

## **APPENDIX F.2**

### **Preliminary Geotechnical Investigation APN 411-015-027**



**PRELIMINARY GEOTECHNICAL INVESTIGATION  
PROPOSED RESERVOIR NO. 3A  
APN 411-150-027, PARCEL B  
CALIMESA, CALIFORNIA**

**PROJECT NO. 33109.13  
JUNE 1, 2023**

Prepared For:

Land Engineering Consultants, Inc.  
P.O. Box 541  
Calimesa, California 92320

Attention: Mr. Daniel J. Haskins

June 1, 2023

Land Engineering Consultants, Inc.  
P.O. Box 541  
Calimesa, California 92320

Project No. 33109.13

Attention: Mr. Daniel J. Haskins

Subject: Preliminary Geotechnical Investigation, Proposed Reservoir No. 3A, APN 411-150-027, Parcel B, Calimesa, California.

LOR Geotechnical Group, Inc., is pleased to present this report summarizing our geotechnical investigation for the above referenced project. In summary, it is our opinion that the proposed development is feasible from a geotechnical perspective, provided the recommendations presented in the attached report are incorporated into design and construction.

To provide adequate support for the proposed structure, we recommend that a compacted fill mat be constructed beneath footings and slabs. The compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. All undocumented fill material and any loose alluvial materials should be removed from structural areas and areas to receive engineered compacted fill. The data developed during this investigation indicates that removals on the order of approximately 2 to 5 feet will be required within the currently planned development areas. The given removal depths are preliminary. The actual depths of the removals should be determined during the grading operation by observation and in-place density testing.

Very low expansion potential, moderate corrosion to ferrous metals, and a negligible soluble sulfate content generally characterize the onsite soil materials tested.

**LOR Geotechnical Group, Inc.**

# Table of Contents

	<u>Page No.</u>
<b>INTRODUCTION.</b> .....	<b>1</b>
<b>PROJECT CONSIDERATIONS.</b> .....	<b>1</b>
<b>EXISTING SITE CONDITIONS.</b> .....	<b>2</b>
<b>REVIEW OF PREVIOUS REPORTS.</b> .....	<b>2</b>
<b>AERIAL PHOTOGRAPH ANALYSIS.</b> .....	<b>2</b>
<b>FIELD EXPLORATION PROGRAM.</b> .....	<b>3</b>
<b>LABORATORY TESTING PROGRAM.</b> .....	<b>3</b>
<b>GEOLOGIC CONDITIONS.</b> .....	<b>3</b>
Regional Geologic Setting. ....	3
Site Geologic Conditions. ....	5
Groundwater Hydrology. ....	5
Surface Runoff. ....	6
Mass Movement. ....	6
Faulting. ....	6
Historical Seismicity. ....	7
Secondary Seismic Hazards. ....	7
Liquefaction. ....	8
Seiches/Tsunamis. ....	8
Flooding (Water Storage Facility Failure). ....	8
Seismically-Induced Landsliding. ....	8
Rockfalls. ....	8
Seismically-Induced Settlement. ....	8
<b>SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2022).</b> .....	<b>8</b>
Site Classification. ....	9
CBC Earthquake Design Summary. ....	9
<b>CONCLUSIONS.</b> .....	<b>10</b>
General. ....	10
Foundation Support. ....	10
Soil Expansiveness. ....	11
Corrosion Screening. ....	11
Geologic Mitigations. ....	12
Seismicity. ....	12

# Table of Contents

	<u>Page No.</u>
<b>RECOMMENDATIONS. ....</b>	<b>12</b>
Geologic Recommendations. ....	12
General Site Grading. ....	13
Initial Site Preparation. ....	13
Preparation of Fill Areas. ....	14
Engineered Compacted Fill. ....	14
Preparation of Foundation Areas. ....	14
Short-Term Excavations. ....	15
Slope Construction. ....	15
Slope Protection. ....	16
Foundation Design. ....	16
Settlement. ....	17
Building Area Slab-On-Grade. ....	17
Exterior Flatwork. ....	17
Wall Pressures. ....	17
Corrosion Protection. ....	18
Preliminary Pavement Design. ....	19
Construction Monitoring. ....	20
 <b>LIMITATIONS. ....</b>	 <b>20</b>
 <b>TIME LIMITATIONS. ....</b>	 <b>21</b>
 <b>CLOSURE. ....</b>	 <b>22</b>
 <b>REFERENCES. ....</b>	 <b>23</b>

# Table of Contents

## **APPENDICES**

### **Appendix A**

Index Map.....	A-1
Site Plan.....	A-2
Geotechnical Map.....	A-3
Historical Seismicity Maps.....	A-4 and A-5

### **Appendix B**

Field Investigation Program.....	B
Boring Log Legend.....	B-i
Soil Classification Chart.....	B-ii
Boring Logs.....	B-1 through B-3

### **Appendix C**

Laboratory Testing Program.....	C
Gradation Curves.....	C-1
Project X Corrosion Engineering Test Results	

### **Appendix D**

Seismic Spectra	
-----------------	--

## **INTRODUCTION**

During May and June of 2023, a Preliminary Geotechnical Investigation was performed by LOR Geotechnical Group, Inc., for proposed Reservoir No. 3A, within APN 411-150-027, Parcel B, in Calimesa, California. The purpose of this investigation was to conduct a technical evaluation of the geologic setting of the site and to provide geotechnical design recommendations for the proposed improvements. The scope of our services included:

- Review of available geotechnical literature, reports, maps, and agency information pertinent to the study area;
- Interpretation of aerial photographs of the site and surrounding regions dated 1938 through 2023;
- Geologic field reconnaissance mapping to verify the areal distribution of earth units and significance of surficial features as compiled from documents, literature, and reports reviewed;
- A subsurface field investigation to determine the physical soil conditions pertinent to the proposed development;
- Laboratory testing of selected soil samples obtained during the field investigation;
- Development of geotechnical recommendations for site grading and foundation design; and
- Preparation of this report summarizing our findings, and providing conclusions and recommendations for site development.

The approximate location of the site is shown on the attached Index Map, Enclosure A-1, within Appendix A.

To orient our investigation at the site, a site plan prepared by you, and dated August 5, 2022, was provided for our use. This plan shows the existing site conditions as well as the proposed water tank and related improvements. The Site Plan was utilized as a base map for our field investigation and is presented as Enclosure A-2, within Appendix A.

## **PROJECT CONSIDERATIONS**

Review of the Site Plan provided indicates that the proposed circular, 3.0 million gallon, welded steel water reservoir will have a diameter of approximately 134 feet and a height of 38 feet. Asphalt concrete paving is proposed around the reservoir and access areas and a booster station will be located just northeast of the reservoir. Screen walls and landscaping are also proposed.

## **EXISTING SITE CONDITIONS**

The subject site consists of a roughly square, relatively flat, vacant area of land that is approximately 1.13 acres in size. At the time of our investigation, vegetation on the site had just been plowed and the upper approximately 0.5 feet tilled. Aside from an 8-inch waterline that traverses east-west across the central portion, the site is free of man-made improvements.

The City of Calimesa's 4<sup>th</sup> Street Park is located immediately to the north while vacant, tilled land similar to that at the site extends to the south and west. Across 4<sup>th</sup> Street, which bounds the site on the east, a tract of single-family homes is present.

## **PREVIOUS REPORTS**

This firm conducted a Preliminary Geotechnical Investigation and Infiltration Feasibility Investigation for APN's 411-150-012, 411-160-006, and a portion of 411-160-032 approximately 9 years ago (LOR, 2014). This property included the subject site of this investigation, as well as areas to the south and west. At that time, residential development of the larger property was scheduled. Our work included geotechnical investigation of the property using backhoe equipment, laboratory testing of representative samples, and preparation of our report which included information pertaining to site geologic and geotechnical conditions as well as conclusions and recommendations pertaining to then proposed residential construction and development.

Last year, this firm conducted an Infiltration/Percolation Feasibility Investigation for proposed construction of a deep infiltration basin within the area just southwest of the site of this investigation (LOR, 2022). This work was conducted utilizing 8-inch diameter by 40 to 50-foot deep borings excavated using hollow-stem auger drilling equipment.

## **AERIAL PHOTOGRAPH ANALYSIS**

The aerial photographs reviewed consisted of vertical aerial photographs of varying scales. We reviewed imagery available from Google Earth (2023) and from Historic Aerials (2023). For over 30 years, from a time period extending from sometime prior to 1938 through 1968, the site was part of a larger citrus grove. Subsequent to removal of the citrus trees in 1968, the site appears to have remained vacant. Our review of the aerial photographs did not reveal any adverse geologic conditions, such as possible faults or landslides, as being present at or within close proximity to the site.



## **FIELD EXPLORATION PROGRAM**

Our subsurface field exploration program was conducted on May 17, 2023 and consisted of drilling 3 exploratory borings with a truck-mounted Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The borings were drilled to depths of approximately 16.5 to 51.5 feet below the existing ground surface. The approximate locations of our exploratory borings are presented on the attached Site Plan, Enclosure A-2 within Appendix A.

The subsurface conditions encountered in the exploratory borings were logged by a geologist from this firm. Relatively undisturbed and bulk samples were obtained at a maximum depth interval of 5 feet and returned to our geotechnical laboratory in sealed containers for further testing and evaluation. A detailed description of the field exploration program and the boring logs are presented in Appendix B.

## **LABORATORY TESTING PROGRAM**

Selected soil samples obtained during the field investigation were subjected to laboratory testing to evaluate their physical and engineering properties. Laboratory testing included in-place moisture content and dry density, laboratory compaction characteristics, direct shear, expansion index, sieve analysis, and corrosion. A detailed description of the laboratory testing program and the test results are presented in Appendix C.

## **GEOLOGIC CONDITIONS**

### **Regional Geologic Setting**

The subject site is located along the junction of two major geomorphic provinces of southern California, or at the end of the Peninsular Ranges geomorphic province where it meets the Transverse Ranges geomorphic province. The Peninsular Ranges include a series of small northwestern trending mountains, separated by wide flat valleys, that extend from the Los Angeles region southeastward into Baja, California. The northern margin of this province butts up against a series of mountain ranges that lie in a transverse direction to the normal northwestern trend, or extend east and west. These mountains include the Santa Monica Mountains, the San Gabriel Mountains, and the San Bernardino Mountains that lie just north and east of the city of Calimesa. In the Calimesa locality, these two major provinces are termed the Peninsular Ranges Block to the south and the San Bernardino Mountains Block to the north and are separated by a series of complex faults

known collectively as the San Andreas Fault Zone. In this tectonically complex area, the Peninsular Ranges Block is generally sliding to the northwest, and partially thrustured underneath the San Bernardino Mountains Block. Therefore, the resulting faults end up with a complex mix of strike slip and thrust faults.

The San Andreas fault, which lies approximately 8 kilometers (5 miles) to the northeast, acts as the boundary between the Peninsular and Transverse Ranges provinces. The next largest active fault in the region, in terms of total movement and anticipated magnitudes, is the San Jacinto fault which lies approximately 9 kilometers (5.5 miles) to the southwest. This fault has similar motions to the San Andreas or right lateral strike slip.

While the trend of the San Andreas fault is predominately a relatively straight line across much of California, in the area just north of Indio, the San Andreas fault has an approximately 15-mile wide step-over zone, stepping to the west and cutting across the San Gorgonio Pass then up to the eastern end of the city of Yucaipa. Beyond this to the northwest, the trend of the fault once again resumes a northwesterly course. This twisting motion has results in a complex tectonic setting in the region between the San Andreas and the San Jacinto, which is not as yet completely understood. However, in general, the result of this geometry is that along the San Gorgonio pass and up into the Yucaipa region the motion changes from right lateral strike slip to thrusting. Within the Calimesa-Yucaipa region, this complex motion has resulted in several types of motions, extension with tectonic activity, including essentially all types of fault motions, from right lateral strike slip, or horizontal, to thrusting and normal, or tensional faulting along a numerous series of smaller fault splays.

One of the largest of these smaller splays is the Banning fault, lying along the base of the San Bernardino Mountains and situated approximately 1,600 feet to the southwest of the site. This fault appears to be the dominate thrust in the western end of the pass, joining the San Gorgonio Pass Fault Zone to the east with the motion changing to strike slip.

The topography of the land in this region has been drastically altered by differing tectonic forces, which have resulted in the uplifting of the region east of the site. The bedrock materials underlying the region of the small hills to the east of Calimesa are composed of a complex mix of metamorphic rocks of gneiss, schist, phyllite, and meta-igneous rocks of meta-diorite to meta-granotoid rocks. These rocks are very similar in composition to the basement rocks of the far southeastern end of the San Bernardino Mountains Block.

As noted above, the closest known potentially active fault in relation to the subject site is the Banning fault, located just under 0.5 kilometer (0.3 miles) to the southwest,

while the much larger, active San Andreas fault is located approximately 8 kilometers (5 miles) to the northeast. A complete listing of the distances to known active faults in relation to the site is given in the Faulting section of this report.

The regional geology as mapped by the U.S.G.S. (Matti et al, 2003) and partial legend is shown on Enclosure A-3, within Appendix A.

### Site Geologic Conditions

The site is underlain by alluvial soils. These materials are locally disturbed within the upper 0.5 feet. The earth materials encountered during our investigation are described below and on the enclosed boring logs in Appendix B.

Alluvium: Alluvial materials consisting of sandy silt to silty sand and sand, well graded sand, and silty sand were found to underlie the site as explored to a depth of approximately 51.5 feet. These materials were noted to be brown to reddish-brown in color, damp to moist, and loose to medium dense in the upper 3 to 5 feet, generally showing increasing density with increasing depth. The near surface silty sand to sandy silt soils have a very low potential for expansion.

### Groundwater Hydrology

Groundwater was not encountered in any of our exploratory borings, nor was any groundwater seepage observed during our site reconnaissance.

According to information available from the California Department of Water Resources, one groundwater well lies approximately 0.5 mile to the southwest of the site. The depth in groundwater this well (State well No. 02S02W0J002S) was approximately 155 feet during the time period from 1998 through 2010. Another well (State well No. 340108N1170527W001), located approximately 0.6 mile to the north, had recorded depths to groundwater between 206 and 323 feet during the time period from 1926 through 1998.

Historic groundwater information was obtained from the Minimum Depth to Ground Water, Upper Santa Ana River Valley, California, 1973 to 1979 map (Carson and Matti, 1985). This map shows groundwater lied at a depth of approximately 200 feet during that time period in the site area.

Based on the information provided above, groundwater is anticipated to be present at a depth of greater than 150 feet beneath the site.

### Surface Runoff

Current surface runoff of precipitation waters across the site is generally as sheet flow to the west.

### Mass Movement

Mass movement features such as landslides, rockfalls, or debris flows within the site vicinity are not known to exist and no evidence of mass movement was observed on the site or in the vicinity during our review of aerial photographs or reconnaissance.

### Faulting

No active or potentially active faults are known to exist at the subject site. In addition, the subject site does not lie within a current State of California Earthquake Fault Zone (Hart and Bryant, 2010) nor County of Riverside earthquake fault zone (TLMA, 2021).

As previously mentioned, the closest known active fault is the San Andreas fault zone, located approximately 8 kilometers (5.0 miles) to the northeast. In addition, other relatively close active faults include the San Jacinto fault zone, located approximately 9 kilometers (5.5 miles) to the southwest.

The San Andreas fault is considered to be the major tectonic feature of California, separating the Pacific Plate and the North American Plate. While estimates vary, the San Andreas fault is generally thought to have an average slip rate on the order of 24mm/yr and capable of generating large magnitude events on the order of 7.5 or greater.

The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of producing an earthquake magnitude on the order of 6.5 or greater.

Current standards of practice often include a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62 mile) radius of the site, none of these are considered as relevant to the site due to their greater distance and/or smaller anticipated magnitudes.

### Historical Seismicity

In order to obtain a general perspective of the historical seismicity of the site and surrounding region, a search was conducted for seismic events at and around the area within various radii. This search was conducted utilizing the historical seismic search website of the U.S.G.S. (2023). This website conducts a search of a user selected cataloged seismic events database, within a specified radius and selected magnitudes, and then plots the events onto a map. At the time of our search, the database contained data from January 1, 1932 through May 26, 2023.

In our first search, the general seismicity of the region was analyzed by selecting an epicenter map listing all events of magnitude 4.0 and greater, recorded since 1932, within a 100 kilometer (62 mile) radius of the site, in accordance with guidelines of the California Division of Mines and Geology. This map illustrates the regional seismic history of moderate to large events. As depicted on Enclosure A-4, within Appendix A, the site lies within a relatively active region of southern California.

In the second search, the micro seismicity of the area lying within a 10 kilometer (6.2 miles) radius of the site was examined by selecting an epicenter map listing events on the order of 1.0 and greater since 1978. In addition, only the “A” events, or most accurate events were selected. Caltech indicates the accuracy of the “A” events to be approximately 1 kilometer. The result of this search is a map that presents the seismic history around the area of the site with much greater detail, not permitted on the larger map. The reason for limiting the time period for the events on the detail map is to enhance the accuracy of the map. Events recorded prior to the mid to late 1970's are generally considered to be less accurate due to advancements in technology. As depicted on Enclosure A-5, numerous small events have occurred recently in association with the San Andreas fault to the southeast and the Crafton Hills fault zone to the northwest.

In summary, the historical seismicity of the site entails numerous small to medium magnitude earthquake events occurring in the region around the subject site. Any future developments at the subject site should anticipate that moderate to large seismic events could occur very near the site.

### Secondary Seismic Hazards

Other secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seiches and tsunamis, earthquake induced flooding, landsliding and rockfalls, and seismic-induced settlement.

Liquefaction: The potential for liquefaction generally occurs during strong ground shaking within loose granular sediments where the depth to groundwater is usually less than 50 feet. Groundwater is anticipated to be present at depths of greater than 200 feet and the alluvial soils at depth beneath the site are relatively dense. In addition, the near surface loose soils will be removed and replaced as engineered compacted fill during site grading. Therefore, the potential for liquefaction to occur at the site is considered to be nil.

Seiches/Tsunamis: The potential for the site to be affected by a seiche or tsunami (earthquake generated wave) is considered nil due to absence of any large bodies of water near the site.

Flooding (Water Storage Facility Failure): There are no large water storage facilities located on or near the site which could possibly rupture during an earthquake and affect the site by flooding.

Seismically-Induced Landsliding: Our research, site reconnaissance and review of aerial imagery of the site and vicinity indicates that there are no known or suspected landslides at the site or in close proximity to the site and, therefore, the potential for seismically-induced landslides occurring at the site is considered very low.

Rockfalls: No large, exposed, loose or unrooted boulders that could affect the integrity of the site are present above the site.

Seismically-Induced Settlement: Settlement generally occurs within areas of loose, granular soils with relatively low density. Since the site is underlain by medium dense to dense alluvial materials, and the site is considered non-liquefiable, the potential for settlement is considered to be very low. In addition, the earthwork operations recommended to be conducted during the development of the site will mitigate any near surface loose soil conditions.

### **SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2022)**

Design requirements for structures can be found within Chapter 16 of the 2022 California Building Code (CBC) based on building type, use, and/or occupancy. The classification of use and occupancy of all proposed structures at the site, shall be the responsibility of the building official.

### Site Classification

Chapter 20 of the ASCE 7-16 defines six possible site classes for earth materials that underlie any given site. Bedrock is assigned one of three of these six site classes and these are: A, B, or C. Soil is assigned as C, D, E, or F. Per ASCE 7-16, Site Class A and Site Class B shall be measured on-site or estimated by a geotechnical engineer, engineering geologist or seismologist for competent rock with moderate fracturing and weathering. Site Class A and Site Class B shall not be used if more than 10 feet of soil is between the rock surface and bottom of the spread footing or mat foundation. Site Class C can be used for very dense soil and soft rock with  $\tilde{N}$  values greater than 50 blows per foot. Site Class D can be used for stiff soil with  $\tilde{N}$  values ranging from 15 to 50 blows per foot. Site Class E is for soft clay soils with  $\tilde{N}$  values less than 15 blows per foot. Our investigation, mapping by others, and our experience in the site region indicates that the materials beneath the site are considered Site Class D stiff soils.

### CBC Earthquake Design Summary

Earthquake design criteria have been formulated in accordance with the 2022 CBC and ASCE 7-16 for the site based on the results of our investigation to determine the Site Class and an assumed Risk Category II. However, these values should be reviewed and the final design should be performed by a qualified structural engineer familiar with the region. In addition, the building official should confirm the Risk Category utilized in our design (Risk Category II). Our design values are provided below:

<b>CBC 2022/ASCE 7-16 SEISMIC DESIGN SUMMARY*</b> Site Location (USGS WGS84) 33.0018, -117.0524, Risk Category II	
Site Class Definition Chapter 20 ASCE 7	D
<b>S<sub>s</sub></b> Mapped Spectral Response Acceleration at 0.2s Period	2.336
<b>S<sub>1</sub></b> Mapped Spectral Response Acceleration at 1s Period	0.841
<b>S<sub>MS</sub></b> Adjusted Spectral Response Acceleration at 0.2s Period	1.869
<b>S<sub>M1</sub></b> Adjusted Spectral Response Acceleration at 1s Period	1.689
<b>S<sub>DS</sub></b> Design Spectral Response Acceleration at 0.2s Period	1.246

<b>CBC 2022/ASCE 7-16 SEISMIC DESIGN SUMMARY*</b> Site Location (USGS WGS84) 33.0018, -117.0524, Risk Category II	
<b>S<sub>D1</sub></b> Design Spectral Response Acceleration at 1s Period	1.126
<b>F<sub>a</sub></b> Short Period Site Coefficient at 0.2s Period	1.0
<b>F<sub>v</sub></b> Long Period Site Coefficient at 1s Period	1.7
<b>PGA<sub>M</sub></b> Site Modified Peak Ground Acceleration	0.881
Seismic Design Category	E
*See Appendix E for detailed calculations	

## **CONCLUSIONS**

### **General**

This investigation provides a broad overview of the geotechnical and geologic factors which are expected to influence future site planning and development. On the basis of our field investigation and testing program, it is the opinion of LOR Geotechnical Group, Inc., that the proposed development is feasible from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into design and implemented during grading and construction.

The subsurface conditions encountered in our exploratory borings are indicative of the locations explored. The subsurface conditions presented here are not to be construed as being present the same everywhere on the site. If conditions are encountered during the construction of the project which differ significantly from those presented in this report, this firm should be notified immediately so we may assess the impact to the recommendations provided.

### **Foundation Support**

Based upon the field investigation and test data, it is our opinion that the existing, near surface fill soils and the underlying loose to medium dense alluvial soils will not, in their present condition, provide uniform and/or adequate support for the proposed improvements. Left as is, this condition could cause unacceptable differential and/or overall settlements upon application of the anticipated foundation loads.



To provide adequate support for the proposed structural improvements, we recommend that a compacted fill mat be constructed beneath footings and slabs. This compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. In addition, the construction of this compacted fill mat will allow for the removal of any undocumented fill soils that are present within the proposed structural areas. Conventional foundation systems, using either individual spread footings and/or continuous wall footings, will provide adequate support for the anticipated downward and lateral loads when utilized in conjunction with the recommended fill mat.

#### Soil Expansiveness

Our laboratory testing found the soils tested to have a very low expansion potential. For very low expansive soils, no specialized construction procedures to resist expansive soil activity are necessary. Careful evaluation of on-site soils and any import fill for their expansion potential should be conducted during the grading operation.

#### Corrosion Screening

Select representative samples from our borings were taken to Project X Corrosion Engineering for full corrosion series testing. Results from soil corrosivity testing completed by Project X Corrosion Engineering are presented within Appendix C.

The corrosivity test results indicate that soluble sulfate concentrations in the samples was less than 0.10 percent by weight. These concentrations indicate an exposure class S0 for sulfate (ACI 318). No special mitigation methods are considered necessary.

The corrosivity test results indicate that chloride concentrations were below 500 ppm. This concentration indicates an exposure class C1 for chloride (ACI 318). Special mitigation measures are not considered necessary.

Soil pH for the samples was slightly acidic. Therefore, the need for specialized design is not anticipated.

Concentrations of ammonium and nitrate indicate the soil may be aggressive towards copper.

Resistivity results for the samples indicate the soil is moderately corrosive to ferrous metals.

LOR Geotechnical does not practice corrosion engineering. If further information concerning the corrosion characteristics, or interpretation of the results submitted herein, is required, then a competent corrosion engineer could be consulted.

### Geologic Mitigations

No special geologic recommendation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

### Seismicity

Seismic ground rupture is generally considered most likely to occur along pre-existing active faults. Since no known faults are known to exist at, or project into the site, the probability of ground surface rupture occurring at the site is considered nil.

Due to the site's close proximity to the faults described above, it is reasonable to expect a strong ground motion seismic event to occur during the lifetime of the proposed development on the site. Large earthquakes could occur on other faults in the general area, but because of their lesser anticipated magnitude and/or greater distance, they are considered less significant than the faults described above from a ground motion standpoint.

The effects of ground shaking anticipated at the subject site should be mitigated by the seismic design requirements and procedures outlined in Chapter 16 of the California Building Code. However, it should be noted that the current building code requires the minimum design to allow a structure to remain standing after a seismic event, in order to allow for safe evacuation. A structure built to code may still sustain damage which might ultimately result in the demolishing of the structure (Larson and Slosson, 1992).

## **RECOMMENDATIONS**

### Geologic Recommendations

No special geologic recommendation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

### General Site Grading

It is imperative that no clearing and/or grading operations be performed without the presence of a qualified geotechnical engineer. An on-site, pre-job meeting with the owner, the developer, the contractor, and geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusions of affected areas from the final compaction report for the project.

Grading of the subject site should be performed in accordance with the following recommendations as well as applicable portions of the California Building Code, and/or applicable local ordinances.

All areas to be graded should be stripped of significant vegetation and other deleterious materials.

It is our recommendation that any existing fills under any proposed flatwork and/or paved areas be removed and replaced with engineered compacted fill. If this is not done, premature structural distress (settlement) of the flatwork and pavement may occur. Any undocumented fills encountered during grading should be completely removed and cleaned of significant deleterious materials. These may then be reused as compacted fill.

While not anticipated based on the lack of previous development at the site, cavities created by removal of undocumented fill soils and/or subsurface obstructions should be thoroughly cleaned of loose soil, organic matter and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended in the following Engineered Compacted Fill section of this report.

### Initial Site Preparation

Any and all existing uncontrolled fills and any loose/soft native alluvial soils should be removed from structural areas and areas to receive structural fills. The data developed during this investigation indicates that removals on the order of 3 to 5 feet will be required to encounter competent alluvium. However, deeper removals may be required locally. Removals should extend horizontally at a distance equal to the depth of the removals plus proposed fill and at least a minimum of 5 feet. The given removal depths are preliminary. The actual depths of the removals should be determined during the grading operation by observation and in-place density testing. Removals should expose alluvial materials with an in-situ relative compaction of at least 85 percent (ASTM D 1557).

### Preparation of Fill Areas

After the removals described above and prior to placing fill, the surfaces of all areas to receive fill should be scarified to a depth of at least 6 inches. The scarified soil should be brought to near optimum moisture content and compacted to a relative compaction of at least 90 percent (ASTM D 1557).

### Engineered Compacted Fill

The on-site soils should provide adequate quality fill material, provided they are free from organic matter and other deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 6 inches should not be buried or placed in fills.

Import fill, if required, should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6 inches in maximum dimension. Sources for import fill should be approved by the geotechnical engineer prior to their use.

Fill should be spread in maximum 8-inch uniform, loose lifts, with each lift brought to near optimum moisture content prior to, during and/or after placement, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.

Based upon the relative compaction of the near surface soils determined during this investigation and the relative compaction anticipated for compacted fill soil, we estimate a compaction shrinkage factor of approximately 10 to 15 percent. Therefore, 1.10 to 1.15 cubic yards of in-place materials would be necessary to yield one cubic yard of properly compacted fill material. Subsidence is anticipated to be 0.10 feet. These values are for estimating purposes only, and are exclusive of losses due to stripping or the removal of subsurface obstructions. These values may vary due to differing conditions within the project boundaries and the limitations of this investigation. Shrinkage should be monitored during construction. If percentages vary, provisions should be made to revise final grades or adjust quantities of borrow or export.

### Preparation of Foundation Areas

All footings should rest upon a minimum of 24 inches of properly compacted fill material placed over competent natural alluvial soils. In areas where the required fill thickness is not accomplished by the removal of unsuitable soils, the footing areas should be further subexcavated to a depth of at least 24 inches below the proposed footing base grade, with

the subexcavation extending at least 5 feet beyond the footing lines. The bottom of this excavation should then be scarified to a depth of at least 6 inches, brought to near optimum moisture content, and recompact to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill. Fill areas should not be constructed so as to place structures across any area where the maximum depth of fill to minimum depth of fill is greater than a 3:1 ratio.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 24 inches of compacted soil. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

### Short-Term Excavations

Following the California Occupational and Safety Health Act (CAL-OSHA) requirements, excavations 5 feet deep and greater should be sloped or shored. All excavations and shoring should conform to CAL-OSHA requirements.

Short-term excavations 5-feet deep and greater shall conform to Title 8 of the California Code of Regulations, Construction Safety Orders, Section 1504 and 1539 through 1547. Based on our exploratory borings, it appears that Type C soil is the predominant type of soil on the project and all short-term excavations should be based on this type of soil. Deviation from the standard short-term slopes are permitted using Option 4, Design by a Registered Professional Engineer (Section 1541.1).

Short-term slope construction and maintenance are the responsibility of the contractor, and should be a consideration of his methods of operation and the actual soil conditions encountered.

### Slope Construction

Preliminary data indicates that cut and fill slopes should be constructed no steeper than two horizontal to one vertical. Fill slopes should be overfilled during construction and then cut back to expose fully compacted soil. A suitable alternative would be to compact the slopes during construction, then roll the final slopes to provide dense, erosion-resistant surfaces.

### Slope Protection

Since the site soils are susceptible to erosion by running water, measures should be provided to prevent surface water from flowing over slope faces. Slopes at the project should be planted with a deep rooted ground cover as soon as possible after completion. The use of succulent ground covers such as iceplant or sedum is not recommended. If watering is necessary to sustain plant growth on slopes, the watering system should be monitored to assure proper operation and to prevent over watering.

### Foundation Design

If the site is prepared as recommended, the proposed structures may be safely founded on conventional shallow foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of engineered compacted fill.

All foundations should have a minimum width of 12 inches and should be established a minimum of 12 inches below lowest adjacent grade.

For the minimum width and depth, spread foundations may be designed using an allowable bearing pressure of 2,000 psf. This bearing pressure may be increased by 200 psf for each additional foot of width, and by 500 psf for each additional foot of depth, up to a maximum of 4,000 psf.

The above values are net pressures; therefore, the weight of the foundations and the backfill over the foundations may be neglected when computing dead loads. The values apply to the maximum edge pressure for foundations subjected to eccentric loads or overturning. The recommended pressures apply for the total of dead plus frequently applied live loads, and incorporate a factor of safety of at least 3.0. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loading. The resultant of the combined vertical and lateral seismic loads should act within the middle one-third of the footing width. The maximum calculated edge pressure under the toe of foundations subjected to eccentric loads or overturning should not exceed the increased allowable pressure. Buildings should be setback from slopes in accordance with the California Building Code.

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 300 pounds per square foot per foot of depth. Base friction may be computed at 0.30 times the normal load. Base friction and passive earth pressure may be

combined without reduction. These values are for dead load plus live load and may be increased by one-third for wind or seismic loading.

### Settlement

Total settlement of individual foundations will vary depending on the width of the foundation and the actual load supported. Maximum settlement of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of 0.5 inch. Differential settlements between adjacent footings should be about one-half of the total settlement. Settlement of all foundations is expected to occur rapidly, primarily as a result of elastic compression of supporting soils as the loads are applied, and should be essentially completed shortly after initial application of the loads.

### Building Area Slab-On-Grade

Concrete floor slabs should bear on a minimum of 24 inches of engineered compacted fill placed over competent native materials. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete. The slabs should be protected from rapid and excessive moisture loss which could result in slab curling. Careful attention should be given to slab curing procedures, as the site area is subject to large temperature extremes, humidity, and strong winds.

### Exterior Flatwork

To provide adequate support, exterior flatwork improvements should rest on a minimum of 12 inches of soil compacted to at least 90 percent (ASTM D 1557).

Flatwork surface should be sloped a minimum of 1 percent away from buildings and slopes, to approved drainage structures.

### Wall Pressures

The design of footings for retaining structures should be performed in accordance with the recommendations described earlier under Preparation of Foundation Areas and

Foundation Design. For design of retaining wall footings, the resultant of the applied loads should act in the middle one-third of the footing, and the maximum edge pressure should not exceed the basic allowable value without increase.

For design of retaining walls unrestrained against movement at the top, we recommend an equivalent fluid density of 50 pounds per cubic foot (pcf) be used. This assumes level backfill consisting of recompacted, non-expansive, native soils placed against the structures and with the backcut slope extending upward from the base of the stem at 35 degrees from the vertical or flatter.

To avoid overstressing or excessive tilting during placement of backfill behind walls, heavy compaction equipment should not be allowed within the zone delineated by a 45 degree line extending from the base of the wall to the fill surface.

The backfill directly behind the walls should be compacted using light equipment such as hand operated vibrating plates and rollers. No material larger than 3-inches in diameter should be placed in direct contact with the wall.

Wall pressures should be verified prior to construction, when the actual backfill materials and conditions have been determined. Recommended pressures are applicable only to level, non-expansive, properly drained backfill (with no additional surcharge loadings). If inclined backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for non-structural walls on soils, not prepared as described earlier under Preparation of Foundation Areas, should not exceed California Building Code values.

### Corrosion Protection

Based on the test results, this soil is classified as mildly to moderately corrosive to ferrous metals and potentially aggressive towards copper. The laboratory data above should be reviewed and corrosion design should be completed by a qualified corrosion engineer.

In lieu of corrosion design for metal piping, ABS/PVC may be used. Soil corrosion is not considered a factor with ABS/PVC materials. ABS/PVC is considered suitable for use due to the corrosion potential of the on-site soils with respect to metals.

LOR Geotechnical does not practice corrosion engineering. If further information concerning the corrosion characteristics, or interpretation of the results submitted herein, is required, then a competent corrosion engineer could be consulted.



### Preliminary Pavement Design

Testing and design for preliminary on-site pavement was conducted in accordance with the California Highway Design Manual the ACI Guide for Design and Construction of Concrete Parking Lots. Based upon our preliminary sampling and testing and upon assumed Traffic Indices, it appears that the structural sections tabulated below should provide satisfactory pavements for the subject pavement improvements:

AREA	T.I.	DESIGN R-VALUE	PRELIMINARY SECTION
On site vehicular parking with occasional truck traffic (ADTT=10)	5.0	30	0.25' AC / 0.45' AB or 5.0" PCC / 4.0" AB
AC - Asphalt Concrete AB - Class 2 Aggregate Base CAB - Crushed Aggregate Base PCC - Portland Cement Concrete with MR $\geq$ 550 psi			

The above structural sections are predicated upon 90 percent relative compaction (ASTM D 1557) of all utility trench backfills and 95 percent relative compaction (ASTM D 1557) of the upper 12 inches of pavement subgrade soils and of any aggregate base utilized. In addition, on-site aggregate base should meet Caltrans specifications for Class 2 Aggregate Base and off-site aggregate base should meet specifications for Crushed Aggregate Base.

The recommended concrete pavement sections should have a minimum modulus of rupture (MR) of 550 pounds per square inch (psi). Transverse joints should be sawcut in the pavement at approximately 12 foot or less intervals within 4 to 6 hours of concrete placement, or preferably sooner. Sawcut depth should be equal to approximately one quarter of slab thickness. Construction joints should be constructed such that adjacent sections butt directly against each other and are keyed into each other. Parallel pavement sections should also be keyed into each other.

It should be noted that all of the above pavement design was based upon the results of preliminary sampling and testing conducted during both this investigation and during our previous geotechnical investigation (LOR, 2014), and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

### Construction Monitoring

Post investigative services are an important and necessary continuation of this investigation. Project plans and specifications should be reviewed by the project geotechnical consultant prior to construction to confirm that the intent of the recommendations presented herein have been incorporated into the design. Additional expansion index, R-value, and/or soluble sulfate testing may be required after the site is rough graded.

During construction, sufficient and timely geotechnical observation and testing should be provided to correlate the findings of this investigation with the actual subsurface conditions exposed during construction. Items requiring observation and testing include, but are not necessarily limited to, the following:

1. Site preparation-stripping and removals.
2. Excavations, including approval of the bottom of excavation prior to the processing and preparation of the bottom areas for fill placement.
3. Scarifying and compacting prior to fill placement.
4. Subgrade preparation for pavements and slabs-on-grade.
5. Placement of engineered compacted fill and backfill, including approval of fill materials and the performance of sufficient density tests to evaluate the degree of compaction being achieved.
6. Foundation excavations.

### **LIMITATIONS**

This report contains geotechnical conclusions and recommendations developed solely for use by Land Engineering Consultants, Inc., and their design consultants, for the purposes described earlier. It may not contain sufficient information for other uses or the purposes of other parties. The contents should not be extrapolated to other areas or used for other facilities without consulting LOR Geotechnical Group, Inc.

The recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. If conditions are encountered during the construction of the project which differ significantly from those presented in this report, this firm should be notified immediately in order that we may assess the impact to the recommendations provided. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed and tested by the project geotechnical consultant.

If parties other than LOR Geotechnical Group, Inc., provide construction monitoring services, they must be notified that they will be required to assume responsibility for the geotechnical phase of the project being completed by concurring with the recommendations provided in this report or by providing alternative recommendations.

The report was prepared using generally accepted geotechnical engineering practices under the direction of a state licensed geotechnical engineer. No warranty, expressed or implied, is made as to conclusions and professional advice included in this report. Any persons using this report for bidding or construction purposes should perform such independent investigations as deemed necessary to satisfy themselves as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

### **TIME LIMITATIONS**

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc. verifying the suitability of the conclusions and recommendations.

**CLOSURE**

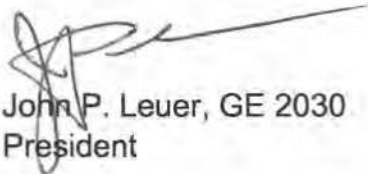
It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as construction begins. Should conditions be encountered during construction that appear to be different than indicated by this report, please contact this office immediately in order that we might evaluate their effect.

Should you have any questions regarding this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,  
**LOR Geotechnical Group, Inc.**



Robert M. Markoff, CEG  
Engineering Geologist



John P. Leuer, GE 2030  
President



RMM:JPL:ss

Distribution: Addressee (2) and PDF via email [dan@lecincorporated.com](mailto:dan@lecincorporated.com)

## REFERENCES

American Concrete Institute, 2008, Guide for Design and Construction of Concrete Parking Lots, ACI 3030R-08, June 2008.

American Society of Civil Engineers, 2016, Minimum Design Load for Buildings and other Structures, ASCE 7-16.

California Building Standards Commission, 2022 California Building Code.

California Department of Water Resources, 2023, <http://www.water.ca.gov/waterdatalibrary/>.

County of Riverside, Transportation and Land Management Agency, 2023, Geographic Information System, <http://www3.tlma.co.riverside.ca.us>.

Google Earth, 2023, Imagery from various years, [www.google.com/earth](http://www.google.com/earth).

Hart, E.W. and W.A. Bryant, 1997, revised 2018, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps: California Dept. of Conservation Division of Mines and Geology Special Publication 42, Revised Edition with Supplements 1, 2, and 3.

Historic Aerials, 2023, Imagery from various years, [www.historicaerials.com](http://www.historicaerials.com).

Land Engineering Consultants, Inc., 2023, Site Plan, South Mesa Water Company - Reservoir No. 3A, APN 411-150-027; Parcel B, dated August 5, 2022.

Larson, R., and Slosson, J., 1992, The Role of Seismic Hazard Evaluation in Engineering Reports, in Engineering Geology Practice in Southern California, AEG Special Publication Number 4, pp 191-194.

LOR Geotechnical Group, Inc., 2014, Preliminary Geotechnical Investigation, APN's 411-150-012, 411-160-006, and a Portion of 411-160-032, SWC 4<sup>th</sup> Street and Robertson Circle, Calimesa, California, Project No. 33109.1, dated September 23, 2014.

LOR Geotechnical Group, Inc., 2022, Infiltration/Percolation Feasibility Investigation, Proposed Recharge Basin, APN's 411-150-027, Calimesa, California, Project No. 33109.4, dated February 21, 2022.

Matti, J.C., Morton, D.M., Cox, B.F., Carson, S.E., and Yetter, T.J., 2003, Geologic Map of the Yucaipa 7.5' Quadrangle, San Bernardino and Riverside Counties, California, United States Geological Survey Open-File Report 03-301.

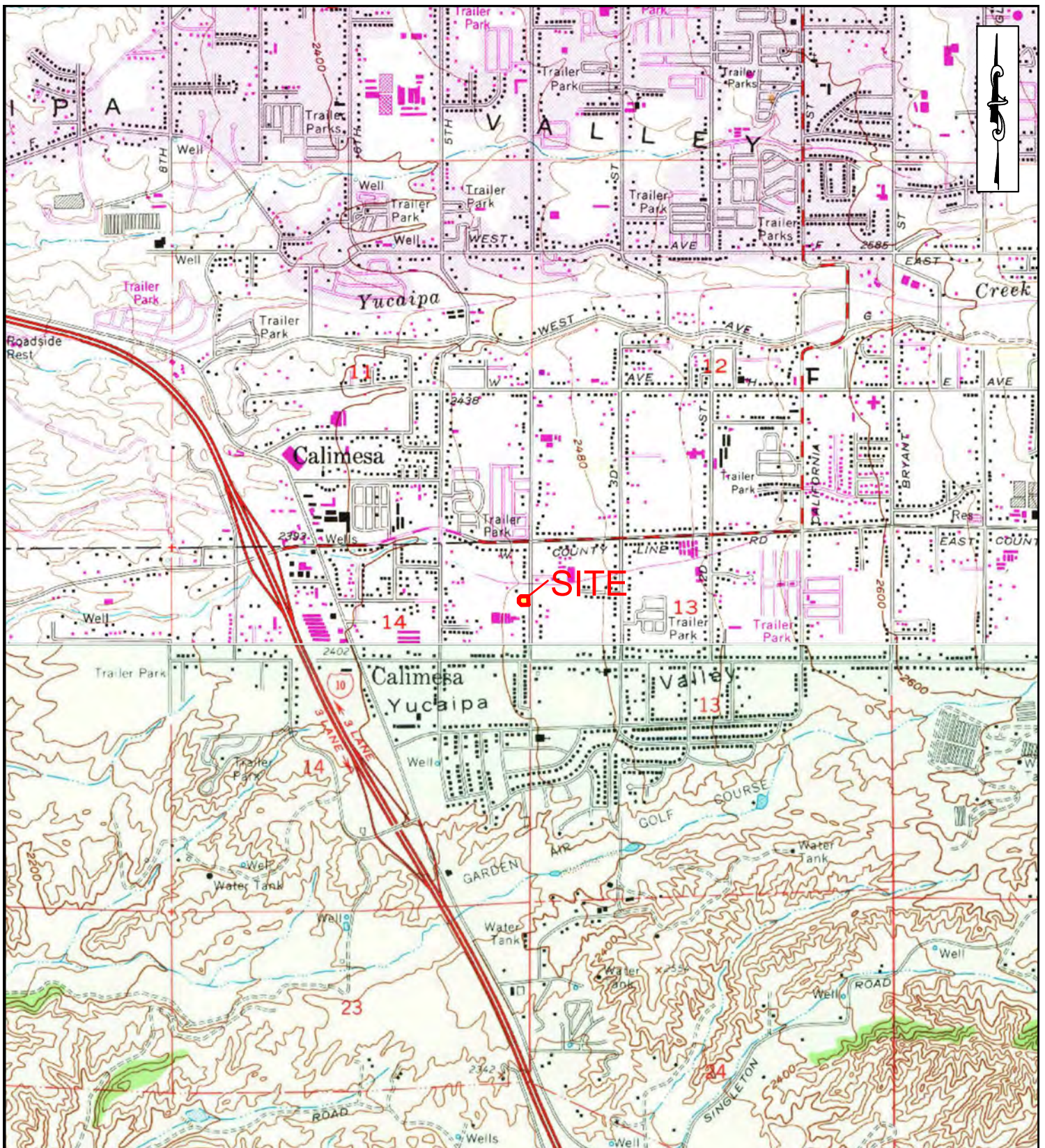
USGS, 2023, <https://earthquake.usgs.gov/earthquakes/map/>.

Western Municipal Water District, 2023, Cooperative Well Measuring Program Fall 2020, Final.

## **APPENDIX A**

**Index Map, Site Plan,  
Regional Geologic Map, and  
Historical Seismicity Maps**



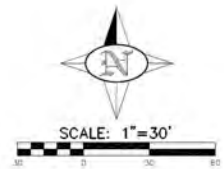


## INDEX MAP

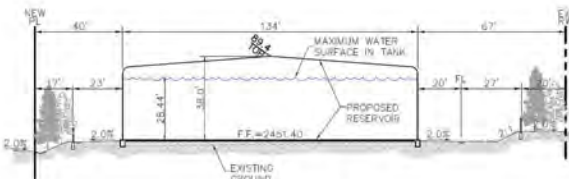
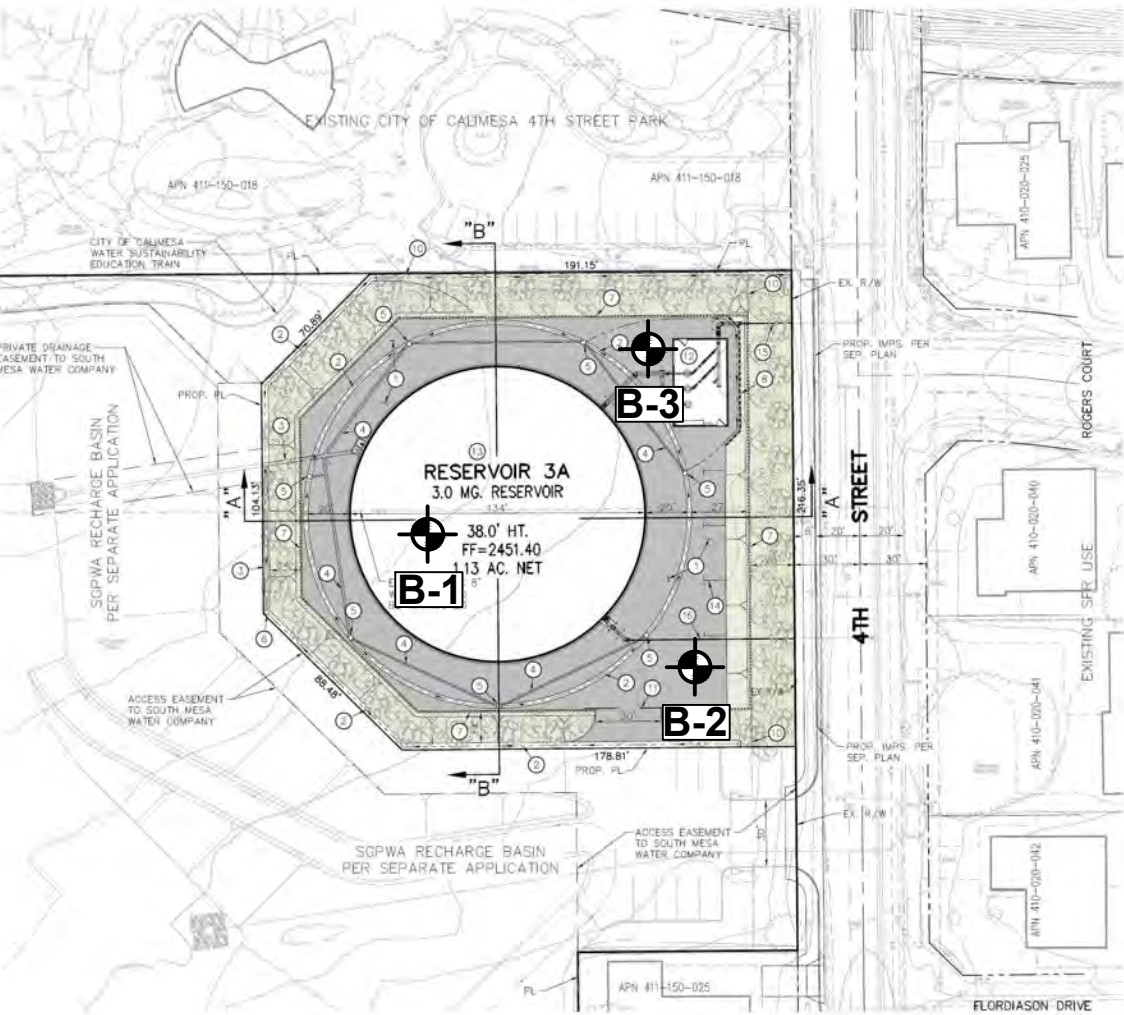
<b>PROJECT:</b>	Reservoir No. 3A, Calimesa, California	<b>PROJECT NO.:</b>	33109.13
<b>CLIENT:</b>	Land Engineering Consultants, Inc.	<b>ENCLOSURE:</b>	A-1
<b>LOR</b> GEOTECHNICAL GROUP, INC.		<b>DATE:</b>	June 2023
		<b>SCALE:</b>	1" ≈ 2,000'



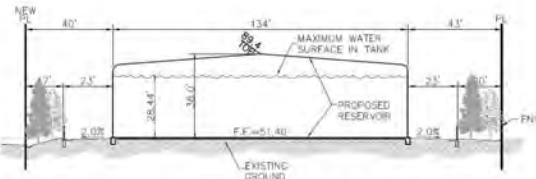
IN THE CITY OF CALIMESA  
CONDITIONAL USE PERMIT / DEVELOPMENT PLAN REVIEW -  
SOUTH MESA WATER COMPANY - RESERVOIR NO. 3A  
APN 411-150-027; PARCEL B



- LEGEND:**
- EXISTING CONTOUR ELEVATION
  - STREET CENTERLINE
  - CURB AND GUTTER
  - PROJECT PROPERTY LINE
  - PROPOSED WATER MAIN
  - DRAINAGE FLOW LINE
  - FENCE LINE
  - SCREEN WALL
  - RETAINING WALL
  - PROPOSED SLOPE
  - LANDSCAPED AREA
  - ASPHALT PAVED AREA
  - EX. CHAIN LINK FENCE
  - EXISTING BUILDING LINE
  - EXISTING WATER MAIN
  - EXISTING SEWER MAIN
  - EXISTING GAS MAIN
  - M - EXISTING WATER METER
  - VH - EXISTING MANHOLE
  - WV - EXISTING WATER VALVE
  - GP - EXISTING POWER POLE
  - GV - EXISTING GAS VALVE
  - IRI - EXISTING IRRIGATION DEVICES
  - SL - EXISTING STREET LIGHT
- ITEM DESCRIPTION:**
- PROPOSED A.C. PAVING
  - PROPOSED CONCRETE "V" CUTTER
  - PROPOSED 18" DRAIN PIPE
  - PROPOSED 8" DRAIN PIPE
  - PROPOSED 18"x18" DRAIN INLET W/GRATE
  - PROPOSED 24" DIA. DRAIN INLET W/GRATE
  - PROPOSED MASONRY SCREEN WALL
  - PROPOSED MASONRY RETAINING WALL
  - PROPOSED 7' HIGH WROUGHT IRON FENCE
  - PROPOSED 7' HIGH SLIDING ENTRANCE GATE
  - PROPOSED BOOSTER STATION
  - PROPOSED WELDED STEEL WATER RESERVOIR
  - PROPOSED 10'x20' PARKING SPACES
  - PROPOSED 16" ZONE 2 PUMP LINE
  - PROPOSED 16" ZONE 3 PUMP LINE



SECTION "A"-"A"  
SCALE: 1"=30'



SECTION "B"-"B"  
SCALE: 1"=30'

**Legend**  
(Locations Approximate)

Map Symbols

**B-3** - Exploratory Boring

**SITE PLAN**

<b>PROJECT:</b>	Reservoir No. 3A, Calimesa, California	<b>PROJECT NO.:</b>	33109.13
	Land Engineering Consultants, Inc.	<b>ENCLOSURE:</b>	A-2
<b>CLIENT:</b>	LOR GEOTECHNICAL GROUP, INC.	<b>DATE:</b>	June 2023
		<b>SCALE:</b>	1" = 85'

REVISIONS:

NO.	BY	DATE
1		

APPROVED:

DATE:

REGISTERED PROFESSIONAL ENGINEER

NO. 5175

EXP. 9-30-23

CIVIL

STATE OF CALIFORNIA

**LEC**

LAND ENGINEERING CONSULTANTS, INC.

P.O. BOX 541, 650 AVENUE K  
CALIMESA, CALIFORNIA 92320  
TEL: 909-795-8882 FAX: 909-795-8818

STEVEN H. RITCHEY

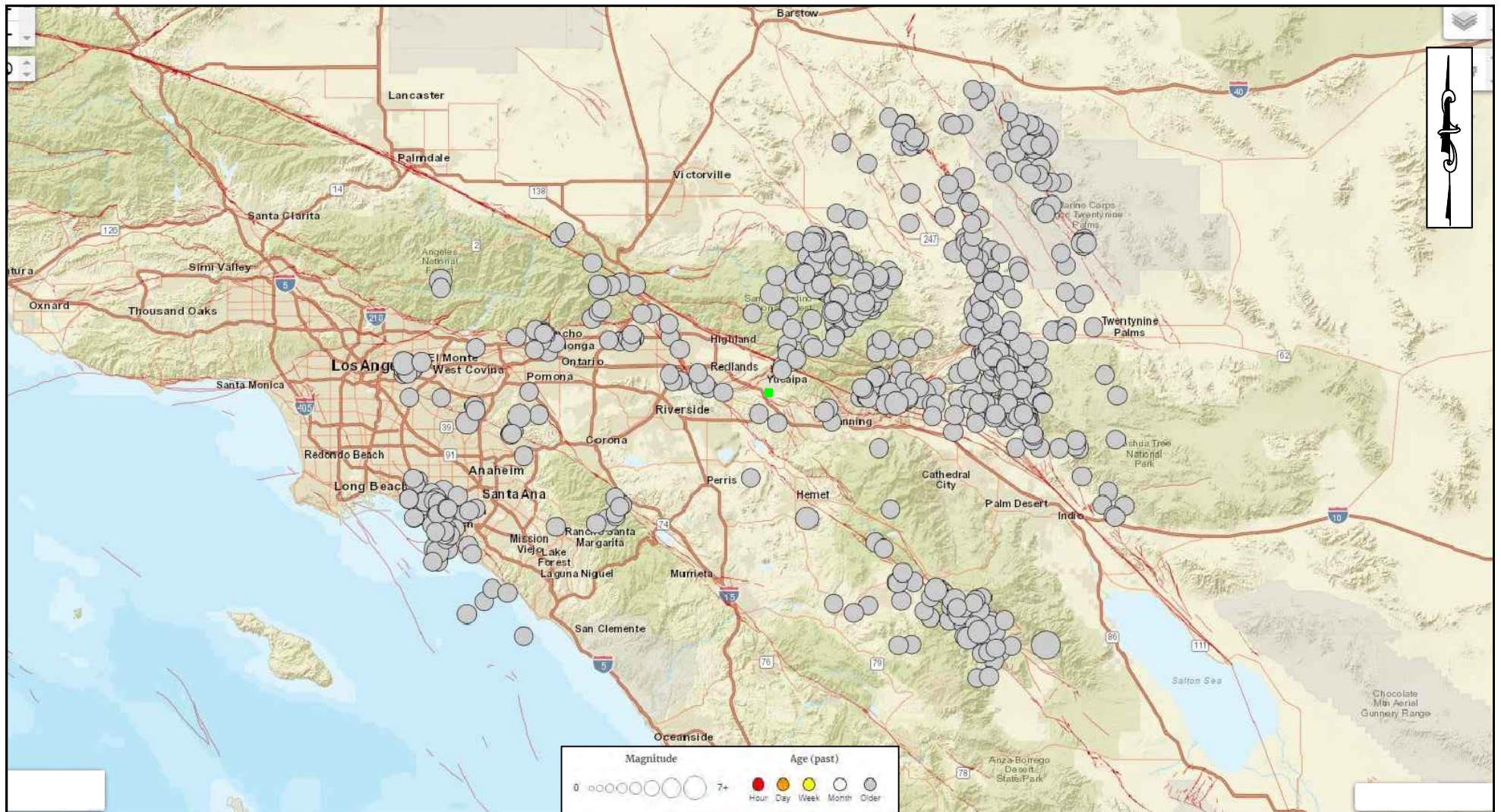
R.C.E. 51129, EXP. 9/30/23

DATE







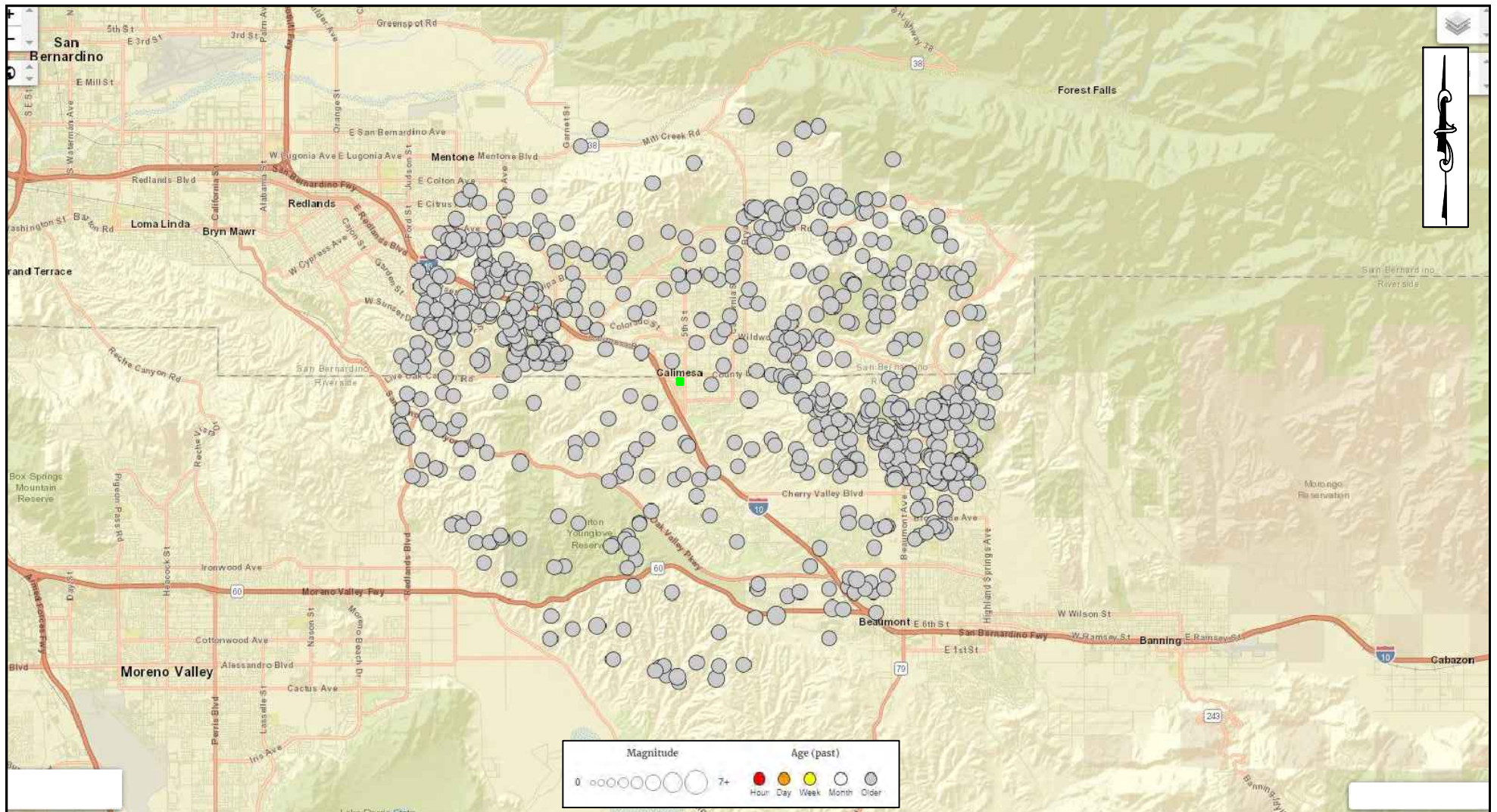


U.S. Geologic Survey (2023) real-time earthquake epicenter map. Plotted are 572 epicenters of instrument-recorded events from 01/01/32 to present (05/30/23) of local magnitude 4+ within a radius of ~62 miles (100 kilometers) of the site. Location accuracy varies. The site is indicated by the green square (■). The selected magnitude corresponds to a threshold intensity value where very light damage potential begins. These events are also generally widely felt by persons. Red lines mark the surface traces of known Quaternary-age faults.

## HISTORICAL SEISMICITY MAP - 100km Radius

PROJECT:	Reservoir No. 3A, Calimesa, California	PROJECT NO.:	33109.13
CLIENT:	Land Engineering Consultants, Inc.	ENCLOSURE:	A-4
<b>LOR</b> GEOTECHNICAL GROUP, INC.		DATE:	June 2023
		SCALE:	1" ≈ 40km





U.S. Geologic Survey (2023) real-time earthquake epicenter map. Plotted are 698 epicenters of instrument-recorded events from 01/01/78 to present (05/30/23) of local magnitude 2+ within a radius of ~6.2 miles (10 kilometers) of the site. Location accuracy varies. The site is indicated by the green square (■). The selected magnitude corresponds to a threshold intensity value where very light damage potential begins. These events are also generally widely felt by persons. Red lines mark the surface traces of known Quaternary-age faults.

## HISTORICAL SEISMICITY MAP - 10km Radius

PROJECT:	Reservoir No. 3A, Calimesa, California	PROJECT NO.:	33109.13
CLIENT:	Land Engineering Consultants, Inc.	ENCLOSURE:	A-5
<b>LOR</b> GEOTECHNICAL GROUP, INC.		DATE:	June 2023
		SCALE:	1" ≈ 10km

## **APPENDIX B**

### **Field Investigation Program and Boring Logs**

## **APPENDIX B**

### **FIELD INVESTIGATION**

#### **Subsurface Exploration**

The site was investigated on May 17, 2023 and consisted of advancing 3 exploratory borings to depths between 16.5 feet and 51.5 feet below the existing ground surface. The approximate locations of the borings are shown on Enclosure A-2, within Appendix A.

The drilling exploration was conducted using a truck-mounted Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The soils were continuously logged by our geologist who inspected the site, created detailed logs of the borings, obtained undisturbed, as well as disturbed, soil samples for evaluation and testing, and classified the soils by visual examination in accordance with the Unified Soil Classification System.

Relatively undisturbed samples of the subsoils were obtained at a maximum interval of 5 feet. The samples were recovered by using a California split barrel sampler of 2.50 inch inside diameter and 3.25 inch outside diameter from the ground surface to the total depth explored. The samplers were driven by a 140 pound automatic trip hammer dropped from a height of 30 inches. The number of hammer blows required to drive the sampler into the ground the final 12 inches were recorded and further converted to an equivalent SPT N-value. Factors such as efficiency of the automatic trip hammer used during this investigation (80%), borehole diameter (8"), and rod length at the test depth were considered for further computing of equivalent SPT N-values corrected for field procedures (N<sub>60</sub>) which are included in the boring logs, Enclosures B-1 through B-3.

The undisturbed soil samples were retained in brass sample rings of 2.42 inches in diameter and 1.00 inch in height, and placed in sealed containers. Disturbed soil samples were obtained at selected levels within the borings and placed in sealed containers for transport to the laboratory.

All samples obtained were taken to our geotechnical laboratory for storage and testing. Detailed logs of the borings are presented on the enclosed Boring Logs, Enclosures B-1 through B-3. A Boring Log Legend and Soil Classification Chart are presented on Enclosures B-i and B-ii, respectively.

## CONSISTENCY OF SOIL

### SANDS

#### SPT BLOWS

0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Over 50	Very Dense

#### CONSISTENCY

### COHESIVE SOILS

#### SPT BLOWS

0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
30-60	Hard
Over 60	Very Hard

#### CONSISTENCY

## SAMPLE KEY

### Symbol

### Description



INDICATES CALIFORNIA  
SPLIT SPOON SOIL  
SAMPLE

INDICATES BULK SAMPLE

INDICATES SAND CONE  
OR NUCLEAR DENSITY  
TEST

INDICATES STANDARD  
PENETRATION TEST (SPT)  
SOIL SAMPLE

## TYPES OF LABORATORY TESTS

- 1 Atterberg Limits
- 2 Consolidation
- 3 Direct Shear (undisturbed or remolded)
- 4 Expansion Index
- 5 Hydrometer
- 6 Organic Content
- 7 Proctor (4", 6", or Cal216)
- 8 R-value
- 9 Sand Equivalent
- 10 Sieve Analysis
- 11 Soluble Sulfate Content
- 12 Swell
- 13 Wash 200 Sieve

## **BORING LOG LEGEND**

<b>PROJECT:</b>	Proposed Reservoir No. 3A, Calimesa, California	<b>PROJECT NO.:</b>	33109.13
<b>CLIENT:</b>	Land Engineering Consultants, Inc.	<b>ENCLOSURE:</b>	B-i
<b>LOR</b> GEOTECHNICAL GROUP, INC.		<b>DATE:</b>	May 2023



## SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS  MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS  MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE			GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS SMALLER THAN NO.200 SIEVE SIZE	SILTS AND CLAYS  LIQUID LIMIT LESS THAN 50			SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
				ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	SILTS AND CLAYS  LIQUID LIMIT GREATER THAN 50			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
HIGHLY ORGANIC SOILS				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

## PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	No. 4 (U.S. STANDARD SIEVE SIZE)	No. 10	No. 40	200	

## SOIL CLASSIFICATION CHART

PROJECT:	Proposed Reservoir No. 3A, Calimesa, California	PROJECT NO.:	33109.13
CLIENT:	Land Engineering Consultants, Inc.	ENCLOSURE:	B-ii
<b>LOR</b> GEOTECHNICAL GROUP, INC.		DATE:	May 2023



# LOG OF BORING B-1

DEPTH IN FEET	TEST DATA					SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)		DRY DENSITY (PCF)				
0									
13	13	3, 4, 7, 10	10.0		118.2	■		ML SM	@ 0 feet, <u>ALUVIUM</u> : SILTY SAND to SANDY SILT, approximately 10% coarse grained sand, 40% fine grained sand, 50% silty fines, brown, moist, loose to medium dense.
5	19		14.6		115.5	■			below 5 feet, increase in medium to coarse grained sand, less fine grained sand, moist.
10	23		12.9		116.2	■			@ 10 feet, less medium to coarse grained sand, increase in fine grained sand content.
15	33		7.3		123.1	■		SM	@ 14± feet, SILTY SAND, approximately 10% coarse grained sand, 20% medium grained sand, 25% fine grained sand, 45% silty fines, reddish-brown, moist, medium dense.
20	37		8.3		110.1	■			@ 20 feet, approximately 70% fine grained sand, 30% silty fines.
25	43		7.6		120.0	■		SW	@ 24± feet, WELL GRADED SAND, approximately 15% fine gravel, 20% coarse grained sand, 25% medium grained sand, 35% fine grained sand, 5% silty fines, brown, damp, dense.
30	81 for 11"		5.9		118.9	■		SM	@ 29 feet, SILTY SAND, approximately 5% coarse grained sand, 20% medium grained sand, 40% fine grained sand, 35% silty fines, brown, damp, dense.
35	51		6.7						@ 35 feet, finer grained.
40	107		4.0						@ 40 feet, approximately 5% medium grained sand, 50% fine grained sand, 45% silty fines.
45	51		11.7						
50	51		13.4					ML	@ 48 feet, SANDY SILT, approximately 5% medium grained sand, 25% fine grained sand, 70% silt and clay, brown, moist, hard.
55									END OF BORING @ 51.5'
									No groundwater No bedrock

PROJECT: Proposed Reservoir No. 3A

PROJECT NO.: 33109.13

CLIENT: Land Engineering Consultants, Inc.

ELEVATION: --

**LOR** GEOTECHNICAL GROUP, INC.

DATE DRILLED: May 17, 2023

EQUIPMENT: Mobile B-61

HOLE DIA.: 8" ENCLOSURE: B-1

# LOG OF BORING B-2

DEPTH IN FEET	TEST DATA						DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY	
0							<b>ML SM</b> @ 0 feet, <u>ALLUVIUM</u> : SILTY SAND to SANDY SILT, approximately 10% medium to coarse grained sand, 40% fine grained sand, 50% silty fines, brown, moist, loose to medium dense.
20			7.6	117.8			
5	18		14.0	114.2			below 4 feet, slightly coarser grained.
10	20		13.3	110.5			<b>SM</b> @ 8 feet, SILTY SAND, approximately 10% coarse grained sand, 20% medium grained sand, 40% fine grained sand, 30% silty fines, brown, damp to moist, medium dense.
15	39		4.6	124.7			@ 15 feet, sandier and coarser grained.
20							END OF BORING @ 16.5'  No groundwater No bedrock

PROJECT: Proposed Reservoir No. 3A

PROJECT NO.: 33109.13

CLIENT: Land Engineering Consultants, Inc.

ELEVATION: --

**LOR** GEOTECHNICAL GROUP, INC.

DATE DRILLED: May 17, 2023

EQUIPMENT: Mobile B-61

HOLE DIA.: 8" ENCLOSURE: B-2

# LOG OF BORING B-3

DEPTH IN FEET	TEST DATA						DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY	
0							ML SM @ 0 feet, <u>ALLUVIUM</u> : SILTY SAND to SANDY SILT, approximately 10% medium grained sand, 40% fine grained sand, 50% silty fines, brown, moist, loose to medium dense.
12	12		10.6	117.0			
5	20		11.5	122.5			@ 5 feet, slightly coarser grained, moist.
10	26		10.7	122.0			SM @ 9± feet, SILTY SAND, approximately 5% coarse grained sand, 25% medium grained sand, 35% fine grained sand, 35% silty fines, brown, moist, medium dense.
15	34		8.0	125.8			@ 15 feet, slightly coarser grained.
20	30		9.0	103.7			@ 20 feet, much finer grained, approximately 70% fine grained sand, 30% silty fines.
END OF BORING @ 21.5'							No groundwater No bedrock

PROJECT: Proposed Reservoir No. 3A

PROJECT NO.: 33109.13

CLIENT: Land Engineering Consultants, Inc.

ELEVATION: --

**LOR** GEOTECHNICAL GROUP, INC.

DATE DRILLED: May 17, 2023

EQUIPMENT: Mobile B-61

HOLE DIA.: 8" ENCLOSURE: B-3

## **APPENDIX C**

### **Laboratory Testing Program and Test Results**

## **APPENDIX C**

### **LABORATORY TESTING**

#### **General**

Selected soil samples obtained from our borings were tested in our geotechnical laboratory to evaluate the physical properties of the soils affecting foundation design and construction procedures. The laboratory testing program performed in conjunction with our investigation included in-place moisture content and dry density, laboratory compaction characteristics, direct shear, expansion index, sieve analysis, and corrosion. Descriptions of the laboratory tests are presented in the following paragraphs:

#### **Moisture Density Tests**

The moisture content and dry density information provides an indirect measure of soil consistency for each stratum, and can also provide a correlation between soils on this site. The dry unit weight and field moisture content were determined for selected undisturbed samples, in accordance with ASTM D 2922 and ASTM D 2216, respectively, and the results are shown on the Boring Logs, Enclosures B-1 through B-3 for convenient correlation with the soil profile.

#### **Laboratory Compaction**

Selected soil samples were tested in the laboratory to determine compaction characteristics using the ASTM D 1557 compaction test method. The results are presented in the following table:

<b>LABORATORY COMPACTION</b>				
<b>Boring Number</b>	<b>Sample Depth (feet)</b>	<b>Soil Description (U.S.G.S.)</b>	<b>Maximum Dry Density (pcf)</b>	<b>Optimum Moisture Content (percent)</b>
B-1	1-4	(SM/ML) Silty Sand to Sandy Silt	132.0	9.0

## Direct Shear Tests

Shear tests are performed with a direct shear machine in general accordance with ASTM D 3080 at a constant rate-of-strain (usually 0.04 inches/minute). The machine is designed to test a sample partially extruded from a sample ring in single shear. Samples are tested at varying normal loads in order to evaluate the shear strength parameters, angle of internal friction and cohesion. Samples are tested in a remolded condition (90 percent relative compaction per ASTM D 1557) and soaked, to represent the worse case conditions expected in the field.

The results of the shear tests are presented in the following table:

DIRECT SHEAR TESTS				
Boring Number	Sample Depth (feet)	Soil Description (U.S.G.S.)	Angle of Internal Friction (degrees)	Apparent Cohesion (psf)
B-1	1-4	(SM/ML) Silty Sand to Sandy Silt	28	150

## Expansion Index Tests

Remolded samples are tested to determine their expansion potential in accordance with the Expansion Index (EI) test. The test is performed in accordance with the Uniform Building Code Standard 18-2. The test results are presented in the following table:

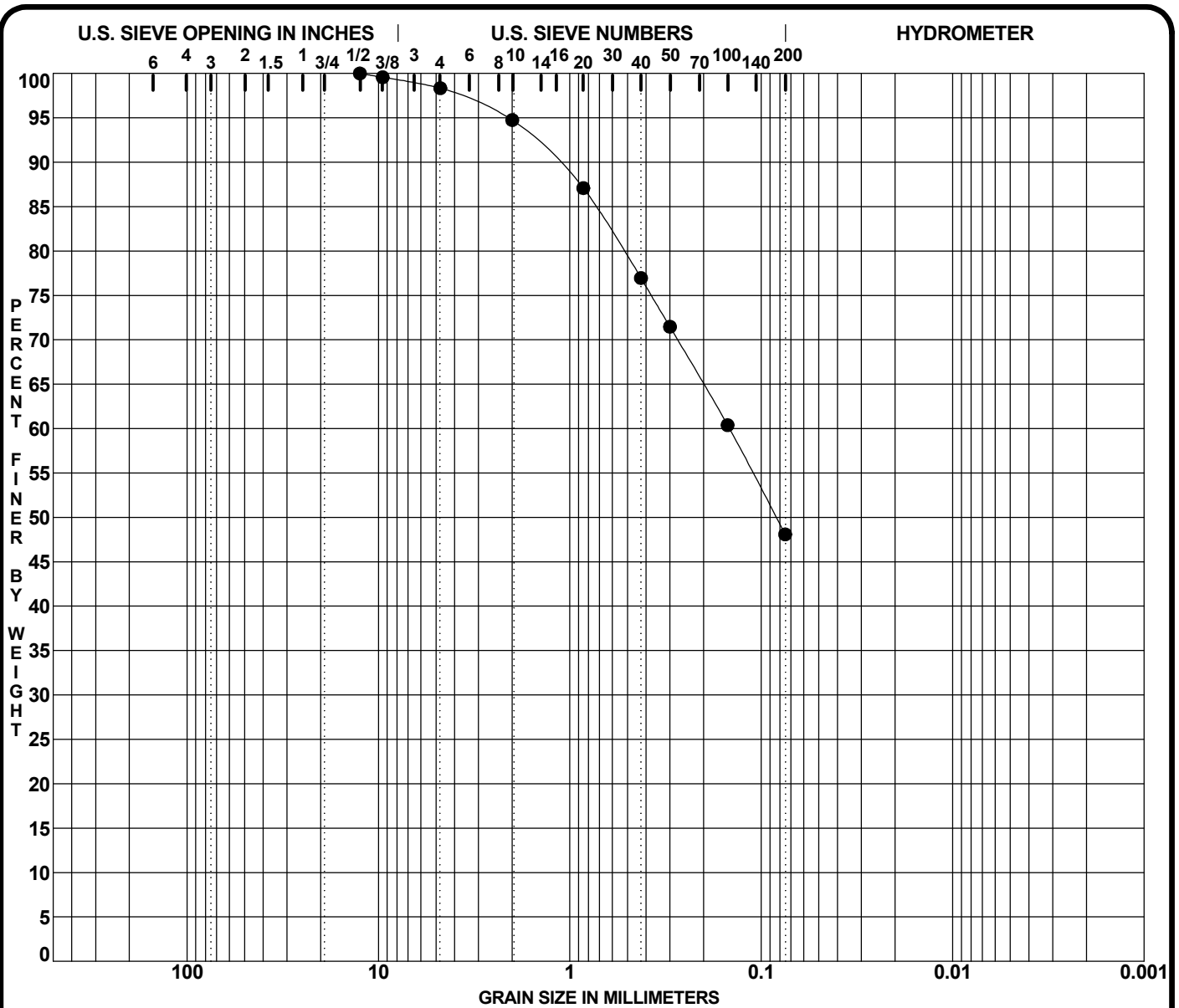
EXPANSION INDEX TESTS				
Boring Number	Sample Depth (feet)	Soil Description (U.S.C.S.)	Expansion Index (EI)	Expansion Potential
B-1	1-4	(SM/ML) Silty Sand to Sandy Silt	4	Very Low
Expansion Index:                      0-20                      21-50                      51-90                      91-130				
Very low                      Low                      Medium                      High				

### Sieve Analysis

A quantitative determination of the grain size distribution was performed for selected samples in accordance with the ASTM D 422 laboratory test procedure. The determination is performed by passing the soil through a series of sieves, and recording the weights of retained particles on each screen. The results of the sieve analyses are presented graphically on Enclosure C-1.

### Corrosion

Corrosion testing was conducted by our subconsultant, Project X Corrosion Engineering. Test results are enclosed.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Classification					SE	RV	PL	PI	Cc	Cu
● B-1 @ 1-4'	(SM) Silty Sand					--	--				
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay			
● B-1 @ 1-4'	12.50	0.15			1.7	50.3	48.1				

<b>PROJECT:</b>	Proposed Reservoir No. 3A	<b>PROJECT NO.:</b>	33109.13
<b>CLIENT:</b>	Land Engineering Consultants, Inc.	<b>DATE:</b>	May 2023

## GRADATION CURVES





# Results Only Soil Testing for Reservoir No. 3A

**May 24, 2023**

**Prepared for:**

**Robb Markoff  
LOR Geotechnical  
6121 Quail Valley Ct  
Riverside, CA  
rmarkoff@lorgeo.com**

**Project X Job#: S230522D  
Client Job or PO#: 33109.13**

Respectfully Submitted,

Eduardo Hernandez, M.Sc., P.E.  
Sr. Corrosion Consultant  
NACE Corrosion Technologist #16592  
Professional Engineer  
California No. M37102  
[ehernandez@projectxcorrosion.com](mailto:ehernandez@projectxcorrosion.com)





## Soil Analysis Lab Results

Client: LOR Geotechnical  
Job Name: Reservoir No. 3A  
Client Job Number: 33109.13  
Project X Job Number: S230522D  
May 24, 2023

	Method	ASTM D4327		ASTM D4327		ASTM G187		ASTM G51	ASTM G200	SM 4500-D	ASTM D4327	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D4327	ASTM D4327
Bore# / Description	Depth	Sulfates SO <sub>4</sub> <sup>2-</sup>		Chlorides Cl <sup>-</sup>		Resistivity		pH	Redox	Sulfide S <sup>2-</sup>	Nitrate NO <sub>3</sub> <sup>-</sup>	Ammonium NH <sub>4</sub> <sup>+</sup>	Lithium Li <sup>+</sup>	Sodium Na <sup>+</sup>	Potassium K <sup>+</sup>	Magnesium Mg <sup>2+</sup>	Calcium Ca <sup>2+</sup>	Fluoride F <sub>2</sub> <sup>-</sup>	Phosphate PO <sub>4</sub> <sup>3-</sup>
	(ft)	(mg/kg)	(wt%)	(mg/kg)	(wt%)	As Rec'd	Minimum		(mV)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BB-1 B-1 (ML) Sandy silt	1-4	29.0	0.0029	22.9	0.0023	28,810	9,380	6.2	107	2.3	10.6	26.7	ND	39.1	10.4	38.2	126.1	3.8	15.1

Cations and Anions, except Sulfide and Bicarbonate, tested with Ion Chromatography  
mg/kg = milligrams per kilogram (parts per million) of dry soil weight  
ND = 0 = Not Detected | NT = Not Tested | Unk = Unknown  
Chemical Analysis performed on 1:3 Soil-To-Water extract  
PPM = mg/kg (soil) = mg/L (Liquid)

**Note:** Sometimes a bad sulfate hit is a contaminated spot. Typical fertilizers are Potassium chloride, ammonium sulfate or ammonium sulfate nitrate (ASN). So this is another reason why testing full corrosion series is good because we then have the data to see if those other ingredients are present meaning the soil sample is just fertilizer-contaminated soil. This can happen often when the soil samples collected are simply surface scoops which is why it's best to dig in a foot, throw away the top and test the deeper stuff. Dairy farms are also notorious for these items.

Ship Samples To: 29990 Technology Dr, Suite 13, Murrieta, CA 92563

Project X Job Number <b>S230522D LOR 33109.13 Reservoir No. 3A 1Full</b>									
IMPORTANT: Please complete Project and Sample Identification Data as you would like it to appear in report & include this form with samples.									
Company Name: <b>LOR Geotechnical Group, Inc.</b>				Contact Name: <b>ROBERT MARKOFF</b>		Phone No: <b>951-653-1760</b>			
Mailing Address: <b>6121 Quail Valley Court</b>				Contact Email: <b>RMARKOFF@LORGEOTECH.COM</b>					
Accounting Contact: <b>John Leuer</b>				Invoice Email: <b>ATORNE@LORGEOTECH.COM</b>					
Client Project No: <b>33109.13</b>				Project Name: <b>RESERVOIR NO. 3A</b>					
P.O. #: <b>---</b>		3-5 Day Standard		3 Day Guarantee 50% mark-up		24 Hr RUSH 100% mark-up		ANALYSIS REQUESTED (Please circle)	
(Business Days) Turn Around Time: <input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Results By: <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> Email				ASTM G187		ASTM G31		ASTM G41	
Date & Received by:				ASTM G51		ASTM G59		ASTM G61	
Default Method				ASTM G62		ASTM G63		ASTM G64	
Special Instructions:				ASTM G65		ASTM G66		ASTM G67	
				ASTM G68		ASTM G69		ASTM G70	
				ASTM G71		ASTM G72		ASTM G73	
				ASTM G74		ASTM G75		ASTM G76	
				ASTM G77		ASTM G78		ASTM G79	
				ASTM G80		ASTM G81		ASTM G82	
				ASTM G83		ASTM G84		ASTM G85	
				ASTM G86		ASTM G87		ASTM G88	
				ASTM G89		ASTM G90		ASTM G91	
				ASTM G92		ASTM G93		ASTM G94	
				ASTM G95		ASTM G96		ASTM G97	
				ASTM G98		ASTM G99		ASTM G100	
				ASTM G101		ASTM G102		ASTM G103	
				ASTM G104		ASTM G105		ASTM G106	
				ASTM G107		ASTM G108		ASTM G109	
				ASTM G110		ASTM G111		ASTM G112	
				ASTM G113		ASTM G114		ASTM G115	
				ASTM G116		ASTM G117		ASTM G118	
				ASTM G119		ASTM G120		ASTM G121	
				ASTM G122		ASTM G123		ASTM G124	
				ASTM G125		ASTM G126		ASTM G127	
				ASTM G128		ASTM G129		ASTM G130	
				ASTM G131		ASTM G132		ASTM G133	
				ASTM G134		ASTM G135		ASTM G136	
				ASTM G137		ASTM G138		ASTM G139	
				ASTM G140		ASTM G141		ASTM G142	
				ASTM G143		ASTM G144		ASTM G145	
				ASTM G146		ASTM G147		ASTM G148	
				ASTM G149		ASTM G150		ASTM G151	
				ASTM G152		ASTM G153		ASTM G154	
				ASTM G155		ASTM G156		ASTM G157	
				ASTM G158		ASTM G159		ASTM G160	
				ASTM G161		ASTM G162		ASTM G163	
				ASTM G164		ASTM G165		ASTM G166	
				ASTM G167		ASTM G168		ASTM G169	
				ASTM G170		ASTM G171		ASTM G172	
				ASTM G173		ASTM G174		ASTM G175	
				ASTM G176		ASTM G177		ASTM G178	
				ASTM G179		ASTM G180		ASTM G181	
				ASTM G182		ASTM G183		ASTM G184	
				ASTM G185		ASTM G186		ASTM G187	
				ASTM G188		ASTM G189		ASTM G190	
				ASTM G191		ASTM G192		ASTM G193	
				ASTM G194		ASTM G195		ASTM G196	
				ASTM G197		ASTM G198		ASTM G199	
				ASTM G200		ASTM G201		ASTM G202	
				ASTM G203		ASTM G204		ASTM G205	
				ASTM G206		ASTM G207		ASTM G208	
				ASTM G209		ASTM G210		ASTM G211	
				ASTM G212		ASTM G213		ASTM G214	
				ASTM G215		ASTM G216		ASTM G217	
				ASTM G218		ASTM G219		ASTM G220	
				ASTM G221		ASTM G222		ASTM G223	
				ASTM G224		ASTM G225		ASTM G226	
				ASTM G227		ASTM G228		ASTM G229	
				ASTM G230		ASTM G231		ASTM G232	
				ASTM G233		ASTM G234		ASTM G235	
				ASTM G236		ASTM G237		ASTM G238	
				ASTM G239		ASTM G240		ASTM G241	
				ASTM G242		ASTM G243		ASTM G244	
				ASTM G245		ASTM G246		ASTM G247	
				ASTM G248		ASTM G249		ASTM G250	
				ASTM G251		ASTM G252		ASTM G253	
				ASTM G254		ASTM G255		ASTM G256	
				ASTM G257		ASTM G258		ASTM G259	
				ASTM G260		ASTM G261		ASTM G262	
				ASTM G263		ASTM G264		ASTM G265	
				ASTM G266		ASTM G267		ASTM G268	
				ASTM G269		ASTM G270		ASTM G271	
				ASTM G272		ASTM G273		ASTM G274	
				ASTM G275		ASTM G276		ASTM G277	
				ASTM G278		ASTM G279		ASTM G280	
				ASTM G281		ASTM G282		ASTM G283	
				ASTM G284		ASTM G285		ASTM G286	
				ASTM G287		ASTM G288		ASTM G289	
				ASTM G290		ASTM G291		ASTM G292	
				ASTM G293		ASTM G294		ASTM G295	
				ASTM G296		ASTM G297		ASTM G298	
				ASTM G299		ASTM G300		ASTM G301	
				ASTM G302		ASTM G303		ASTM G304	
				ASTM G305		ASTM G306		ASTM G307	
				ASTM G308		ASTM G309		ASTM G310	
				ASTM G311		ASTM G312		ASTM G313	
				ASTM G314		ASTM G315		ASTM G316	
				ASTM G317		ASTM G318		ASTM G319	
				ASTM G320		ASTM G321		ASTM G322	
				ASTM G323		ASTM G324		ASTM G325	
				ASTM G326		ASTM G327		ASTM G328	
				ASTM G329		ASTM G330		ASTM G331	
				ASTM G332		ASTM G333		ASTM G334	
				ASTM G335		ASTM G336		ASTM G337	
				ASTM G338		ASTM G339		ASTM G340	
				ASTM G341		ASTM G342		ASTM G343	
				ASTM G344		ASTM G345		ASTM G346	
				ASTM G347		ASTM G348		ASTM G349	
				ASTM G350		ASTM G351		ASTM G352	
				ASTM G353		ASTM G354		ASTM G355	
				ASTM G356		ASTM G357		ASTM G358	
				ASTM G359		ASTM G360		ASTM G361	
				ASTM G362		ASTM G363		ASTM G364	
				ASTM G365		ASTM G366		ASTM G367	
				ASTM G368		ASTM G369		ASTM G370	
				ASTM G371		ASTM G372		ASTM G373	
				ASTM G374		ASTM G375		ASTM G376	
				ASTM G377		ASTM G378		ASTM G379	
				ASTM G380		ASTM G381		ASTM G382	
				ASTM G383		ASTM G384		ASTM G385	
				ASTM G386		ASTM G387		ASTM G388	
				ASTM G389		ASTM G390		ASTM G391	
				ASTM G392		ASTM G393		ASTM G394	
				ASTM G395		ASTM G396		ASTM G397	
				ASTM G398		ASTM G399		ASTM G400	
				ASTM G401		ASTM G402		ASTM G403	
				ASTM G404		ASTM G405		ASTM G406	
				ASTM G407		ASTM G408		ASTM G409	
				ASTM G410		ASTM G411		ASTM G412	
				ASTM G413		ASTM G414		ASTM G415	
				ASTM G416		ASTM G417		ASTM G418	
				ASTM G419		ASTM G420		ASTM G421	
				ASTM G422		ASTM G423		ASTM G424	
				ASTM G425		ASTM G426		ASTM G427	
				ASTM G428		ASTM G429		ASTM G430	
				ASTM G431		ASTM G432		ASTM G433	
				ASTM G434		ASTM G435		ASTM G436	
				ASTM G437		ASTM G438		ASTM G439	
				ASTM G440		ASTM G441		ASTM G442	
				ASTM G443		ASTM G444		ASTM G445	
				ASTM G446		ASTM G447		ASTM G448	
				ASTM G449		ASTM G450		ASTM G451	
				ASTM G452		ASTM G453		ASTM G454	
				ASTM G455		ASTM G456		ASTM G457	
				ASTM G458		ASTM G459		ASTM G460	
				ASTM G461		ASTM G462		ASTM G463	
				ASTM G464		ASTM G465		ASTM G466	
				ASTM G467		ASTM G468		ASTM G469	
				ASTM G470		ASTM G471		ASTM G472	
				ASTM G473		ASTM G474		ASTM G475	
				ASTM G476		ASTM G477		ASTM G478	
				ASTM G479		ASTM G480		ASTM G481	
				ASTM G482		ASTM G483		ASTM G484	
				ASTM G485		ASTM G486		ASTM G487	
				ASTM G488		ASTM G489		ASTM G490	
				ASTM G491		ASTM G492		ASTM G493	
				ASTM G494		ASTM G495		ASTM G496	
				ASTM G497		ASTM G498		ASTM G499	
				ASTM G500		ASTM G501		ASTM G502	
				ASTM G503		ASTM G504		ASTM G505	
				ASTM G506		ASTM G507		ASTM G508	
				ASTM G509		ASTM G510		ASTM G511	
				ASTM G512		ASTM G513		ASTM G514	
				ASTM G515		ASTM G516		ASTM G517	
				ASTM G518		ASTM G519		ASTM G520	
				ASTM G521		ASTM G522		ASTM G523	
				ASTM G524		ASTM G525		ASTM G526	
				ASTM G527		ASTM G528		ASTM G529	
				ASTM G530		ASTM G531		ASTM G532	
				ASTM G533		ASTM G534		ASTM G535	
				ASTM G536		ASTM G537		ASTM G538	
				ASTM G539		ASTM G540		ASTM G541	
				ASTM G542		ASTM G543		ASTM G544	
				ASTM G545		ASTM G546		ASTM G547	
				ASTM G548		ASTM G549		ASTM G550	
				ASTM G551		ASTM G552		ASTM G553	
				ASTM G554		ASTM G555		ASTM G556	
				ASTM G557		ASTM G558		ASTM G559	
				ASTM G560		ASTM G561		ASTM G562	
				ASTM G563		ASTM G564		ASTM G565	
				ASTM G566		ASTM G567		ASTM G568	
				ASTM G569		ASTM G570		ASTM G571	
				ASTM G572		ASTM G573		ASTM G574	
				ASTM G575		ASTM G576		ASTM G577	
				ASTM G578		ASTM G579		ASTM G580	
				ASTM G581		ASTM G582		ASTM G583	
				ASTM G584		ASTM G585		ASTM G586	
				ASTM G587		ASTM G588		ASTM G589	
				ASTM G590		ASTM G591		ASTM G592	
				ASTM G593		ASTM G594		ASTM G595	
				ASTM G596		ASTM G597		ASTM G598	
				ASTM G599		ASTM G600		ASTM G601	
				ASTM G602		ASTM G603		ASTM G604	
				ASTM G605		ASTM G606		ASTM G607	
				ASTM G608		ASTM G609		ASTM G610	
				ASTM G611		ASTM G612		ASTM G613	
				ASTM G614		ASTM G615		ASTM G616	
				ASTM G617		ASTM G618		ASTM G619	
				ASTM G620		ASTM G621		ASTM G622	
				ASTM G623		ASTM G624		ASTM G625	
				ASTM G626		ASTM G627		ASTM G628	
				ASTM G629		ASTM G630		ASTM G631	
				ASTM G632		ASTM G633		ASTM G634	

## **APPENDIX D**

### **Seismic Design Spectra**

# SITE-SPECIFIC GROUND MOTION ANALYSIS (ASCE 7-16)

ALL values on this page were used for determination of ASCE 7-16 Section 21.3 General Spectrum and are NOT intended to be used for design

Project: Reservoir No. 3A  
Project Number: 33109.13  
Client: Land Engineering Consultants, Inc.  
Site Lat/Long: 34.0018/-117.0524  
Controlling Seismic Source: San Andreas

REFERENCE	NOTATION	VALUE	REFERENCE	NOTATION	VALUE	REFERENCE	NOTATION	VALUE
Site Class	C, D, D default, or E	D measured	Fv (Table 11.4-2)[Used for General Spectrum]	F <sub>v</sub>	1.7			
Site Class D - Table 11.4-1	F <sub>a</sub>	1.0	Design Maps	S <sub>s</sub>	2.336	0.2*(S <sub>D1</sub> /S <sub>DS</sub> )	T <sub>0</sub>	0.122
Site Class D - 21.3(ii)	F <sub>v</sub>	2.5	Design Maps	S <sub>1</sub>	0.841	S <sub>D1</sub> /S <sub>DS</sub>	T <sub>s</sub>	0.612
0.2*(S <sub>D1</sub> /S <sub>DS</sub> )	T <sub>0</sub>	0.180	Equation 11.4-1 - F <sub>A</sub> *S <sub>s</sub>	S <sub>MS</sub>	2.336	Equation 11.4-4 - 2/3*S <sub>M1</sub>	S <sub>D1</sub>	0.953
S <sub>D1</sub> /S <sub>DS</sub>	T <sub>s</sub>	0.900	Equation 11.4-3 - 2/3*S <sub>MS</sub>	S <sub>DS</sub>	1.557	Equation 11.4-2 - F <sub>v</sub> *S <sub>1</sub>	S <sub>M1</sub>	1.430
Fundamental Period (12.8.2)	T	Period	Design Maps	PGA	1.001			
Seismic Design Maps or Fig 22-14	T <sub>L</sub>	8	Table 11.8-1	F <sub>PGA</sub>	1.1			
Equation 11.4-4 - 2/3*S <sub>M1</sub>	S <sub>D1</sub>	1.4017	Equation 11.8-1 - F <sub>PGA</sub> *PGA	PGA <sub>M</sub>	1.101			
Equation 11.4-2 - F <sub>v</sub> *S <sub>1</sub> <sup>1</sup>	S <sub>M1</sub>	2.1025	Section 21.5.3	80% of PGA <sub>M</sub>	0.881			
<sup>1</sup> - F <sub>v</sub> as determined by Section 21.3			Design Maps	C <sub>RS</sub>	0.917			
			Design Maps	C <sub>R1</sub>	0.892			
<b><u>RISK COEFFICIENT</u></b>								
Cr - At Periods <=0.2, Cr=C <sub>RS</sub>	C <sub>RS</sub>	0.917				Cr - At Periods between 0.2 and 1.0 use trendline formula to complete	Period	Cr
Cr - At Periods >=1.0, Cr=C <sub>R1</sub>	C <sub>R1</sub>	0.892					0.200	0.917
							0.300	0.914
							0.400	0.911
							0.500	0.908
							0.600	0.905
							0.680	0.902
							1.000	0.892

Mapped values from <https://hazards.atcouncil.org/>

**PROBABILISTIC SPECTRA<sup>1</sup>**  
**2% in 50 year Exceedence**

Project No: 33109.13

Period	UGHM	RTGM	Max Directional Scale Factor <sup>2</sup>	Probabilistic MCE
0.010	1.004	0.977	1.19	1.163
0.100	1.660	1.650	1.19	1.964
0.200	2.170	2.155	1.20	2.586
0.300	2.466	2.404	1.22	2.933
0.500	2.502	2.350	1.23	2.891
0.750	2.141	1.948	1.24	2.416
1.000	1.831	1.660	1.24	2.058
2.000	1.104	0.980	1.24	1.215
3.000	0.774	0.682	1.25	0.853
4.000	0.574	0.503	1.25	0.629
5.000	0.446	0.388	1.26	0.489

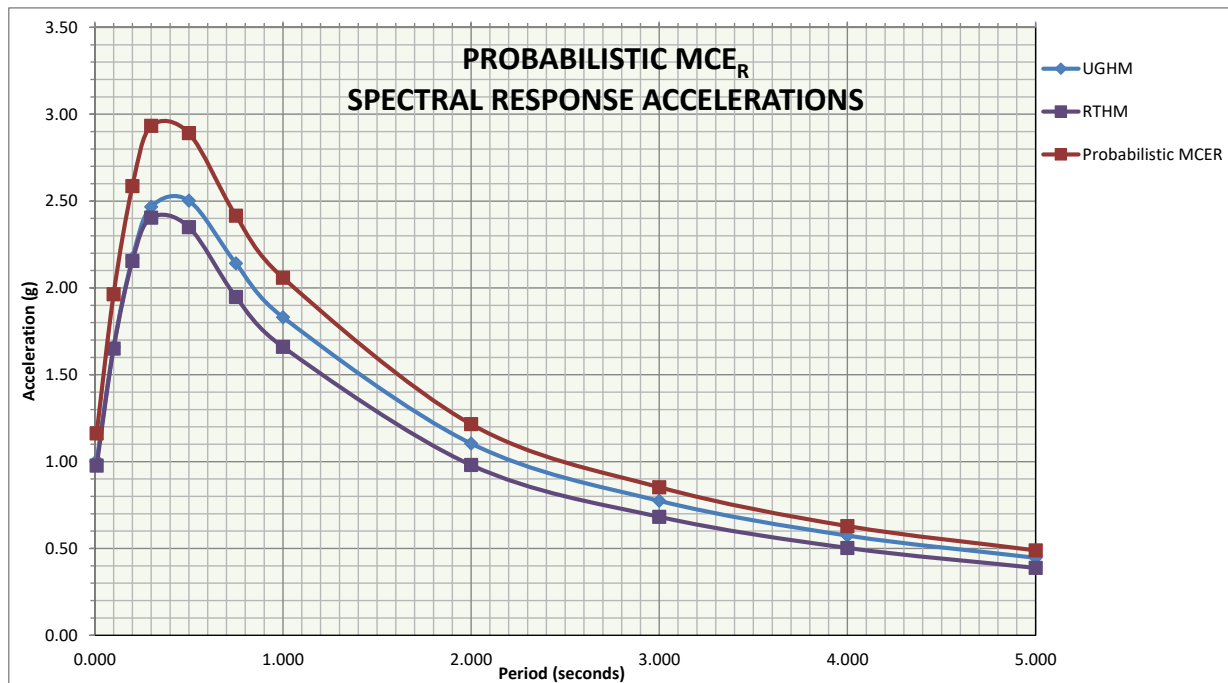
<sup>1</sup> Data Sources:

<https://earthquake.usgs.gov/hazards/interactive/>

<https://earthquake.usgs.gov/designmaps/rtgm/>

<sup>2</sup> Shahi-Baker RotD100/RotD50 Factors (2014)

Probabilistic PGA: 1.004  
 Is Probabilistic  $S_{a(max)} < 1.2F_a$ ? **NO**



# DETERMINISTIC SPECTRUM

Largest Amplitudes of Ground Motions Considering All Sources Calculated using Weighted Mean of Attenuation Equations<sup>1</sup>

Controlling Source: San Andreas

Is Probabilistic  $S_{a(max)} < 1.2F_a$ ? **NO**

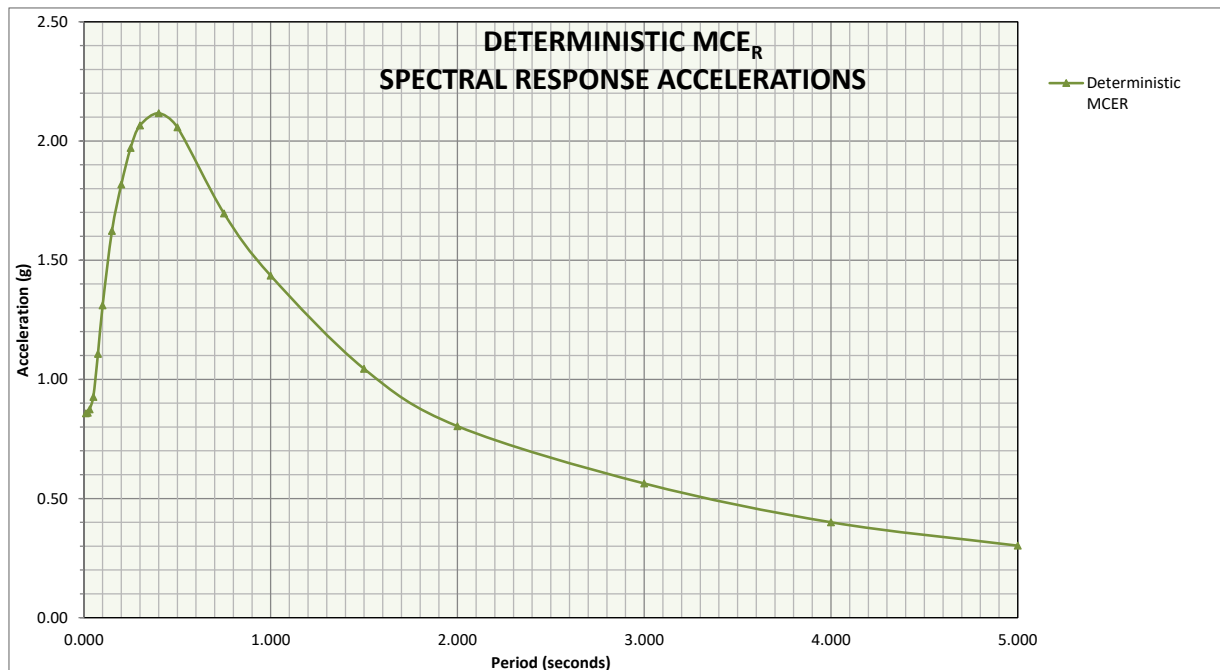
Period	Deterministic $P_{Sa}$ Median + $1.0\sigma$ for 5% Damping	Max Directional Scale Factor <sup>2</sup>	Deterministic MCE	Section 21.2.2 Scaling Factor Applied
0.010	0.720	1.19	0.857	0.857
0.020	0.723	1.19	0.860	0.860
0.030	0.734	1.19	0.874	0.874
0.050	0.779	1.19	0.926	0.926
0.075	0.930	1.19	1.107	1.107
0.100	1.101	1.19	1.310	1.310
0.150	1.352	1.20	1.623	1.623
0.200	1.514	1.20	1.817	1.817
0.250	1.629	1.21	1.971	1.971
0.300	1.693	1.22	2.065	2.065
0.400	1.721	1.23	2.117	2.117
0.500	1.673	1.23	2.057	2.057
0.750	1.368	1.24	1.696	1.696
1.000	1.157	1.24	1.435	1.435
1.500	0.842	1.24	1.044	1.044
2.000	0.648	1.24	0.803	0.803
3.000	0.450	1.25	0.563	0.563
4.000	0.320	1.25	0.400	0.400
5.000	0.240	1.26	0.302	0.302

Project No: 33109.13

Is Deterministic  $S_{a(max)} < 1.5F_a$ ? **NO**  
 Section 21.2.2 Scaling Factor: **N/A**  
 Deterministic PGA: **0.720**  
 Is Deterministic PGA  $\geq F_{PGA} * 0.5$ ? **YES**

<sup>1</sup> NGAWest 2 GMPE worksheet and  
 Uniform California Earthquake Rupture  
 Forecast, Version 3 (UCERF3) - Time  
 Dependent Model

<sup>2</sup> Shahi-Baker RotD100/RotD50 Factors  
 (2014)





### SITE SPECIFIC SPECTRA

Period	Probabilistic MCE	Deterministic MCE	Site-Specific MCE	Design Response Spectrum (Sa)
0.010	1.163	0.857	0.857	0.571
0.100	1.964	1.310	1.310	0.914
0.200	2.586	1.817	1.817	1.246
0.300	2.933	2.065	2.065	1.377
0.500	2.891	2.057	2.057	1.372
0.750	2.416	1.696	1.696	1.246
1.000	2.058	1.435	1.435	1.121
2.000	1.215	0.803	0.803	0.561
3.000	0.853	0.563	0.563	0.375
4.000	0.629	0.400	0.400	0.280
5.000	0.489	0.302	0.302	0.224

### ASCE 7-16: Section 21.4 Site Specific

	Calculated Value	Design Value
SDS:	1.239	1.246
SD1:	1.126	1.126
SMS:	1.858	1.869
SM1:	1.689	1.689
Site Specific PGAm:	0.720	0.881
Site Class:	D measured	

Seismic Design Category - Short\*

E

Seismic Design Category - 1s\*

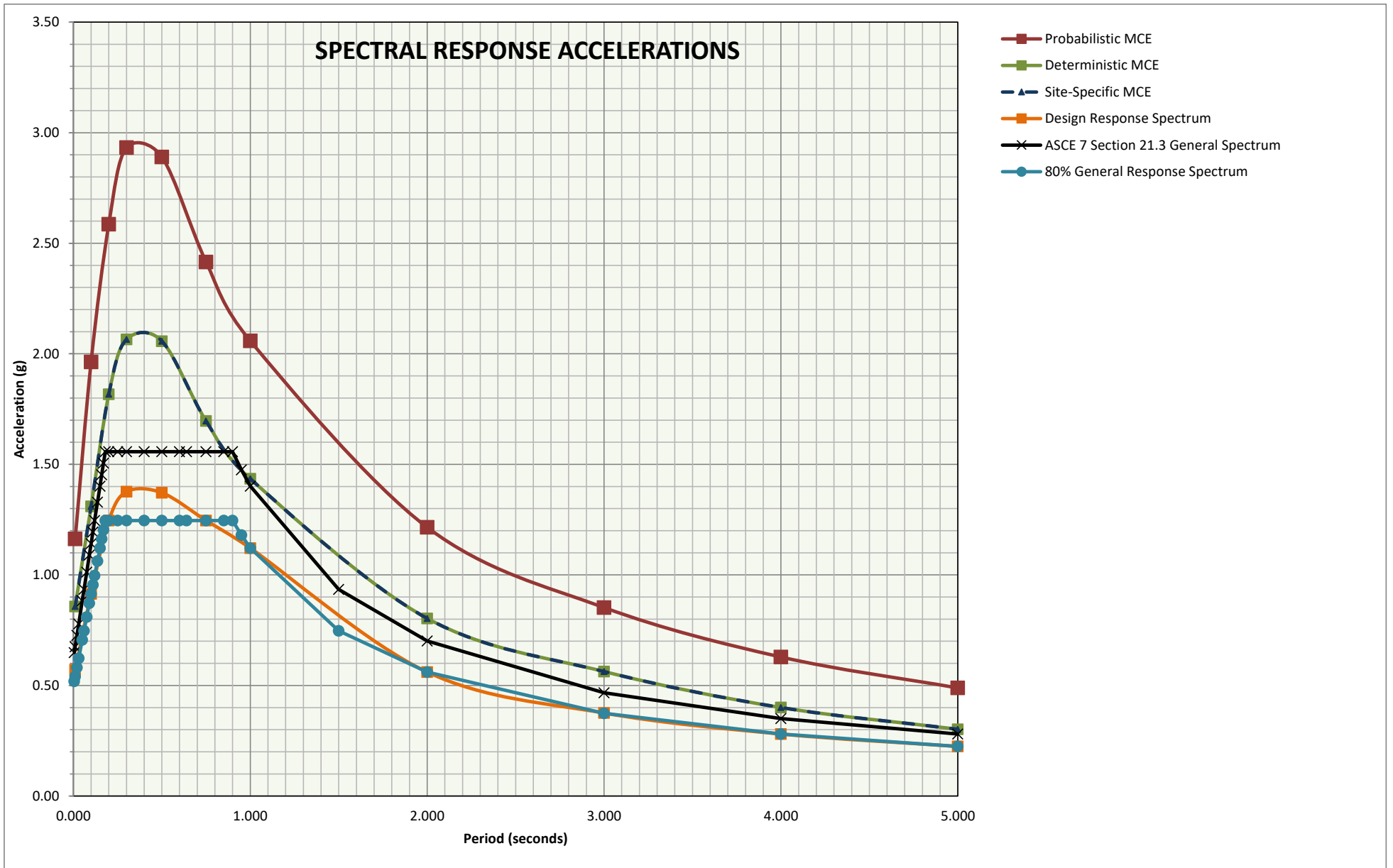
E

\* Risk Categories I, II, or III

Period	ASCE 7 SECTION 21.3 General Spectrum	80% General Response Spectrum
0.005	0.649	0.519
0.010	0.675	0.540
0.020	0.727	0.581
0.030	0.779	0.623
0.050	0.882	0.706
0.060	0.934	0.748
0.075	1.012	0.810
0.090	1.090	0.872
0.100	1.142	0.914
0.110	1.194	0.955
0.120	1.246	0.997
0.136	1.329	1.063
0.150	1.402	1.121
0.160	1.453	1.163
0.170	1.505	1.204
0.180	1.557	1.246
0.200	1.557	1.246
0.250	1.557	1.246
0.300	1.557	1.246
0.400	1.557	1.246
0.500	1.557	1.246
0.600	1.557	1.246
0.640	1.557	1.246
0.750	1.557	1.246
0.850	1.557	1.246
0.900	1.557	1.246
0.950	1.475	1.180
1.000	1.402	1.121
1.500	0.934	0.748
2.000	0.701	0.561
3.000	0.467	0.374
4.000	0.350	0.280
5.000	0.280	0.224

Project No: 33109.13





Project No: 33109.13

# APPENDIX G

## County Line Transportation Corridor Addendum



**City of Calimesa**

**COUNTY LINE TRANSPORTATION CORRIDOR  
PROJECT**

**ADDENDUM TO INITIAL STUDY/  
MITIGATED NEGATIVE DECLARATION**

**August 2022**

**Prepared in conjunction with:  
City of Yucaipa  
California Water Resources Control Board**

**SCH# 2019109030**

## **1.0 INTRODUCTION AND BACKGROUND**

### **1.1 INTRODUCTION**

This environmental document is an Addendum to the Cities of Yucaipa and Calimesa's (Cities) County Line Transportation Corridor Initial Study/Mitigated Negative Declaration (IS/MND), State Clearinghouse No. 2019109030, adopted on December 10, 2019 by the Cities of Calimesa and Yucaipa. The City of Calimesa is the lead agency under CEQA for the County Line Transportation Corridor (CLTC) IS/MND.

This Addendum addresses refinements to the project plans that add a waterline replacement and well relocation associated with the Transportation Corridor, to be installed by the South Mesa Water Company (SMWC). As demonstrated in this Addendum, the 2019 IS/MND continues to serve as the appropriate document addressing the environmental impacts of these improvements pursuant to California Environmental Quality Act (CEQA). The City of Calimesa also is the CEQA lead agency for the project because it requires a Development Permit for relocating the well. No other discretionary permits are required by Calimesa, Yucaipa, or other state or regional agencies for SMWC's project.

### **1.2 COUNTY LINE TRANSPORTATION CORRIDOR (CLTC) BACKGROUND**

The CLTC IS/MND was prepared to address construction and operational impacts of the proposed roadway corridor, drainage, and related improvements on County Line Road from Park Avenue to Bryant Street. The project includes the improvement of approximately 4,942 linear feet (LF) along County Line Road and 2,142 LF on the cross streets for a total length of 7,084 LF. The roadway is the boundary between the Counties of Riverside (to the south) and San Bernardino (to the north).

The CLTC project is a multi-modal surface transportation enhancement project, which addresses traffic congestion and safety coupled with facilitation of growth and non-motorized transportation systems. The existing County Line Road corridor does not have sufficient capacity to serve the current traffic volumes and utilizes multi-way stop control at every intersection. The CLTC project proposes to construct four single-lane and one multi-lane roundabouts, together with street, pedestrian, drainage (catch basins at each roundabout) and bicycle improvements, to improve safety and efficiency throughout the corridor. The use of roundabouts, in lieu of signalized intersections, provides adequate capacity and LOS for County Line Road to remain a two-lane street, thus significantly reducing right-of-way (ROW) and construction costs to construct a four-lane corridor. Roundabouts will be constructed at the intersections of 5th Street, 3rd Street, 2nd Street, California Street, and Bryant Street. In

addition, street improvements are proposed to be implemented between Park Avenue and 5th Street, 5<sup>th</sup> Street East (Mid-Block) to 3rd Street, and California Street to Bryant Street. Figure 1 shows the project improvements along County Line Road, including the roundabouts, as well as the proposed water line and well relocation improvements.

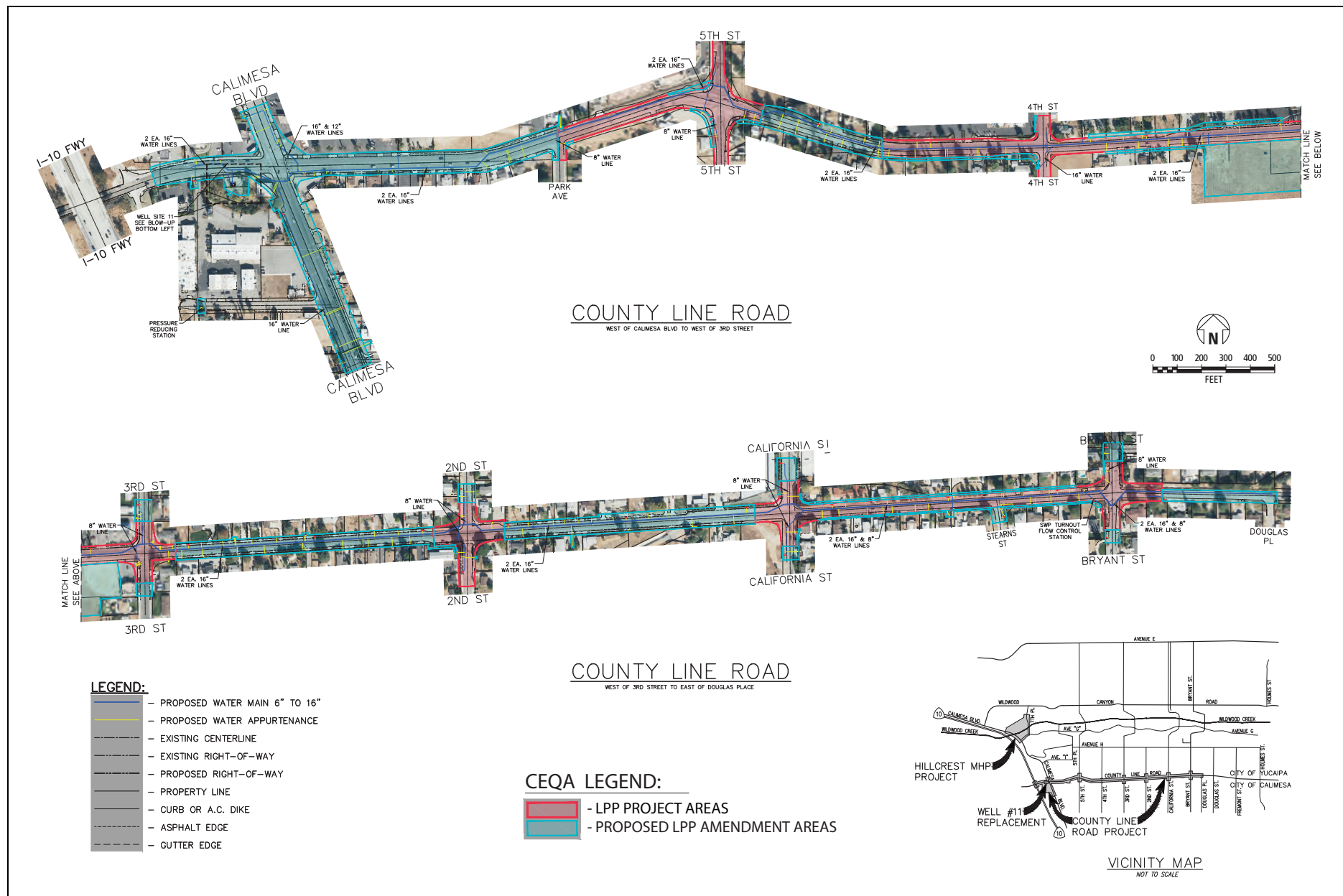
The IS/MND evaluated potential environmental effects of the project. All impacts identified in the IS/MND were either less than significant (with design and construction features that were built into the project) or have been mitigated to below a level of significance through implementation of mitigation measures identified in the IS/MND and subsequently incorporated into the project. Specifically, the IS/MND included design measures for air quality, hazards, hydrology and water quality, and transportation/circulation. It also identified City of Calimesa and Yucaipa General Plan plans, policies, and programs that would reduce other impacts, including biological resources, to a less-than-significant level. Finally, in addition to avoidance and plans/policies, the IS/MND identified mitigation measures to reduce residual cultural resources, paleontological resources, hydrology, noise, and transportation impacts to less-than-significant levels.

The CLTC project was initially scheduled for construction in 2020, but has been re-scheduled to start construction in 2022. Another intersection improvement project and County Line Road and Calimesa Blvd. (Jerry Lewis intersection) was analyzed by the City of Calimesa under a separate IS/MND, and was approved by the City on May 16, 2022.

### **1.3 PURPOSE OF AN ADDENDUM TO THE IS/MND**

When a proposed project is changed, there are changes in environmental setting, or additional analysis is required, a determination must be made by the Lead Agency as to whether an Addendum or Subsequent MND is prepared. CEQA Guidelines Sections 15162 and 15164 set forth criteria to assess which environmental document is appropriate. The criteria for determining whether an Addendum or Subsequent MND is prepared are outlined below. If the criteria below are true, then an Addendum is the appropriate document:

- No new significant impacts will result from the project or from new mitigation measures.
- No substantial increase in the severity of environmental impact will occur.
- No new feasible alternatives or mitigation measures that would reduce impacts previously found not to be feasible have, in fact, been found to be feasible.



**Figure 1**  
Approved CLTC Roadway Improvements and Proposed Pipeline and Well Relocation Areas

Source: Land Engineering Consultants, Inc.

Based upon the information provided in Section 3.0 of this document, below, the changes to the approved project will not result in new significant impacts or substantially increase the severity of impacts previously identified in the IS/MND, and there are no previously infeasible alternatives that are now feasible. None of the other factors set forth in Section 15162(a)(3) are present. Therefore, an Addendum is appropriate.

## **2.0 PROJECT DESCRIPTION**

### **2.1 Relationship of Proposed Pipeline Replacement and Well Relocation to CLTC Project**

The original project addressed in the 2019 County Line transportation Corridor IS/MND included discontinuous roadway and drainage improvements along County Line Road and intersecting roadways from Park Avenue to Bryant Street. The proposed project addressed in this Addendum would add replacement of existing water lines for that entire alignment length and extending both east and west of the previously proposed transportation corridor, and also extending short distances north and south at the Calimesa Blvd./County Line Road intersection. A SMWC water supply well at that intersection also requires replacement and is addressed herein. Although the previously approved project was discontinuous along the roadway alignment, with gaps between California Street and Second Street, and a small gap just east of 5<sup>th</sup> Street, the technical analyses in the IS/MND addressed the entire alignment from Park Avenue to Bryant Street (See Figure 1).

South Mesa Water Company (SMWC) serves an area that includes two cities and two counties, with the City of Yucaipa (San Bernardino County) to the north and the City of Calimesa (Riverside County) to the south. The centerline of County Line Road lies on the city/county boundary line for much of its length through SMWC's service area. As described above, the Cities of Yucaipa and Calimesa (Cities) have proposed street and storm drain improvement plans within County Line Road, some of which were evaluated in the 2019 CLTC IS/MND. The Cities' projects include street and right-of-way widening, new and upsized storm drain facilities, and proposed roundabouts at the primary intersections. The Cities' projects also include new streets, sidewalks, roundabouts, and storm drains that will interfere with SMWC's ability to repair their water system that lie within these streets.

The Cities' roadway improvement project for Calimesa Blvd and Countyline Road would interfere with one of SMWC's existing water-producing wells. This well, known as Well No. 11, is located near the southwest corner of the intersection of County Line Road and Calimesa Boulevard and historical records indicate that it was drilled in 1920. The proposed roadway widening improvements conflict with the location of the well, and the Cities have indicated that they cannot work around its location due to the limited space available on both sides of the roadway. Therefore, SMWC and the Cities concur the well must be relocated.

## **2.2 Proposed Project Revisions**

The 2019 CLTC project did not include the water pipeline replacement or well relocation. Subsequent to issuance of that document, the City and the SMWC determined that the Cities' CLTC and Calimesa Blvd and County Line Road Improvement project (also referred to as the "Jerry Lewis" Intersection) would conflict with SMWC's existing water system due to the horizontal and vertical design of the proposed street and storm drain facilities and required well relocation. These conflicts necessitate that SMWC replace various parts of their water system to maintain service and comply with the Waterworks Main Separation standards. The Cities' project's also pose potential conflicts with SMWC's water system in the near-term, due to the installation of new asphalt, new concrete, and roundabouts over the top of the aged facilities, resulting in potentially high costs and difficulties associated with the maintenance of SMWC's existing facilities. In order to eliminate these conflicts, SMWC has opted to replace all of their existing pipelines that are within the Cities' proposed project areas and beyond their useful lifetime.

In addition, in order to provide space for the Cities' proposed street widening, SMWC proposes to drill a new well on the existing SMWC Well No. 11 site property that provides sufficient clearance from the Cities' proposed street and storm drain improvements. The replacement well would be located on the SMWC property approximately 50 feet the south and to the west of the existing well location. SMWC's pipeline and well replacement plans and activities are summarized below.

The replacement pipelines would be sized to accommodate planned growth in the SMWC service area as provided for in the applicable City and County General Plans, and provide adequate fire flows. As such, the pipelines would not be growth inducing. The proposed well would have an increased yield compared to the existing well, as necessary to meet current maximum day demand + fire flow + planned growth in the area.

### **Pipeline Replacement**

SMWC and the Cities are coordinating some aspects of their projects, which provides cost saving and efficiency benefits. The timing of the Cities' and SMWC projects will allow SMWC to trench through existing pavement, rather than cutting into new pavement and concrete to install its water systems at a later time. Additionally, the Cities have agreed to acquire right-of-way and clear the roadway and intersections prior to SMWC's water line installations. Based on pre-construction planning meetings, it is anticipated that the Cities will perform relocations, obstruction removal and concrete work, then SMWC will install their pipelines and temporary



resurfacing, then the Cities' storm drains will be installed, and lastly the roadway will be repaved.

The proposed water line would replace and upgrade the "main veins" of SMWC's water system that lie within the community's major arterial streets of County Line Road and Calimesa Boulevard, and route them around the proposed roundabouts, storm drains and other proposed facilities to avoid construction conflicts. The proposed pipeline replacement project includes the installation of approximately 24,533 linear feet (LF) of mainline pipes and 25,696 LF of appurtenance and service pipes consisting of:

- 20,480 LF 16" PVC pipe
- 152 LF 12" PVC pipe
- 2,962 LF 8" PVC pipe
- 101 LF 6" PVC pipe
- 591 LF 16" CML&C pipe
- 205 LF 8" CML&C pipe
- 42 LF 8" D.I.P. in an 18" steel casing
- 3 pressure reducing valves
- 36 fire hydrant assemblies
- 15 blow-off assemblies
- 18 air & vacuum assemblies
- 127 water service reconnections
- New valves and fittings for all new pipelines

The main water lines within County Line Road include two 16-inch pipes installed side-by-side within the same trench due to space limitations in the streets. The main lines will be reconnected to all existing SMWC intersecting lines. These reconnection water lines are proposed in a single trench, are 8-inch minimum pipe size, and typically extend to reconnect near the limits of the Cities' proposed street projects. In summary, the SMWC pipeline replacement project proposes several trench designs that result in various trench widths and depths throughout the project. Each trench design is listed in Table 1, with its respective standard trench dimensions and total length quantity. Trench dimension details also are available for review in the County Line Road Water Improvement Project Plan set, at SMWC's offices.

The main lines are proposed to be installed on the north side of the city/county line (within Yucaipa) for the majority of the lengths east of Park Avenue, and beginning approximately 300 feet west of Park Avenue the main lines are proposed to be installed on the south side of the city/county line (within Calimesa). However, appurtenance installations, water service installations and relocations, and main line reconnections will cross the city/county line to both

Cities throughout the entire length of the pipeline replacement project. It is estimated that approximately 80% of the proposed main line installations will occur within Yucaipa and the remaining 20% will occur within Calimesa.

**TABLE 1: Standard Trench Dimensions**

<b>Trench Type</b>	<b>Trench Width</b>	<b>Trench Depth (1)</b>	<b>Total Trench Length (2)</b>	<b>Trench Length Within Pavement</b>
Two 16" side-by-side	60"	64"	8,471'	8,188'
Two 16" stacked	42"	91"	601'	592'
16" & 12" side-by-side	58"	64"	152'	179'
Two 16" side-by-side & 8" stacked	60"	79"	1,236'	379'
Single pipe 16"	30"	64"	1,549'	1,389'
Single pipe 4" to 8" (3)	24"	55"	5,124'	1,892'
Water service or air-vac (<4")	18"	51"	19,737'	2,067'
Total excavation (haul off): +/-17,800 cubic yards				

(1) Standard depth (42" cover) is assumed; however, alternate depths are required in various locations where the pipeline must be routed around other existing and proposed facilities.

(2) Total trench lengths are estimated per the construction plans, dated April 7, 2021.

(3) All pipelines between 4" and 8", including mains, fire hydrant lines, and blow-off lines.

### *Additional Pipeline Improvements*

Beyond the replacement of existing pipelines, SMWC has included three stubbed connections from existing pipelines to the proposed right of way in the proposed construction project to accommodate near-future plans for state water project recharge basins. It is important that these lines are stubbed prior to the Cities' street improvement project to avoid trenching through the proposed roundabouts and streets shortly after their completion. These connections include two stubs (one near the Bryant Street intersection and one east of the Fourth Street intersection) from an existing 14-inch SMWC main line that is proposed to be converted for use as a drain line, and one stub (at the Bryant Street intersection) from the existing 54-inch state water project line. These lines will be extended to and capped at the proposed right of way and combine for a total of 168 linear feet of 16-inch pipeline (included in the overall totals).

### Laydown/Staging Areas

While all of the installations would occur within the limits of the proposed and/or existing roadway, additional areas would be utilized by the construction contractor to stage and store equipment and materials. Available properties that can be utilized for this purpose would be determined and negotiated at a later time by the installing contractor that is awarded the contract. However, SMWC has pre-determined a centralized location that consists of vacant land that may be an ideal choice for the contractor. This property is located along the south side of County Line Road between Third Street and Fourth Street. Additional areas adjacent to the roadway may be utilized as temporary laydown areas and are included in the pipeline and well replacement project study area.

### Other Underground Utilities

SMWC has done their due diligence to locate the existing utilities that lie within the roadway by performing field surveys, contacting all utility purveyors to request and obtain utility plans, and reviewing record information that has been made available. All known existing underground utilities have been located based on this information and are identified on the construction plans. However, the accuracy of this information is unknown and assumptions have been made in many cases to estimate the horizontal and vertical location based on the construction standards for that specific utility at its estimated time of installation. The construction plans have been designed to avoid all of the expected utility conflicts, but additional conflicts and relocations will certainly be necessary as the open trenches unveil what actually lies beneath the roadway. Utility relocations will be performed as necessary throughout the length of the pipeline replacement project. It is anticipated that the private utility purveyors, public utility agencies, and Cities will all work together with SMWC to assist in clearing the way as the construction moves forward.

The pipeline replacement project is not proposed to be phased, but the construction contractor will likely be working within one or two blocks at any given time. The construction will begin on the east end of the project near Douglas Place and continue working westward. Trench work will move approximately 100 feet ahead of the installation work to allow sufficient time to identify and find a solution to unknown underground conflicts. It is speculated that the project will move at a pace of approximately 100 linear feet per day given the typical delays that may occur. The construction crews will then return to the various waterline intersection locations to make the appropriate reconnections and install/reconnect all water services.

### Well Relocation

Well No. 11 is currently located within SMWC-owned property that contains area to the south and to the west of the existing well location. In order to provide space for the Cities' proposed

street widening, SMWC proposes to drill a new well on the existing well site that provides sufficient clearance from the Cities' proposed street and storm drain improvements. Figure 2 shows the well site and preliminary location for the proposed well relative to the city and SMWC's proposed improvements.

The site would be graded to provide a pad at a minimum 1.5 feet above the high-water line of the nearby FEMA flood zone for the Calimesa Creek. The well would be drilled using the reverse circulation rotary drilling method. The first 50 feet (depth from surface) would consist of a 40-inch diameter borehole with a 30-inch steel casing. The remaining drill depth to the bedrock beneath the aquifer (approximately 900 to 100 feet) would consist of a 26-inch diameter borehole with a 16-inch steel casing. The voids between the borehole and casing would be filled with a gravel filter pack from the bottom to 100 feet below surface, and the upper 100 feet would be filled with a cement seal. The drilling is expected to produce approximately 145 cubic yards of excavated soil. The well is anticipated to reach groundwater at approximately 250 feet of depth and, upon completion, is estimated to yield approximately 1500 gallons per minute.

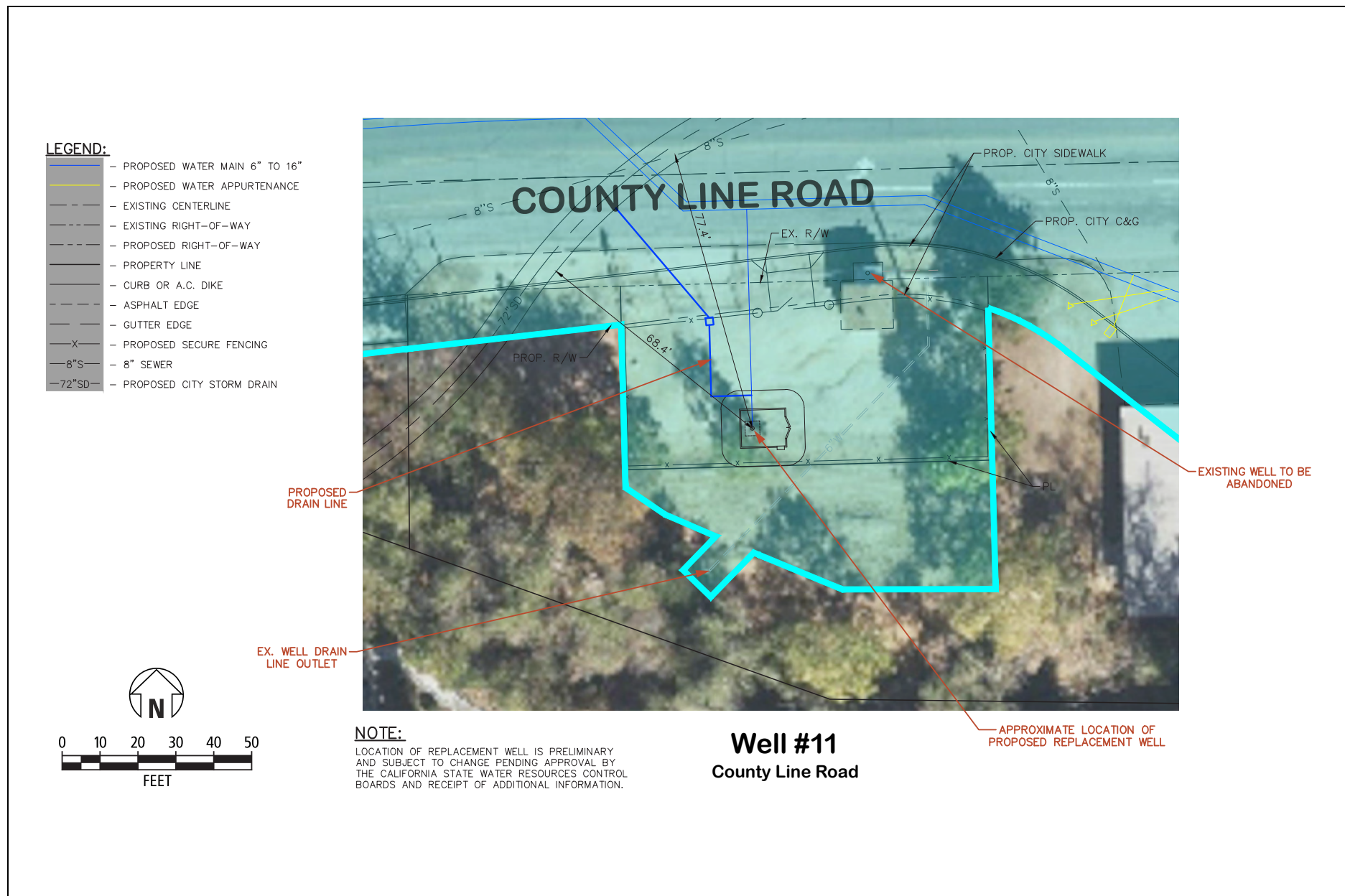
Upon well completion, an approximately 160 square foot well/pumphouse building would be constructed around the new well, a well pump would be installed and connected the new well to SMWC's water system, and an 8-inch drain line would be connected downstream to the Cities' storm drain system. A 6-foot concrete-block wall would be constructed at depth, 4'2" inland from the top of bank of the creek channel to protect the well facilities from potential long-term creek erosion as well as to prevent access to the facility. The wall would extend about 10 feet below grade into the earth to provide erosion protection for the well site should the creek scour its existing banks towards the well location. No construction would occur in or immediately adjacent the Calimesa Creek channel and no riparian vegetation would be removed or disturbed.

Lastly, following completion of the new well, the existing well would be destroyed in accordance to California State Water Resources Control Board's requirements. This process would consist of excavation to a depth of 5 feet and removal of the well casing to this depth, filling the well completely, sealing and capping the upper 20 feet, and demolition of the existing structure and aboveground water facilities.

#### Construction Equipment and Workers

Various equipment will be required during the construction of this project, including tractors, loaders, backhoes, dump trucks, haul trucks, rollers, and generators. The pipeline installation is estimated to consist of two construction crews for a total of approximately 16 workers, and the well replacement is estimated to consist of a single crew of approximately six workers (See Table 2).





**Figure 2**  
**Proposed Well Relocation Plan**

Source: Grassetti Environmental and Land Engineering Consultants, Inc.

### **3.0 ENVIRONMENTAL ANALYSIS**

As explained in Section 1.0, this Addendum has been undertaken pursuant to the provisions of CEQA Sections 15162 and 15164 to provide the City with the factual basis for determining whether any changes in the project, any changes in circumstances, or any new information since the IS/MND was adopted require additional environmental review or preparation of a Supplemental or Subsequent MND.

The proposed project would involve additional construction along the CLTC and short distances to the north and south on Calimesa Blvd. For the most part, the areas and resources potentially affected by the water line upgrades and well relocation were already assessed in the 2019 IS/MND. The types (i.e. pavement cutting, grading, and trenching) and location of construction are the same as, or very similar to, those proposed for the CLTC project. However, because the water lines and well relocation will extend beyond the previously analyzed areas, additional analyses have been conducted for cultural/tribal resources, biological resources, hydrology, geology and soils, noise, traffic, and air quality/greenhouse gas emissions. Because of the overlap in both location and construction activities of the original project and the proposed addition of the pipelines and well relocation, the environmental analysis provided in the IS/MND remains current and applicable to the proposed project in all other areas, and no additional analyses are required.

The unchanged resource topics include aesthetics; agricultural resources; energy; hazards/hazardous materials; land use and planning; mineral resources; public services; parks/recreation; utilities; and wildfire hazards. As the area to be affected is substantially similar to that addressed in the IS/MND, the mitigation measures identified by the tribes in the original consultation with the Cities would apply to water pipelines and well relocation as well. All of the project design features, City of Calimesa and Yucaipa policy compliance, and mitigation measures included in those sections of the IS/MND and adopted as part of the CLTC project also would be applicable to the water pipeline and well relocation. The SMWC has committed to implementing those measures as part of project construction. These measures are included in the relevant impact discussions below.

The resources areas where the proposed project changes could result in changes to impacts are addressed in the following section of this Addendum.

#### **Air Quality**

##### ***IS/MND Findings:***

The 2019 IS/MND (pp. 32-39) included a detailed air quality modeling assessment that found no potential violations of air quality standards from the replacement of 7,048 linear feet of roadway and sidewalks, construction of roundabouts, and other CLTC construction activities. In



addition, no significant odor or toxic air contaminant/fine particulate health risks were identified for the CLTC project. With conformance to City policies, no mitigation measures were required.

***Proposed Revised Project Effects:***

*Regional Air Quality Impacts/Conformance with Air Quality Management Plan*

The Air Quality Management Plan (AQMP) for the South Coast Air Basin (Basin) sets forth a comprehensive program that will lead the Basin into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from regional land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections.

The proposed revised project would add replacement of exiting water distribution lines and provide a new well to the previously approved roadway project. Since the project revisions would consist of infrastructure improvements that would not result in any changes to the existing land use patterns locally or throughout the Basin, it would not conflict with or obstruct implementation of the AQMP. No mitigation measures are required.

The portion of the Basin containing the project site is designated as a nonattainment area for particulate matter less than 10 microns in diameter ( $PM_{10}$ ) under state standards, and for ozone and particulate matter less than 2.5 microns in diameter ( $PM_{2.5}$ ) under both state and federal standards. The South Coast Air Quality Management District (SCAQMD) has set significance thresholds for CEQA analysis and regards those thresholds as applicable to project-specific and cumulative air quality impacts. Therefore, projects that exceed project-specific significance thresholds are considered by SCAQMD to contribute considerably to cumulative air quality problems.

The short-term construction emissions of criteria pollutants from the proposed water system improvements were modeled using CalEEMod (Version 2020.4.0) methodology as specified in the model's User's Guide. The off-road construction equipment to be used for each phase/sub-phase was provided by the water system project engineer. The estimated construction period for the proposed water system improvements is about a year, beginning no sooner than spring 2023. The results of this analysis are summarized in Table 3 below and compared to the SCAQMD daily emission thresholds. This table also includes roadway construction emissions from the Countyline Road IS/MND. Combined emissions would be well below threshold levels.

<b>TABLE 3: County Line Road Water Line and Well Replacement and 2019 Roadway Improvement Project - Construction Emissions (lbs./day)</b>						
<b>Construction Phase</b>	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<b>REPLACEMENT PIPELINE</b>						
Pipeline Trenching & Installation	0.72	6.38	9.13	0.02	0.28	0.27
Water Services & Connections	0.41	3.32	4.61	0.01	0.16	0.15
Paving & Surface Restoration	0.89	8.11	10.35	0.02	0.37	0.36
<b>WELL NO. 11 REPLACEMENT</b>						
Site Preparation & Grading	0.08	0.77	1.12	0.00	0.04	0.04
Well Drilling & Completion	0.32	2.78	3.06	0.01	0.12	0.11
Structure, Pipe Connections, & Restoration	0.41	3.36	5.52	0.01	0.17	0.16
<b>Maximum Daily Water System Improvements Emissions</b>	<b>1.60</b>	<b>14.49</b>	<b>19.48</b>	<b>0.04</b>	<b>0.66</b>	<b>0.64</b>
<b>2019 IS/MND Maximum Roadway Improvements Emissions</b>	<b>4.74</b>	<b>47.06</b>	<b>31.67</b>	<b>0.06</b>	<b>5.33</b>	<b>3.54</b>
<b>SCAQMD Significance Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant Impact of Combined Emissions?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
Project construction emissions were estimated using project-specific equipment type/number/hourly use and then applying equipment-specific pollutant emission rates as specified in CalEEMod Appendix D. Maximum daily project emissions occur during the coincidence of the Pipeline Trenching/Installation and the Paving/Surface Restoration phases (see Table 2).						

The proposed revised project also would be required to comply with SCAQMD Rule 403 for the reduction of fugitive dust emissions. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent, stabilizing ground cover on finished sites. Air quality modeling data is included as Appendix A to this Addendum.

As shown in the table above, the emissions from construction of the project, including both the roadway improvements and water lines/well, are below the SCAQMD daily construction thresholds for all criteria pollutants. Net new operational emissions would be negligible and as such would have a less than significant effect on air quality. In addition, because the Project does not exceed the SCAQMD's established thresholds of significance, the Project would not have cumulatively considerable net increases in criteria pollutant emissions for which the Project

region is non-attainment and thus cumulative impacts are less than significant. No mitigation measures are required.

#### *Localized Air Quality Impacts*

The SCAQMD has developed localized significance threshold (LST) methodology to determine whether or not a project would generate sufficient pollutant emissions to produce significant adverse localized air quality impacts (both short- and long-term). LSTs represent the minimum emissions from a project that would cause or contribute to an exceedance of ambient air quality standards. They have been determined for each of the Basin source receptor areas (SRAs) – the proposed revised project is located in SRA 28 (the City of Calimesa) and SRA 35 (the City of Yucaipa). The most conservative LST was used for each pollutant. In accordance with the LST methodology, only on-site construction emissions were included in the analysis. The emissions included under the LST methodology are NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. SCAQMD has provided LST lookup tables to determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts for projects five acres or smaller. Based on SCAQMD guidance, it is assumed that the Project installation of water pipeline would proceed in a linear mode and disturb 1.5 or less acres per day.

The closest potential sensitive receptors are the scattered residences adjacent to the proposed pipeline routes that follow local roadway segments. According to LST methodology, projects with boundaries closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters. Therefore, the receptor distance of 25 meters (85 feet) was used. The results are summarized Table 4 along with results for the previously analyzed roadway improvements. As shown in Table 4, combined emissions would all be below significance thresholds.

#### *Odors*

The water line improvements and previously considered roadway improvements would not produce other air emissions adversely affecting a substantial number of people. The potential for objectionable odors comes from the diesel exhaust generated during construction along the pipeline route or near the new well site. Due to the linear nature of proposed pipeline construction and its short-term duration in the vicinity of any particular sensitive receptor along the route that potential would be low. Also, the California Air Resources Board (CARB) *Air Quality and Land Use Handbook* identification of the most common sources of odor complaints (i.e., sewage treatment plants, landfills, recycling facilities, petroleum refineries, etc.) does not include water pipelines or wells. Thus, the Project, including both the roadway improvements and water lines/well, would have a less-than-significant impact relating to objectionable odors. The water line improvements would not occur concurrent with the roadway work, so there would

not be combined odors. Receptor distances for the pipeline and well construction would be greater than previously considered for the roadway replacement portions of the project, and equipment proposed for the pipeline and well would be similar to that used to construct the previously approved roadway improvements, therefore no new or more severe odor impacts would occur than addressed in the adopted IS/MND. No mitigation measures are required.

<b>TABLE 4: On-Site Project Construction Equipment Emissions (lbs./day)</b>				
<b>Construction Phase</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<b>REPLACEMENT PIPELINE</b>				
Pipeline Trenching & Installation	6.02	9.06	0.28	0.27
Water Services & Connections	3.31	4.58	0.16	0.15
Paving & Surface Restoration	7.77	10.27	0.37	0.36
<b>WELL NO. 11 REPLACEMENT</b>				
Site Preparation & Grading	0.77	1.12	0.04	0.03
Well Drilling & Completion	2.77	3.04	0.12	0.11
Structure, Pipe Connections, & Restoration	3.35	5.49	0.16	0.16
<b>Maximum Daily Water Improvements Emissions</b>	<b>13.80</b>	<b>19.33</b>	<b>0.65</b>	<b>0.63</b>
<b>Maximum Daily Roadway Improvement Emissions (from 2019 IS)</b>	<b>46.47</b>	<b>29.99</b>	<b>4.91</b>	<b>3.43</b>
<b>SCAQMD LST Thresholds</b>	<b>144</b>	<b>925</b>	<b>6</b>	<b>4</b>
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
Project construction emissions were estimated using project-specific equipment type/number/hourly use and then applying equipment-specific pollutant emission rates as specified in CalEEMod Appendix D. Maximum daily project emissions occur during the coincidence of the Pipeline Trenching/Installation and the Paving/Surface Restoration phases.				

### ***Applicable Mitigation Measures:***

No mitigation measures are required beyond compliance with City policies.

### **Biological Resources**

#### ***IS/MND Findings:***

Biological resources are addressed on pp. 40-46 of the CLTC IS/MND. Portions of the Project site are located within the western Riverside Multiple Species Habitat Conservation Plan (MSHCP) of which the City of Calimesa is a permittee; the City of Yucaipa is not part of any habitat conservation plan or natural community plan in the County of San Bernardino. The

CLTC Project site is not located within an MSHCP Criteria Area Cell, Group, or Linkage Area, therefore, conservation of the CLTC Project site is not required pursuant to the MSHCP.

Additionally, the proposed CLTC Project would avoid the Calimesa Channel and Calimesa Creek, and will be within previously disturbed right-of-way, vacant land, and portions of existing developed parcels. The CLTC project would not interfere substantially with the movement of wildlife or impede the use of a native wildlife nursery site. Therefore, no impacts are anticipated and no mitigation measures are required.

Construction of the CLTC Project includes potential removal of trees at multiple locations within the Project area. The potential candidate trees for removal are not covered under the City of Calimesa's tree preservation ordinance per Chapter 18.80 of the Municipal Code, which details requirements for removal and replacement of oak trees, or the City of Yucaipa's oak tree conservation policy contained in Chapter 5, Oak Tree Conservation, in the Municipal Code.

***Proposed Revised Project Effects:***

A biological resources assessment was conducted for the entire pipeline replacement and well relocation project area (Bargas Environmental Consulting, February 17, 2022), attached as Appendix B. That study included a literature review and a field survey (conducted on December 21, 2021). The study found that plant diversity was low in both project areas in the biological study area (BSA) (Bargas 2022, p. 3). Most of the plants in the BSA are within residential and commercial landscaping settings. Eucalyptus species and Tree of Heaven are abundant. Vacant lots are primarily mowed or tilled making plant identification difficult, but ripgut brome, Russian thistle, shortpod mustard, and common sunflower were identifiable and abundant. Riparian areas in Calimesa Creek were dominated by Fremont cottonwood, coast live oak, eucalyptus, and Tree of Heaven. Sensitive riparian communities were identified near the proposed revised project area within the jurisdictional boundaries of Calimesa Creek. Though these plant communities are considered sensitive, the level of disturbance in these riparian areas is still high. No special status plants were observed within the survey area and are unlikely to occur given the level disturbance and isolation due to surrounding development.

Wildlife diversity was low in the proposed revised project area, with species that are typical of urbanized areas. A total of seventeen bird species and two mammal species were detected within 2021 survey area: house finch, California scrub-jay, American crow, rock pigeon, Eurasian collared-dove, European starling, black phoebe, red-tailed hawk, Anna's hummingbird, white-crowned sparrow, California towhee, northern mockingbird, yellow-rumped warbler, Say's phoebe, house sparrow, American robin, Cooper's hawk, California ground squirrel, and desert cottontail. No raptor nests were observed in the study area. no amphibian or reptile species were observed. (Bargas 2022, p. 3.)

No special status wildlife species were observed during the field survey and none are expected to occur. The majority of the proposed revised project area is developed and or disturbed providing poor quality habitat for many of the of the special status species identified during the desktop review. Vacant lots that could provide grassland habitats to support some sensitive species are discontinuous and regularly mowed or tilled which does not allow for the development of quality habitat and viable populations. No sign of bat night roosting activity (urea stains, guano, etc.) was observed at overpasses or bridges around the identified drainages. (Bargas 2022, p. 3.)

The riparian areas and streambeds, though they are sensitive communities themselves, still remain highly disturbed and isolated, and provide poor habitat for the amphibian and fish special status species. Though most or all of the natural habitat within the BSA remains of poor quality, the potential for nesting by native bird species (generally protected by the Migratory Bird Treaty Act and California Fish and Game Code) remains high as the abundance of trees and large shrubs, both native and introduced, within the survey area can provide viable nesting habitat. (Bargas 2022, p. 3.)

A single Tree of Heaven would be removed for the well relocation. This is a common, non-native tree. This tree is not protected by the City of Calimesa's tree preservation ordinance per Chapter 18.80 of the Municipal Code, which details requirements for removal and replacement of oak trees, or the City of Yucaipa's oak tree conservation policy contained in Chapter 5, Oak Tree Conservation, in the Municipal Code.

The Bargas biological resources assessment concluded that implementation of the pipeline replacement and well relocation would not be expected to significantly impact biological resources, as follows (Bargas 2022, p. 4.):

- Riparian areas: riparian areas are expected to be avoided by the proposed revised project. Riparian habitats – while present in the overall biological resources survey area – do not occur within the footprint of the proposed pipeline and well construction areas. The water system improvements should remain consistent with County Line Transportation Corridor Project IS/MND, specifically Section 3.4(b) which found less-than-significant adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service. The IS/MND identified the following Plans, Policies, and Procedures that would reduce impacts related to biological resources:
  - o PPP 3.4-1 City of Calimesa Policy RM-10: Local drainage courses should be retained in their natural condition to the extent feasible.

- o PPP 3.4-2 City of Calimesa Policy OSPR-2.1: Implement the Western Riverside County Multiple Species Habitat Conservation Plan.
- o PPP 3.4-3 City of Yucaipa Policy PR-5.1 – Resource Protection: Protect and conserve Yucaipa’s biological resources, with a special focus on sensitive, rare, or endangered plant and wildlife species in accordance with state and federal resource agency requirements.
- Nesting birds: nesting birds protected by the Migratory Bird Treaty Act and other regulations have the potential to occur within close enough proximity to proposed revised project activities and to be impacted by those activities if work were to occur during the nesting bird season, generally considered to be February 1 to August 31.
- o Work in the County Line Road Project area should remain consistent with County Line Transportation Corridor Project IS/MND, specifically Section 3.4(d) which found no impact to native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or the use of native wildlife nursery sites. The IS/MND identified the following Plans, Policies, and Procedures apply to the project and would reduce impacts related to biological resources:
  - § PPP 3.4-1 City of Calimesa Policy RM-10: Local drainage courses should be retained in their natural condition to the extent feasible.
  - § PPP 3.4-2 City of Calimesa Policy OSPR-2.1: Implement the Western Riverside County Multiple Species Habitat Conservation Plan.
  - § PPP 3.4-3 City of Yucaipa Policy PR-5.1 – Resource Protection: Protect and conserve Yucaipa’s biological resources, with a special focus on sensitive, rare, or endangered plant and wildlife species in accordance with state and federal resource agency requirements.

The portion of the revised project site that is within the City of Calimesa is located within the western Riverside Multiple Species Habitat Conservation Plan (MSHCP) of which the City of Calimesa is permittee; the City of Yucaipa is not part of any habitat conservation plan or natural community plan in the County of San Bernardino. As with the approved CLTC project, the proposed revised project is located within the Pass Plan Area Plan of the MSHCP. The proposed revised site is not located within an MSHCP Criteria Area Cell, Group, or Linkage Area; therefore, conservation of the Project site is not required pursuant to the MSHCP<sup>1</sup>. As with the approved CLTC project, the revised project would be consistent with the MSHCP.

Although the proposed well facilities are close to a creek, they would be located on graded land with no vegetation. A 6-foot concrete-block wall would be constructed at depth, 4’2” inland

---

<sup>1</sup> <https://wrcra.maps.arcgis.com/apps/webappviewer/index.html?id=a73e69d2a64d41c29ebd3acd67467abd>

from the top of bank of the creek channel to protect the well facilities from potential long-term creek erosion as well as to prevent access to the facility, however no construction would occur in the channel and no riparian vegetation would be removed. Therefore CDFW 1602 authorization and Federal Clean Water Act section 404, 401, or MSHCP DBESP permits would not be required by the proposed project.

***Applicable Mitigation Measures:***

No mitigation measures are required beyond compliance with City policies.

**Cultural Resources**

***IS/MND Findings:***

Cultural resources are addressed on pp. 47-51 of the CLTC IS/MND. CRM Tech conducted the search within one mile of the CLTC project area, which included the proposed water pipeline replacement and well relocation sites, on May 2, 2019 and May 9, 2019, respectively. According to their search and additional information gathered from historical resource files, 13 historical/archeological cultural resources within a one-mile radius of the CLTC alignment were documented, 12 of which were formally documented. Among the 13 known cultural resources, five of the sites were of prehistoric—i.e., Native American —origin. All of these sites were concentrated in a cluster near Interstate 10, roughly 3/4 mile to the northwest of the westernmost portion of the CLTC project site.

The more notable sites among these included two possible habitation areas and the former location of a “mineralized skeleton” that was collected by the University of California, Riverside, but subsequently lost during the World War II era. The other eight sites date to the historic period, and consist of various buildings, infrastructure features, and refuse items. None of these known cultural resources was found in the immediate vicinity of the CLTC project site, the nearest being Site 33-023900, recorded approximately a quarter-mile to the west of the western end of the CLTC project site.

Subsequent to the initial cultural investigation, two existing residential structures on 295 West County Line Road and 907 South California Street in the City of Calimesa (APNs 410-040-001 and 410-111-001, respectively) were reviewed to determine if they are historical resources since they were built more than 50 years ago. These structures were evaluated as potential historical resources since they are on two of the four parcels that are listed in the Project Description as potential acquisitions for the CLTC project. The other two parcels listed as potential acquisitions that have existing structures are within the City of Yucaipa and were constructed less than 50 years ago, therefore a historical evaluation was not required for APNs 0319-253-13-000 and



0319-271-58-000. A Historic-Period Building Evaluation Report was prepared in September 2019 by CRM Tech. neither building was determined to qualify as an “historic resource”.

***Proposed Revised Project Effects:***

Although the 2019 IS/MND’s Cultural Resources Report covered the proposed pipeline and well relocation areas, an additional cultural resources assessment was conducted for those sites in 2022 (Bargas Environmental Consulting, January 12, 2022, p. ii). For the purpose of this study, Bargas reviewed reports from recent cultural resource investigations that overlapped the current Project area. The results of that review determined that 52 previous investigations have been conducted within 1 mile of the proposed water system improvements area of potential impact (API). In addition, one historic-age culvert (P-33-023900), six historic-era structures (625 W. County Line Road, 613 W. County Line Road, 905 Calimesa Boulevard, 13711 Calimesa Boulevard, 13715 Calimesa Boulevard, and 13721 Calimesa Boulevard) and two road segments of Calimesa Boulevard and County Line Road have been previously recorded within the Project API. All nine of these resources have been evaluated and determined not eligible for inclusion in the NRHP or CRHR. (Bargas 2022, p. ii.)

On December 21, 2021, a Bargas archaeologist conducted a pedestrian survey of the water system improvement API. The Project area consists of primarily built environment, including paved streets, sidewalks, bridges and inaccessible creeks, residential and commercial properties. No new prehistoric or historic-era cultural resources were observed during the pedestrian survey. The nine previously recorded resources were field checked, and no significant changes were observed that would alter the previous eligibility findings of non-eligibility for the NRHP or CRHR for any of these resources. Based on the results of this investigation, there are no historical resources as defined under CEQA (i.e., CRHR-eligible resources) within the Project API, and there would be no impact to historical resources from the proposed Project. (Bargas 2022, p. ii.)

***Applicable Mitigation Measures:***

The following mitigation measures included in the 2019 CLTC IS/MND also would be applicable to the water pipeline and well relocation:

- **MM CR 1** If buried materials of historical, cultural, or archaeological significance are accidentally discovered during any earth-moving operations associated with the proposed Project, all work in the immediate vicinity (within a 60-foot buffer) shall cease until a qualified archaeologist meeting Secretary of Interior standards can evaluate the nature and significance of the finds. If the find is determined to be an historical or unique archaeological resource, as defined in Section 15064.5 of the California Code of Regulations (State CEQA Guidelines), avoidance or other appropriate measures shall be implemented. Additionally, the MBMI and San Manuel Band of Mission Indians shall be contacted, as detailed within MM TCR 1, if any such

find occurs and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment. If significant Native American cultural resources, as defined by CEQA, are discovered and cannot be avoided, a Monitoring and Treatment Plan shall be developed by the qualified Project archaeologist and provided to the Tribes for review and comment, as detailed within MM TCR 1. The qualified Project archaeologist shall monitor and implement the Monitoring and Treatment Plan accordingly.

- **MM CR 2.** Per State Health and Safety Code 7050.5, if human remains are encountered during construction, no further disturbance shall occur in the immediate vicinity (within a 100-foot buffer) until the San Bernardino County Coroner or Riverside County, depending on where remains were encountered, has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The San Bernardino County Coroner or Riverside County Coroner must be notified within 24 hours. If the County Coroner determines that the remains are not historic, but prehistoric, the Native American Heritage Commission (NAHC) must be contacted to determine the most likely descendent for this area. Once the most likely descendent is determined, treatment of the Native American human remains will proceed pursuant to Public Resources Code Section 5097.98.

## **Tribal Cultural Resources**

### ***IS/MND Findings:***

As detailed in the 2019 CLTC IS/MND (pp 105-111), the City of Calimesa, acting as lead agency for the CLTC project, conducted tribal outreach per AB 52 requirements. Additionally, the City of Yucaipa also conducted tribal outreach for the CLTC Project. Two tribes responded: Morongo Band of Mission Indians (MBMI) and the San Manuel Band of Mission Indians (SMBMI). As a result of that consultation, mitigation measures were included in the IS/MND (see Applicable Mitigation Measures, below).

### ***Proposed Revised Project Effects:***

Because the proposed additions of the water pipeline replacement and well relocation to the CLTC project would be in the area covered by the 2019 IS/MND AB 52 tribal consultation, no additional consultation was conducted. The mitigation measures identified in the 2019 IS/MND also would apply to the pipeline replacement and well relocation activities.

### ***Applicable Mitigation Measures:***

- **MM- TCR-1.** The MBMI and the San Manuel Band of Mission Indians shall be contacted, as detailed in MM CR 1, of any Native American cultural resources discovered during any earthmoving operations associated with the proposed Project, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with the MBMI and the San Manuel Band of Mission Indians, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents MBMI and the San Manuel Band of Mission Indians for the remainder of the Project, should MBMI and/or the San Manuel Band of Mission Indians elect to place a monitor on-site. As outlined in MM TCR-2, MBMI will monitor the entire Project site regardless if any Native American Cultural resources is discovered. Any and all archaeological/cultural documents created as a part of the Project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the appropriate County for dissemination to MBMI and the San Manuel Band of Mission Indians. The appropriate County shall, in good faith, consult with MBMI and the San Manuel Band of Mission Indians throughout the life of the Project.
- **MM- TCR-2.** Tribal Monitoring: Prior to the issuance of a grading permit, the applicant shall contact the Morongo Band of Mission Indians and the San Manuel Band of Mission Indians. The applicant shall coordinate with MBMI to develop a Tribal Monitoring Agreement. Should the Morongo Band of Mission Indians be unable to provide a

Tribal monitor for any portion of the project, the applicant shall contact the San Manuel Band of Mission Indians to retain the services of a tribal monitor. A copy of the Tribal Monitoring Agreement/proof of hire shall be provided to the City of Calimesa Planning Department prior to the issuance of a grading permit.

- **MM- TCR-3.** Archaeological Monitoring: At least 30-days prior to application for a grading permit and before any grading, excavation and/or ground disturbing activities on the site take place, the Project Applicant shall retain a Secretary of Interior Standards qualified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown archaeological resources.
- **MM- TCR-4.** The Project Archaeologist, in consultation with consulting Tribes and the City, shall develop an Archaeological Monitoring and Treatment Plan that outlines the process for monitoring, as well as the process for dealing with the inadvertent discovery of cultural resources. The Plan shall include:
  - a) The project grading and development schedule;
  - b) A monitoring schedule that includes the presence of an archaeologist and Tribal Monitor at each location of ground disturbing activity that will occur on site;
  - c) The safety requirements, duties, scope of work, and authority of the Tribal monitor and archaeologist to stop and redirect grading activities; and
  - d) The protocols and stipulations that the City, Tribes, and Project archaeologist will follow in the event of inadvertent cultural resource discoveries, assessment and evaluation of the discoveries, and treatment/disposition of discoveries.
- **MM- TCR-5.** Treatment and Disposition of Cultural Resources: In the event that Native American cultural resources are inadvertently discovered during the course of grading for this Project, the following procedures will be carried out as follows:
  - a) Discovery and Assessment of Non-Funerary Cultural Resources: In the case of inadvertent discoveries of non-funerary artifacts, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and the project Archaeologist, in tandem with the project Tribal monitor, shall assess the find.

Additionally, all points of contact representing the consulting Tribes, the

Morongo Band of Mission Indians and the San Manuel Band of Mission Indians, will be contacted to discuss the nature and significance of the resource, as well as the culturally appropriate treatment and final disposition of the resource. Work on the other portions of the project outside of the buffered area may continue during this assessment period with the presence of an archaeological monitor and Tribal monitor.

b) Treatment and Final Disposition: Should a resource be discovered during project implementation and be recommended significant, the resource shall be assessed as a candidate for avoidance. Should avoidance not be feasible, the resource shall be subject to data recovery and be temporarily curated in a secure location onsite or at the offices of the project archaeologist. The removal of any cultural material from the project site shall be thoroughly inventoried with Tribal monitor oversight of the process. Final disposition of the material shall be conducted as follows:

i. The applicant shall accommodate the process for onsite reburial of the discovered items, as outlined by the consulting Tribes, and enter into a reburial agreement with the Tribes, which shall include measures and provisions to protect the reburial area from any future impacts. Reburial shall not occur until all cataloguing and basic recordation have been completed.

ii. Should reburial not be feasible, the landowner(s) shall relinquish ownership of all cultural resources and enter into a curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per 36 CFR Part 79. The collections and associated records shall be transferred, including title, and accompanied by payment of the fees necessary for permanent curation.

iii. If more than one Native American tribe or band is involved with the project and cannot come to a consensus as to the disposition of cultural materials, they shall be curated at the Western Science Center or Riverside Metropolitan Museum by default. Proof of final disposition, whether reburial or curation, shall be submitted to the City of Calimesa Planning Department.

iv. At the completion of grading, excavation, and ground disturbing activities on the site, a Phase IV Monitoring Report shall be submitted

to the City documenting monitoring activities conducted by the project Archaeologist and Tribal monitor(s) within 60 days of completion of grading. This report shall document the impacts to the known resources on the property; describe how each mitigation measure was fulfilled; document the type of cultural resources recovered and the disposition of such resources; provide evidence of the required cultural sensitivity training for the construction staff held during the required pre-grade meeting; and, in a confidential appendix, include the daily/weekly monitoring notes from the archaeologist. All reports produced will be submitted to the City of Calimesa, Eastern Information Center, and consulting Tribes.

- **MM- TCR-6.** If human remains are encountered, a 100-ft buffer shall be created around the discovery and, pursuant to California Health and Safety Code Section 7050.5, no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. Work on the other portions of the project outside of the buffered area may continue during this assessment period with the presence of an archaeological monitor and Tribal monitor.

If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission must be contacted within 24 hours. The Native American Heritage Commission must then immediately identify the "most likely descendants(s)" for purposes of receiving notification of discovery. The most likely descendant(s) shall then make recommendations within 48 hours and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.

### **Greenhouse Gases**

#### ***IS/MND Findings:***

Greenhouse gas impacts are addressed on pp. 64-67 of the CLTC IS/MND. Neither the City of Calimesa nor the City of Yucaipa have adopted thresholds of significance for GHG emissions. The City of Yucaipa adopted a Climate Action Plan (CAP) on September 14, 2015. The CAP included a number of measures to be implemented by the City of Yucaipa to meet its reduction requirements, which includes performance standards for new development.

For CEQA purposes, the Lead Agency has discretion to select an appropriate significance criterion, based on substantial evidence. The SCAQMD's recommended draft numerical threshold of 3,000 metric tons carbon dioxide equivalent (MT CO<sub>2</sub>e) per year for non-industrial projects was selected as the significance criterion.

The 2019 IS/MND included a detailed GHG emission inventory that found no exceedance of the chosen GHG significance threshold from CLTC construction activities. With conformance to City policies, no mitigation measures were required.

***Proposed Revised Project Effects:***

The water system improvements that are the subject of this addendum would replace an existing water delivery pipeline and supply well serving existing development in both cities. Thus, it would not be in conflict with the City of Yucaipa's CAP.

The estimated total amount of GHG emissions from construction of the proposed water system improvements is 369.7 MT CO<sub>2</sub>e, as estimated by CalEEMod (see Appendix A). Operational GHG emissions would be negligible, mostly resulting from the operational emissions from maintenance activity/vehicles. The 2019 CLTC IS/MND estimated 295.4 MT CO<sub>2</sub>e for the roadway improvements, for a total of 665.1 MT CO<sub>2</sub>e. Therefore, the proposed construction of both the roadway and water system improvements would not generate of GHG emissions above the SCAQMD draft 3000 MT CO<sub>2</sub>e threshold.

Since the Project's GHG emissions are below the SCAQMD draft threshold, and the overall project is consistent with the City of Yucaipa CAP, the overall project would not conflict with any plan, policy or regulation adopted for the purpose of reducing GHG emissions, and its impacts are considered less than significant. No mitigation measures are required.

**Geology and Soils**

***IS/MND Findings:***

The 2019 IS/MND (pp. 57-63) concluded that because the proposed CLTC Project includes only roadway and drainage improvements to a partially paved road that is currently in use, the potential for impacts that would expose people or structures to substantial adverse effects associated with the seismic shaking or rupture of a known earthquake fault is less than significant. No mitigation measures are required.

According to the Department of Conservation, the City of Calimesa General Plan, and the City of Yucaipa General Plan, the Project site is not identified as having high liquefaction susceptibility (CGP, p.8-4; YGP, p. 7-6). As such, the potential for impacts that would expose people or structures to substantial adverse effects associated with seismic related ground failure including liquefaction is less than significant. No mitigation measures are required.

The CLTC Project site has been previously excavated, filled, graded, and leveled and due to its flat gradient and the absence of known landslides within or immediately adjacent to the site, the potential for land-sliding at the site is low. As such the potential for impacts associated with landslides are considered less than significant. No mitigation measures are required.

The CLTC Project would include road and sidewalk improvements and associated drainage, and would be constructed on existing roadway and along small portions of parcels that are proposed to be acquired, and which are either previously disturbed, portions of vacant lots, or portions of developed parcels. The Project roads are currently being used and are presently travelled upon; therefore, its remaining dirt-surfaced portions are heavily compacted. The CLTC Project would not involve extensive excavation, grading, and or fill. Ultimately, CLTC Project implementation would reduce the potential for soil erosion as a result of the proposed on-site drainage improvements. Additionally, for compliance with the California General Permit for Stormwater Discharges Associated with Construction Activities, Project construction will be mandated to incorporate a Storm Water Pollution Prevention Plan (SWPPP) to manage soil disturbance, non-storm water discharges, construction materials, and construction waste during its construction phase. Project-related construction could involve cut and fill during the grading phase; however, a substantial loss of topsoil is not anticipated given the short duration of construction time (approximately four months). Thus, the construction phase of the Project would not be exposed to extensive rain during the rainy season. Therefore, impacts related to substantial soil erosion or the loss of topsoil, are considered less than significant. No mitigation measures are required.

The soils that occur within the CLTC Project site are not considered to be expansive soils and the installation of the road base would eliminate any potential for such soils to adversely impact the roadway (CGP EIR, p. 5.6-8, YGP EIR, p. 3.6-9). Therefore, potential impacts related to being located on expansive soils that would create substantial risks to life or property, are considered less than significant. No mitigation measures are required.

The proposed Project involves the construction of roadway and drainage improvements to a partially paved road that is currently being used and is presently travelled upon. Only the western part of the City of Calimesa has a high potential to produce significant paleontological resources, which is outside of the CLTC Project site. However, the City of Yucaipa identifies the southern area of Yucaipa as a paleontological resources sensitive area. Therefore, to ensure that that potential impacts to paleontological resources are avoided or reduced to a less than significant level, implementation of mitigation measure, MM GEO-1, would reduce impacts to a less-than-significant level.

***Proposed Revised Project Effects:***

The proposed pipeline replacement and well relocation would be in the same general areas and involve the same types of construction as the CLTC project. Therefore, no changes in impact



type or severity are anticipated. MM GEO-1 also would apply to the pipeline replacement and well relocation.

***Applicable Mitigation Measures:***

- **MM GEO 1.** If any paleontological resources are exposed during ground excavation disturbance, ground disturbance activities in the vicinity of the discovery will be terminated immediately and a qualified paleontological resources specialist will be retained to evaluate the resources. If the find is determined to be significant, avoidance or other appropriate measures as identified by the paleontologist shall be implemented. Appropriate measures would include that a qualified paleontologist be permitted to recover, evaluate and curate the find(s) in accordance with current standards and guidelines.

**Hydrology**

***IS/MND Findings:***

The hydrology and water quality section of the 2019 CLTC IS/MND (pp. 74-82) concluded that construction of the proposed CLTC Project may result in the discharge of sediment and other construction-related pollutants to surface waters and groundwater. The proposed CLTC Project will disturb more than one acre of land, therefore, a Storm Water Pollution Prevention Plan (SWPPP) is required from the project proponent to comply with the statewide Construction General Permit (CGP) (Order 2009- 0009-DWQ). The SWPPP must be developed by a Qualified SWPPP Developer (QSD) and implemented onsite for the duration of the Project by a Qualified SWPPP Practitioner (QSP). The focus of a construction SWPPP is to minimize soil disturbance, non-stormwater discharges, construction materials, and construction wastes during the construction phase of the Project to prevent discharge of polluted runoff from the construction site. Coverage under the CGP requires submittal of a Notice of Intent (NOI) and payment of fees and annual reporting to the State Water Resources Control Board (SWRCB). Staff from the Santa Ana Regional Water Quality Control Board (RWQCB) may inspect the construction site periodically to ensure compliance with the SWPPP.

The proposed CLTC Project lies partly within the City of Calimesa and partly within the City of Yucaipa, split between the counties of Riverside and San Bernardino, respectively. The City of Calimesa is a co-permittee of the Riverside County Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit issued by the RWQCB, and are bound to comply with all aspects of the permit requirements. Likewise, the City of Yucaipa is a co-permittee of the San Bernardino County MS4 NPDES permit. Both MS4 permits provide “Transportation Project Guidance” (TPG) documents to ensure an analysis is conducted for transportation projects that is functionally equivalent to a Water Quality Management Plan (WQMP). Certain transportation projects are required to prepare a TPG to

guide the application of Low Impact Development (LID) Best Management Practices (BMPs) to the Maximum Extent Practicable (MEP) to reduce the discharge of pollutants to receiving waters. However, this Project does not meet the criteria to prepare a TPG and is considered exempt.

Existing surface drainage features are located close to the Project footprint (e.g., the open v-ditch at the intersection of Bryant Street and County Line Road) The Project would avoid these features. However, in the event avoidance becomes infeasible, a jurisdictional delineation will be conducted and regulatory permits obtained by the Project proponent pursuant to mitigation measure MM HYDRO 1.

As such, impacts are considered to be less than significant. Based on the analysis above, with implementation of PPP 3.10-1 through PPP 3.10-3, PDF 3.10-1, and MM HYDRO-1, impacts to water quality will be less than significant with mitigation incorporated.

***Proposed Revised Project Effects:***

The proposed pipeline replacement and well relocation would be in the same general areas and involve the same types of construction as the CLTC project. The relocated well would be in or near the mapped 100-year floodplain of the nearby creek, however the structure would be located above the maximum flood elevation and the nearby creek channel is scheduled for flood control improvements prior to installation of the well and pump-house. Construction on the well relocation site would involve installing a concrete block wall that would extend about 10 feet below grade and 6 feet above grade, about 4 feet from the top of bank of Calimesa Creek. With standard erosion control BMPs, which are included in the project, erosion and sedimentation impacts would be less than significant. Therefore, no changes in impact type or severity from those evaluated in the IS/MND are anticipated.

***Applicable Mitigation Measures:***

Because the pipeline replacement and well relocation would avoid all impacts to surface drainages, MM HYDRO-01 would not apply to these elements.

**Noise**

***IS/MND Findings:***

The 2019 CLTC IS/MND (pp. 87-90) found that, while the proposed CLTC Project would improve existing roadways by constructing roundabouts at five intersections, bicycle lanes, sidewalks, and associated drainage, it would not increase the number of motor vehicle travel lanes, and so would not promote increased traffic volumes and increase their consequent traffic noise level increases to adjacent noise-sensitive receptors.

Construction noise generation would vary as the type of construction activities vary and as the locus of this activity moves along the CLTC Project alignment. Many existing sensitive receptors (primarily residential) are located adjacent to the roadways where construction activities would take place. Attenuation of construction noise would be provided to interior receptors by the structural elements (i.e., walls, doors, closed windows) of the building in which they reside. Typical building construction provides a minimum 12 dBA interior noise reduction with windows open and a minimum 20 dBA interior noise reduction with windows closed (FHWA). Also, (as specified by IS/MND MM NOISE 4) should it be necessary, the construction contractor would be required to implement additional measures (e.g., portable sound attenuation walls, quieter equipment, etc.) to further reduce noise levels.

Implementation of mitigation measures MM NOISE-1 through MM NOISE-4 will ensure that construction equipment is located as far as is practicable from sensitive receivers, that construction activities are limited to the daytime hours (7:00 a.m. to 7:00 p.m. Monday-Friday), that mandated noise control features (e.g., mufflers) are in place on noise-generating equipment, and that procedures in place to assure that the City of Calimesa or the City of Yucaipa receive noise complaints related to CLTC Project construction. Thus, CLTC Project's potential impacts related to an increase in ambient noise above existing levels are considered less than significant with mitigation incorporated.

***Proposed Revised Project Effects:***

Construction equipment and noise-generating activities associated with the pipeline replacement and well relocation would be similar to those associated with the roadway improvements addressed in the 2019 IS/MND. However, additional noise-sensitive receptors would be exposed to construction noise because of the longer construction corridor required for the pipeline. These impacts would be reduced to less-than-significant levels with the implementation of MM-NOISE 1 through MM NOISE 4 carried over from the 2019 IS/MND.

As with the 2019 IS/MND roadway improvements, the water pipeline replacement and well relocation would not generate new operational noise. The new pump associated with the relocated well would be located inside a building, which would minimize exterior noise from pump operations; it would be farther away from noise receptors than the existing, unenclosed pump, so would reduce operational noise compared to existing conditions.

Thus, the CLTC Project with the proposed water supply improvements' potential impacts related to an increase in ambient noise above existing levels are considered less than significant with mitigation incorporated.

***Applicable Mitigation Measures:***

- **MM NOISE 1.** During Project construction, stockpiling, stationary noise-generating equipment and vehicle staging areas shall be located as far as is practicable from any existing structure designed for human occupancy.
- **MM NOISE 2.** Construction activities shall be limited to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. Construction during other periods, including Sundays and holidays, shall be limited to emergencies and activities determined to be in the interest of the general public.
- **MM NOISE 3.** All construction equipment shall be operated with mandated noise control equipment (i.e., mufflers or silencers).
- **MM NOISE 4.** The City of Calimesa and the City of Yucaipa shall respond to any noise complaints received for this Project by measuring noise levels at the affected receptor site. If the monitored noise level exceeds the City of Calimesa noise standards, in accordance with Chapter 8.15 Noise Abatement and Control, or with the City of Yucaipa noise standards, in accordance to Chapter 9, 87.0905 Noise, the construction contractor shall implement adequate measures (which may include portable sound attenuation walls, use of quieter equipment, shift of construction schedule to avoid the presence of sensitive receptors, etc.) to reduce noise levels to the greatest extent feasible. Any monitoring shall be conducted by a qualified acoustical firm under contract with the construction contractor and responsible to the City of Calimesa and the City of Yucaipa.

## **Traffic**

### ***IS/MND Findings:***

Implementation of the CLTC Project would include roadway, sidewalk, and associated drainage improvements in an area that has been previously disturbed, in portions of vacant lots, or portions of developed parcels. The 2019 CLTC IS/MND (pp. 99-104) concluded that implementation of that project would result in safer conditions than what currently exists, and the CLTC project would be built to meet City of Calimesa and the City of Yucaipa design standards that are deemed to be sufficient so as not to create traffic flow hazards. Per the US Department Transportation, roundabouts, as the types proposed, improve safety for all users including pedestrian and bicycles. Further, the roundabouts reduce the types of crashes where people are seriously hurt or killed when compared to conventional stop-controlled and signalized intersections. The CLTC project would also meet City of Calimesa and City of Yucaipa design standards based on their General Plan Circulation Elements. Based upon the proposed design, the CLTC project is not anticipated to pose any significant hazards to pedestrians, bicyclists or

motor vehicles once completed. Therefore, potential impacts that could substantially increase hazards due to a design feature or incompatible use are less than significant. No mitigation measures are required.

Once completed, the CLTC project would supplement emergency access to the area by providing improved travel routes for emergency response vehicles. However, during construction, adequate emergency access and control must be accomplished by implementing a traffic management plan that can ensure safe, albeit, slower traffic flow on the adjacent streets. The following mitigation measures will be implemented to address this potentially significant impact. The CLTC IS/MND concluded that, with the implementation of MM TRANS-1, potential impacts related inadequate emergency access are considered less than significant with mitigation incorporated.

***Proposed Revised Project Effects:***

The pipeline replacement and well relocation, once operational, would not affect traffic or transportation. Construction of the pipelines would require trenching in the roadway, which would affect traffic operations. Mitigation Measure MM TRANS-1 in the 2019 CLTC IS/MND would reduce this impact to a less-than-significant level.

The revised project would not affect VMT because the pipelines and well would replace existing similar features and no additional maintenance vehicle travel would occur.

***Applicable Mitigation Measures:***

- **MM TRANS 1.** The construction contractor shall provide adequate traffic management resources, as determined by the City of Calimesa and the City of Yucaipa, to ensure adequate access to all occupied properties on a daily basis, including emergency access. A construction traffic management plan shall be prepared and approved by the City of Calimesa and the City of Yucaipa, for their appropriate jurisdiction, prior to initiation of construction within the project. The plan can include the following components: protective devices, flag person(s) or police assistance for traffic control, to maintain safe traffic flow on local streets affected by construction at all times.

### **3.1 CONCLUSIONS**

Based on the information provided above, the newly evaluated impacts of the proposed water line replacements and well relocation would not substantially alter impacts previously identified in the adopted 2019 IS/MND for the CLTC project. Mitigation measures included in the adopted IS/MND also would apply to the water line and well relocation as identified in this Addendum, and would reduce any additional impacts associated with the water line replacement and well relocation to a less-than-significant level. Therefore, the conclusions of this Addendum remain consistent with those made in the IS/MND. No new significant impacts have been identified, nor

is the severity of newly identified impacts substantially greater than the conclusions of the IS/MND. No additional CEQA review is required.

#### **4.0. REPORT PREPARERS**

##### **Northgate Environmental Management, Inc.**

Nancy Hendrickson, Principal

Richard Grassetti, Principal Environmental Planner

Geoffrey Hornek, Noise and Air Quality Specialist

#### **5.0 REFERENCES**

Bargas Environmental Consulting. *Cultural Resources Survey Report, South Mesa Water Company Water System Improvement Project*. January 12, 2022.

Bargas Environmental Consulting. *Results of a Biological Resources Survey for the Proposed Water System Improvements by the South Mesa Water Company*. February 17, 2022.

Federal Highway Administration, Roadway Construction Noise Model (RCNM).  
[https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction\\_noise/rcnm/index.cfm](https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction_noise/rcnm/index.cfm)

## **APPENDIX A: AIR QUALITY CALCULATIONS**



## **APPENDIX B: BIOLOGICAL RESOURCES STUDY**