity of the property. The subject property, a c. 1870s working farm, does not meet the criteria as a rural historic landscape. Due to the extensive changes to the property over its 143-year history, the property no longer has the ability to convey its historic significance and has not retained its historic integrity. The removal of all elements related to the working farmstead of the 1870s have been removed due to the sale of 155 acres of the original property, the construction of tract housing on the former farm property, the massive alterations to the original residence, the removal of all elements connected to the farming activities of the property from the 1870s-1950s, and the construction of new outbuildings and structures which have irrevocably altered the original setting. Nothing remains that would suggest that the property was a working farm in the 19th and 20th centuries. Therefore, the subject property is not considered to meet the criteria as an example of a rural historic landscape.

2.3 COUNTY OF SACRAMENT0 GENERAL PLAN

The 2030 General Plan for the County of Sacramento was reviewed for information related to cultural resources, historic properties and other related topics. No guidelines or criteria for evaluation, assessment, and potential nomination of historic properties to a County of Sacramento historic register was located in the General Plan. Further investigation revealed that there is no local County of Sacramento register of historic resources. Further consultation was undertaken with the State of California Office of Historic Preservation. Kathleen Forrest, Senior Planner, stated that, to her knowledge, the County of Sacramento had no historic guidelines or criteria in place to evaluate historic properties. Therefore, the property was not evaluated under any type of County of Sacramento guidelines.

3.0 APPLICATION OF SIGNIFICANCE CRITERIA

3.1 CALIFORNIA REGISTER OF HISTORICAL RESOURCES AND NATIONAL REGISTER OF HISTORIC PLACES CRITERIA FOR SIGNIFICANCE

3.1.1 California Register of Historical Resources Criterion 1: Event and National Register of Historic Places Criterion A: Event

Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;

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The property was assessed under California Register of Historical Resources Criterion **1: Event** and National Register of Historic Places **Criterion A: Event** for its potential significance as part of any historic trends or events that may have made a significant contribution to the broad patterns of our history.

The subject property, the Phillip Sherry/Edward O'Donnell Sr. farm and family residence, known as Shelterwood, was built in the mid-1870s. Sherry and three generations of the O'Donnell family farmed the land, raising wheat on the land as part of the local Carmichael community. The historical record has little to say about either of the families and their activities on the farm and in the local community, unlike other families who are well documented in various forms.

Carmichael was a small farming community, developed in the 1870s on the former Rancho San Juan lands. In the 1870s and 1880s, only eight families lived in the Carmichael area. A historical narrative written in 1939 by Ed Muldrow, son of the first land owner in Carmichael, Edward Muldrow, referring to the period between 1880 and 1900, commented that "Several years passed now without anything occurring worthy of note. The little colony of eight families formed a group of themselves we may suppose with as much contentment as it is generally accorded to human nature."

The subject property was located on land that had first been settled by Native American groups, then came under the control of the Spanish in the 1700s, then became part of the Mexican empire in the first half of the 1800s, and finally, transitioned to American control in 1848. The advent of statehood in 1850 created land claim issues between the old Hispanic families and the incoming Americans. During the confusion over land ownership during the 1850s and 1860s, squatters lived on the land. By the 1870s, most of the land claims had been sorted out, new settlers moved in, bought large sections of land and began creating small, rural farming communities. During the late 19th and early 20th century, real estate developers began developing communities, selling land for orchards, ranches and farms to Eastern newcomers. By the early 20th century, farming communities had been formed, churches and schools had been built, and small local businesses began to develop. This pattern of land use and development was seen across the entire state of California and is the standard pattern of building small communities.

This pattern of land use and development characterized the development of Carmichael and subsequently, the development of the subject property. No significant event associated with the development of Carmichael or the Phillip Sherry and O'Donnell family occupation of the subject property was identified. The subject property reflects the standard process of land development in small, rural communities and there was no indication that events that were significant in any way were associated with the subject property.

No evidence was located to indicate that the subject property played a greater role or was more significant than the other farms or families in Carmichael in the 19th or 20th centuries. **Therefore, the property does not appear to meet the criteria for significance under Criterion 1: Event and Criterion A: Event.**

3.1.2 California Register of Historical Resources Criterion 2: Person and National Register of Historic Places Criterion B: Person

Associated with the lives of persons important to local, California or national history;

The subject property was evaluated under California Register of Historical Resources **Criterion 2: Person** and National Register of Historic Places **Criterion B: Person** for its potential significance and association with a person of importance in national history.

The only information located regarding Phillip Sherry was that he came to Carmichael from Yolo County, purchased the subject property and built a home in approximately 1875, and farmed wheat on the property. This information is limited and scope and does not indicate that he played any type of significant role in the community.

Edward J. O'Donnell Sr. purchased the subject property in 1898. He served several terms on the local San Juan Elementary School Board, and his daughter, Della, was a teacher at the school for one year. She went on to become principal of the replacement school for a brief period. No other information was located regarding any members of the O'Donnell family to indicate that they played any type of significant role in the development of their property, the Carmichael area, the County of Sacramento, or the nation.

There is no evidence to suggest that any of the persons involved with the construction, development, and use of the subject property were considered important in the history of the state or nation. None of the persons associated with the property appear to be historically significant at the level necessary to meet the criteria for potential nomination to the California Register of Historical Resources or the National Register of Historic Places. **Therefore, the property does not appear to meet the criteria for significance under Criterion 2: Person and Criterion B: Person.**

3.1.3 California Register of Historical Resources Criterion 3: Architecture and National Register of Historic Places Criterion C: Design/Construction

Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values;

The property was assessed under California Register of Historical Resources **Criterion 3: Architecture** and National Register of Historic Places **Criterion C: Design/Construction** for its potential significance as a property which embodies the distinctive characteristics of a type, period, region, method of construction or style of Folk Victorian architecture, represents the work of a master architect, builder or

craftsman, possesses high artistic values, or represents a significant distinguishable entity whose components lack individual distinction.

The "type of construction" refers to the form and materials clearly demonstrate, through the presence of essential physical features, a specific purpose and/or function. This aspect of Criterion 3 and Criterion C encompasses all architectural styles and construction practices.

Due to the time frame, and general architectural trends of the c. 1870s for this type of single-family residential building, it was determined that the building was designed and constructed as an example of the Folk Victorian style. The c. 1985 addition attempted to blend the new structure with the original building by bringing some of the original Victorian era design elements into the new construction. In addition, Queen Anne architectural style elements were added to the new construction. These Queen Anne elements did not appear on the original c. 1875 building. The subject property, both old and new sections, was evaluated for the purposes of this report accordingly.

Folk Victorian Architectural Style
1870-1910

"Like that of the National folk forms on which they were based, the spread of Folk Victorian houses was made available by the railroads. The growth of the railroad system made heavy woodworking machinery widely available at local trade centers, where they produced inexpensive Victorian detailing. The railroads also provided local lumber yards with abundant supplies of pre-cut detailing from distant mills. Many builders simply grafted pieces of this newly available trims onto the traditional folk house forms familiar to local carpenters. Fashion-conscious home owners also updated the older folk houses with new Victorian porches. These dwellings make strong statements and therefore are treated here as distinctive styled houses, rather than pure folk forms… (McAlester 2015: 398)."

The major character defining elements of the Folk Victorian style include: full- or partial-width porches; spindle work or turned detailing; variety of house shapes; symmetrical façade; hipped roof; cornice-line brackets; front or side gables; one or two-stories; wood horizontal siding exterior; round columns as porch supports; and rectangular shaped windows.

The five principal subtypes are: Front Gabled, two-story forms with front gables with Victorian detailing; Gable Front and Wing, both one and two-story versions; Side Gable Roof, One-Story, includes two versions of the hall-and-parlor one-room deep and the two-room deep configuration; Side Gable, Two-Story, usually one-room deep with Victorian detailing in various degrees of exuberance; and Pyramidal, both one and two-story versions with Victorian detailing (McAleeter 2015: 397).

The original c. 1875 single-family residence was probably designed and/or constructed by Phillip Sherry. No information was located to indicate who the architect, builder, or craftsman was who was responsible for the design and construction of the building. Given the rural nature of the property, and

that it was a working farm, it was likely built by Phillip Sherry and/or in conjunction with local Rancho San Juan craftsmen.

The design of the building contains some of the Folk Victorian design concepts. The building's design includes:
*Wrap around porch supported by round columns with simple capitals
*Wood horizontal siding
*Rectangular shaped windows
*Hipped roof

However, the details seen on the current version of the residence may not be original to the building. Various permits were located that had been filed by the O'Donnell family in the 1960s for changes to the building. In addition, the family history of the property written by Jim O'Donnell in 1998 stated that Edward and Eve O'Donnell, the owners from 1965-1985, had embarked on a several year process of restoration and renovation of the old family home. Replacement materials were found locally and salvaged from old homes or, if not available, they were simply made from local materials.

At this time, the house would have been approximately 90 years old in 1965, and presumably, portions of the wood residence might have been subject to dry rot, termites, weathering, and general deterioration. Unfortunately, no historic photographs of the residence wee located during the research phase for comparison purposes. It appears upon visual inspection that a variety of non-historic, or if historic, non-original elements were added to the residence. The original doors and windows have been replaced (sometimes with historic doors and hardware), screen doors were added, skylights have changed the roof system, the roof has been replaced with shake shingles, a solarium was added to the north elevation, and the windows on the second floor of the north and east elevations have arched elements and are probably not original to the house. The 1998 O'Donnell family history stated that additional rooms were added. It is not clear which rooms were added or what might have been changed. The interior was changed with kitchen, laundry room, and bathroom remodels. The fireplace in the parlor on the ground floor has been refurbished with non-original black tile on the front face of the fireplace. The original windows in the dining room have been replaced with a three-section, full-height, fixed pane, multi-lite windows to form a large viewing window.

Queen Anne Architectural Style
1880-1910

"This style was named and popularized by a group of 19th century English architects led by Richard Norman Shaw. The name is rather inappropriate, as the historical precedent used by Shaw and his followers had little to do with Queen Anne or the formal Renaissance architecture that was dominant during her reign (1702-1714). Instead, it borrowed most heavily from the late Medieval models of the preceding Elizabethan and Jacobean eras (McAlester 2015: 350)."

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"…despite having been introduced by architects and illustrated in *AABN*, the Queen Anne style was not widely favored by architects, who favored the contemporaneous Shingle and experimented with early Eclectic styles. Instead, the style owed its popularity to the public's enthusiastic embrace and the patent books and mail- order house plans that allowed them to build a Queen Anne style house. The expanding railroad network expedited this process by making pre-cut architectural details conveniently available through much of the nation…While the earliest American examples followed Shaw's early half-timbered designs, during the 1880s the inventive American spindle work became dominant. Between the 1880s and 1890s, a relatively few high-style urban examples imitated Shaw's later models, which were executed in masonry. In the 1890s, encouraged by Classical themes of Chicago's Columbian Exposition of 1893, the free classical adaptations became widespread. It was but a short step from these early Colonial Revival houses and the symmetrical Neo-Classical houses, which along with the other competing styles, fully supported the Queen Anne style until about 1910 (McAlester 2015: 370)."

Character defining features of the Queen Anne style include: Steeply pitched roof of irregular shape, usually with a dominant front-facing gable; patterned shingles; cutaway bay windows; other devices to avoid a smooth-walled appearance; asymmetrical façade with a partial or full-width porch; porch is usually one-story in height and extends along one or both side walls; spindle work detailing; wood exteriors and irregular shape (McAlester 2015: 345).

Two principal subtypes are present: one is based on shape and the other is based on decorative detailing. These principal shape-based subtypes include: Hipped roof with lower cross gables, many with gables on multiple elevations flanking hipped center section; Cross-gabled roof, many without the hipped center section; Front-gabled roof, full-width front gable which dominates entire facade; and Town House, with front-gable roof, attached row houses (McAlester 2015: 345-346).

The decorative detailing subtypes include: Spindle work, delicate, turned, lacy or knob-like woodwork added to gables, porches and other elements as type of frieze; Free Classic, using columns, Palladian type windows, cornice-line details, swags and garlands along with other Classical elements; Half-Timbered, wood timbering in gables or upper-story walls, heavy turned porch supports with spandrels; and Patterned Masonry, with patterned brickwork or stonework, little wood detailing, terra cotta or decorative panels inserted into walls (McAlester 2015: 346).

The Queen Anne style elements that were used in the design of the c. 1985 addition include:
*Patterned, fish scale shingle details on tower and elevation
*Balconies with turned spindles
*Columns supporting the front porch
*Full-width front porch

The c. 1985 addition does not contain many of the key details of the Queen Anne style. The design, while enthusiastic, is unbalanced, with a large light-house style tower with attached to the front elevation. The tower does not reflect the types of towers seen on better examples of Victorian

architecture. The overall design is an exuberant conglomeration of a wide range of disparate elements. The intrusion of large air conditioning units, a three-story elevator attached to the back of the building, the variety of balcony styles and window styles, the multiple door styles and locations add to the confusion of the overall design.

The Folk Victorian and Queen Anne stylistic elements can be found in a wide range of Victorian architectural styles. The 5,000 square foot addition overwhelms the two-story original residence. These elements are not combined in the two parts of the residential building in a way that would reflect a balanced, coherent, integrated architectural style. The disparities between the two side-by-side styles is evident. The Queen Anne detailing on the addition does not augment or contribute to the historic appearance of the original residence as the original residence does not contain any significant Queen Anne details. The Queen Anne elements on the addition do not enhance the original c. 1875 structure, and in fact, they detract from the overall original design with the attempts to create a "Victorian" looking house. The elements are limited in execution and do not convey the main design characteristics of the Victorian architectural styles to the level necessary to qualify for the California Register of Historical Resources or the National Register of Historic Places. The overall design of the subject building cannot be considered to exemplify the main character defining features of the Folk Victorian and/or Queen Anne architectural styles.

The "type of construction," -- the subject building was originally designed and constructed as a single-family residence. The c. 1985 addition was constructed to provide more single-family living space. The subject property is a standard type of residential building construction that is seen in hundreds of similar buildings across the state. The Assessor's Residential Building Record states that the various elements of the building are of "standard" construction. No unusual or innovative types of building practices were noted on the Assessor's Record.

The "method of construction" means it is a rare or an important example of building practices, construction innovations, or technological advances during a specific time in history.

No information was located to establish that either phase of the subject building's construction was a rare or an important example of building practices, construction innovations, or technological advances during a specific time in history.

The "period of construction" refers to the age and physical features reflect the era when the specific recognized architectural style, building type, or method of construction became popular.

The subject building was originally constructed in c. 1875 as a single-family residence using design elements from the Folk Victorian architectural style. The secondary construction of the c. 1985 addition uses elements from the Queen Anne style. The building is a limited example of this type of single-family residential architecture and does not serve as a significant example of either c. 1870s or c. 1980s

architectural design concepts. The building does not display unusual or innovative elements in its overall design.

"Master architect, builder, or craftsman" means that the building was designed, constructed or created by a master in their respective fields.

No information was located to determine who the architect or contractor was who was responsible for the design and/or construction and alterations of the original building or the subsequent c. 1980s addition. Therefore, the subject building cannot be considered to represent the work of a master in their respective fields. Therefore, the building is not considered to be important under this element of evaluation.

In its current condition, the subject Folk Victorian with Queen Anne architectural style building does not meet the criteria for significance under Criterion 3 and Criterion C: Design/Construction as it is a limited example of the Folk Victorian with Queen Anne influences architectural styles.

Due to the fact that no indigenous materials went into the construction of the building, the subject building is not a valuable example of the use of indigenous materials or craftsmanship.

The Victorian design style of the subject building does not rise to the necessary level of significance to qualify for the California Register of Historical Resources or National Register of Historic Places as it is a limited example of Folk Victorian architecture. In addition, the various phases of alterations, renovations and remodeling have destroyed the architectural integrity of the subject property. **Therefore, the property does not appear to meet the criteria for significance under Criterion 3: Architecture and Criterion C: Design/Construction as a good example of the Folk Victorian with Queen Anne influences style of architecture**.

3.1.4 California Register of Historical Resources Criterion 4: Information and National Register of Historic Places Criterion D: Information Potential

Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

The property was assessed under California Register of Historical Resources **Criterion 4: Information** and National Register of Historic Places **Criterion D: Information Potential** for its potential significance and its ability to convey information. The property does not yield, or may not be likely to yield, information important in prehistory or history. In order for buildings, structures, or objects to be significant under Criterion 4, they need to "be, or must have been, the principal source of information." This is not the case with this property. **Therefore, the property does not appear to meet the criteria for significance under Criterion 4: Information and Criterion D: Information Potential.**

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3.2 INTEGRITY

In addition to determining the significance of a property under local, state and federal criteria, it is necessary to assess whether the property has integrity. Integrity is the ability of a property to convey and maintain its significance. A property must not only be shown to be significant under the established criteria, it must also have integrity. In order to retain historic integrity, a property must possess several, and usually most, of the seven key aspects of integrity, which are location, design, setting, materials, workmanship, feeling and association.

1. Integrity is the authenticity of a historical resource's physical integrity clearly indicated by the retention of characteristics that existed during the resource's period of significance.

2. Integrity relates to the presence or absence of historic materials and character defining features.

Application of the seven aspects of integrity:

Location*: Location is the place where the historic property was constructed or the place where the historic event occurred.*

The subject property, the former O'Donnell family residence and farm, remains in its original location in the Carmichael community. Therefore, the property retains this element of integrity.

Design: *Design is the combination of elements that create the form, plan, space, structure, and style of a property.*

The subject property which includes the c. 1874-1875 residence occupied by the O'Donnell family for 89 years and the subsequent addition constructed by Marc Turtletaub c. 1985 have not retained their original design elements. The c. 1874 Folk Victorian style residence is two stories in height and has retained limited elements of its original design, i.e., the horizontal wood exterior, a wraparound porch with double columns, and basic configuration of design elements. However, review of a variety of documents and aerial photographs, in addition to the visual inspection of the single-family residence, indicates that the building has undergone extensive, multiple renovations and remodeling efforts. The third generation O'Donnell family members renovated the home in the 1960s during their occupation of the residence. During the period of the Turtletaub ownership, additional renovations of the original home were done at the same time as the construction of the massive addition, in an attempt to blend the two very separate structures. During these various phases of renovation, many elements were replaced with salvaged materials or re-created the elements as necessary. The majority of the doors and windows have been replaced; a modern glass solarium structure was added to the north elevation,

thereby enclosing the north open porch; skylights were added to the roof of the home; new rooms were added to the residence; and new door and window openings were added to the building.

In c. 1985, a 5,500+ square foot addition was constructed on the south elevation of the original residence. This construction necessitated the removal of more than 50 percent of the original south elevation. The new addition dwarfs the original, c. 1874-1875, approximately 2,000 square foot, residence. The new addition is three stories in height, and the design includes a four-story round tower with Queen Anne design elements and a three-story exterior elevator. The addition attempts to incorporate similar columnar design elements but they do not match the original. Since the entire addition is new, doors and windows have stained glass elements, but they do not blend with the stained-glass elements on the original home. They add a jarring note to the overall design. Balconies, air conditioning units, skylights, a semi-circular roof is present over an open area on the east elevation, and, while an attempt was made to incorporate "Victorian" elements into the design of the new addition, the new addition fails to successfully blend the old and the new into an integrated, coherent design. Therefore, the subject property has not retained this aspect of integrity.

***Setting**: Setting is the physical environment of a historic property.*

A review of historic aerial photographs, combined with historical documents, and the visual observation of the property during the site visit indicates that the subject property has undergone steady transitions over the decades.

Prior to the 1870s, the subject property and the surrounding area was largely undeveloped, rural property. Some small homes existed in the general area of the Rancho San Juan, cattle grazing took place on the Rancho lands, and generally, the Carmichael area was open space heavily vegetated with native oaks and other local plant species.

Starting in the 1870s and continuing until the turn of the 20th century, the Carmichael area transitioned to small family farms. Generally, most of the families purchased quarter sections of land, with some purchasing as many as 200 acres. Phillip Sherry purchased 160 acres of land, the subject property, and began raising wheat and barley which required removal of some of the vegetation to create farm land. In 1898, Edward J. O'Donnell Sr. purchased the Shery farm and continued to farm the property. Wheat and barley farming became the primary crop in the local community. As a result, the residents cleared much of the land of the larger trees and vegetation in order to create more viable farming land. This resulted in a significant loss of heritage trees during this period across the subject property and the general surrounding environment.

The process of growth and more land utilization continued after the 20th century began. The creation of the two Carmichael Colonies by Daniel Carmichael in the early 20th century accelerated the land clearing process as more farms and homes were built in the area. At the beginning of the 20th century, prior to the Daniel Carmichael developments, the Carmichael area include only eight farming families. After the

development of the Carmichael Colonies No. 1 and 2, the population grew significantly, resulting in more changes to the local setting as homes and farms were built, a business district was built, and the community expanded with churches and schools.

The O'Donnell family continued to farm their land through the first half of the 20th century, adding barns, animal enclosures, and other elements of farming life to the land, thereby continually changing the overall setting. In the late 1940s, Thomas Mapel, a local real estate developer, built a complex of tract homes on 25 acres of land purchased from the O'Donnell family in 1949, thereby changing the family farm dynamic of the area into single-family suburban housing.

A similar process was taken place across the Carmichael area, as the old family farms underwent changes with loss of land, construction of new buildings, and general urban development in the form of new streets, business development and population expansion. By 1950, what had been traditional farm land had shrunk to just a few acres left for each of the old farms. By 1950, the O'Donnell family only retained 15 acres of the original 160 acres purchased in 1898 by Edward O'Donnell Sr.

The 160 acres of the Sherry and O'Donnell property had been used from 1870 up to the 1950s as a working farm, raising wheat. Farms are self-sufficient entities and each farm family raises its own chickens and other animals, has large vegetable gardens and fruit trees, all of which require outbuildings, barns, and other storage areas to facilitate the working of the land. By the 1960s, when the third generation of O'Donnells took over the property, the land was in transition. Gradually, the outbuildings and barns were removed as they had deteriorated or were no longer needed. Little remained of the working farm atmosphere of the property.

The setting changed significantly starting in the 1980s and continuing to the present time. The property was sold to Marc Turtletaub who proceeded to construct a large 5,000 story addition to the original residence. This changed the original setting irrevocably. In addition, the Turtletaubs and subsequent owners added a variety of storage buildings, a hot tub, a tennis court and basketball court, paved driveways and other element that completely changed the setting. Historic aerial photographs show the property with extensive vegetation and large trees, to the point where much of the property is obscured by the trees. The current setting has been altered by the removal of many of these trees and a general clearing of the property.
Therefore, the subject property has not retained the setting aspect of integrity.

***Materials**: Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.*

The subject single-family residential building has not retained its original materials due to the multiple renovations and remodeling projects that have significantly altered both the interior and exterior of the residence.

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The original c. 1874 residence underwent recorded renovations in the 1960s. The family history of the property prepared by James O'Donnell stated that the family had spent several years remodeling the family home. He stated that the remodeling had been accomplished with salvaged materials from local buildings or the replacement materials had been crafted by the family. Some of these changes were identified in the Assessor's Residential Building Record.

In addition, subsequent owners, beginning in 1985 remodeled the residence with changes to the original residence and also, changes to the large addition constructed in the late 1980s. Various permits and plans were filed for the successive remodeling of the now two-part building. Therefore, the subject building has not retained the materials aspect of its integrity.

Workmanship: *Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.*

According to the Assessor's Residential Building Record, the original single-family residence was constructed of standard materials. From what little remains of the original residence, the quality of the original workmanship appears to be of standard quality, reflecting the general standards of the time and place. However, since much of the original residence has been removed, replaced, altered, or otherwise changed by the various phases of remodeling, the quality of the original workmanship could no longer be determined. The non-historic, c. 1985 addition appears to be of standard workmanship, but again, since this portion of the building has also undergone changes, the quality of the workmanship could not be determined. Therefore, this aspect of the subject building's integrity has not been maintained.

Feeling: *Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.*

The property has not maintained the original feeling of the property as a 19th century working farm and family residence property. Due to the extensive changes to the land and setting over the decades, the construction of a massive addition to the original building in the 1980s, the various phases of remodeling of the original family residence by the O'Donnells and subsequent owners, combined with the removal of original outbuildings and vegetation and the addition of numerous outbuildings and other elements in the 1980s-2010s, the feeling of a 19th century farmstead has been completely obliterated. Therefore, this aspect of integrity has not been maintained.

Association: *Association is the direct link between an important historic event or person and a historic property.*

The subject property has not been determined to be directly linked to an important historic person or event. Phillip Sherry purchased 160 acres of land in 1875 and built the original single-family residence. He was one of eight families in the Carmichael area in the period between 1870 and the turn of the 20th century. However, no information could be located regarding his background, his activities on the farm

or the local community, or the nature of his family. Other local families were written about extensively, but the historical record is silent on Phillip Sherry.

The O'Donnell family owned the property from 1898-1985, a total of 87 years. Edward O'Donnell Sr. was a school trustee for several years and, his daughter, Della O'Donnell, taught in the local schools for several years. Again, the historic record does not reveal that the O'Donnells had any strong associations with any historic events or developments. There is a paucity of information regarding the O'Donnells and their life in the Carmichael community. They appear to be a typical farm family in a small rural community, living their life by farming the land, working hard to build their family, and maintaining a quiet, simple lifestyle. Therefore, the subject property does not have an associative element.

Conclusion: Of the seven aspects of integrity, the subject building has retained only one of the seven aspects of integrity - location. The property is still located on its original site, although greatly diminished from its original 160-acre site. The subject property does not meet the criteria for the other six elements of integrity – design, setting, materials, workmanship, feeling or association. Therefore, the subject property has not retained a sufficient amount of integrity for historic significance.

In summary, the subject property does not appear to qualify for the National Register of Historic Places and/or California Register of Historical Resources under any of the established criteria. In addition, the subject property does not retain the key aspects of integrity due to the alterations and changes to the building's design, the loss of the overall setting and feeling, combined with the fact that there is no significant event or person associated with the property. Therefore, the subject property is not considered to be an historic resource for the purposes of the NHPA.

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