ENGINEERING/OPERATIONAL COMMITTEE MEETING AGENDA
TRABUCO CANYON WATER DISTRICT
32003 DOVE CANYON DRIVE, TRABUCO CANYON, CA
VIDEO/AUDIO BROADCAST MEETING
SEPTEMBER 2, 2020 AT 7:00 AM

COMMITTEE MEMBERS
Edward Mandich, Committee Chair
Stephen Dopudja, Committee Member
Don Chadd, Committee Member Alternate

DISTRICT STAFF
Fernando Paludi, General Manager
Michael Perea, District Secretary
Lorrie Lausten, District Engineer
Gary Kessler, Water System Superintendent
Jason Stroud, Maintenance Superintendent

AGENDA NOTE:
*Due to the spread of COVID-19 and as authorized by the Governor's Executive Order, Trabuco Canyon Water District will be holding this Engineering/Operational Committee Meeting by video broadcast (**Go To Meeting**), and will be available by either video conference or telephone audio as follows:*

***Video Conferencing:** You can join the meeting from your computer, tablet, or smartphone by clicking on the following link:* https://global.gotomeeting.com/join/597863693

Telephone Audio: *1 866 899 4679 (Toll Free)*
Access Code: *597-863-693*

*Persons desiring to monitor the Committee meeting agenda items may download the agenda and documents on the internet at **www.tcwd.ca.gov**.*

*You may submit public comments by email to the Board at **mperea@tcwd.ca.gov**. In order to be part of the record, emailed comments on meeting agenda items must be received by the District, at the referenced e-mail address, not later than 7:00 a.m. (PDT) on the day of the meeting.*

CALL MEETING TO ORDER

VISITOR PARTICIPATION
*Members of the public wishing to address the Board regarding a particular item on the agenda are requested to submit public comments by email to the Board at **mperea@tcwd.ca.gov**. The Board President will call on the visitor following the Board's discussion about the matter. Members of the public will be given the opportunity to speak prior to the Board taking action on that item. For persons desiring to make verbal comments and utilizing a translator to present their comments into English reasonable time accommodations, consistent with State law, shall be provided. Please limit comments to three minutes.*

ORAL COMMUNICATION
*Members of the public who wish to make comment on matters not appearing on the agenda are requested to submit oral communication by email to the Board at **mperea@tcwd.ca.gov**. Under the requirements of State Law, Directors cannot take action on items not identified on the agenda and will not make decisions on such matters. The Board President may direct District Staff to follow up on issues as may be deemed appropriate. For persons desiring to make verbal comments and utilizing a translator to present their comments into English reasonable time accommodations, consistent with State law, shall be provided. Please limit comments to three minutes.*

COMMITTEE MEMBER COMMENTS

REPORT FROM THE GENERAL MANAGER

ADMINISTRATIVE MATTERS

PRESENTER(S): FERNANDO PALUDI, GENERAL MANAGER
MICHAEL PEREA, DISTRICT SECRETARY

ITEM 1: ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP

RECOMMENDED ACTION:
Approve the following Engineering/Operational Committee Meeting Recap(s) and recommend that the Board receive and file same (Consent Calendar).

ENGINEERING MATTERS

PRESENTER(S): FERNANDO PALUDI, GENERAL MANAGER
MICHAEL PEREA, ASSISTANT GENERAL MANAGER
LORRIE LAUSTEN, DISTRICT ENGINEER

ITEM 2: SOUTH ORANGE COUNTY SALT AND NUTRIENT MANAGEMENT PLAN COOPERATIVE AGREEMENT – WATERSHED MONITORING

RECOMMENDED ACTION:
1. *Committee to receive information at the time of the Committee Meeting.*
2. *Recommend the Board of Directors approve Trabuco Canyon Water District's participation in the "Cooperative Agreement for Salt and Nutrient Management Plan"*

ITEM 3: DISCUSSION CONCERNING THE ADOPTION OF SOUTH ORANGE COUNTY WASTEWATER AUTHORITY (SOCWA) PROPOSED WASTE DISCHARGE PRETREATMENT AND SOURCE CONTROL PROGRAM FOR WASTEWATER FLOWS UPDATE AND ENFORCEMENT RESPONSE PLAN UPDATE

RECOMMENDED ACTION:
1. *Committee to receive information at the time of the Committee Meeting.*
2. *Recommend the Board of Directors agendize Public Hearing and authorize District staff to furnish Notice of Public Hearing and Notice of Intention of adoption of Ordinance No. 2020-21 for the November 18, 2020 Regular Board Meeting (Action Calendar).*

ITEM 4: 2020 UPDATE TO THE ORANGE COUNTY OPERATIONAL AREA AGREEMENT OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

RECOMMENDED ACTION:
1. *Committee to receive information at the time of the Committee Meeting.*
2. *Authorize Trabuco Canyon Water District to sign the 2020 Orange County Operational Area Agreement*

ITEM 5: APPLICATION FOR THE U.S. BUREAU OF RECLAMATION'S WATERSMART GRANTS PROGRAM FOR AN AUTOMATIC METER READING/ADVANCED METERING INFRASTRUCTURE (AMR/AMI) IMPLEMENTATION PROJECT

RECOMMENDED ACTION:

1. Committee to receive information at the time of the Committee Meeting.

2. Adopt Resolution No. 2020-1283 – Resolution of the Board of Directors of the Trabuco Canyon Water District Authorizing the Submittal of an Application for the WaterSMART: Water and Energy Efficiency Grants for 2020 and 2021.

ITEM 6: SADDLEBACK MEADOWS DEVELOPMENT (181 DU's) – HARRIS GRADE RESERVOIR FEASIBILITY STUDY DRAFT REPORT

RECOMMENDED ACTION:

1. Committee to receive information at time of the Committee Meeting.

ITEM 7: OTHER ENGINEERING AND OPERATIONS PROJECT UPDATES

1. District Asset Management
2. The Oaks at Trabuco Development
3. SWRCB and PFAS Sampling
4. Santiago Canyon Road Improvements
5. Other Projects

RECOMMENDED ACTION:

Committee to receive project status update at time of the Committee Meeting.

OPERATIONAL MATTERS

PRESENTER(S): GARY KESSLER, WATER SYSTEM SUPERINTENDENT
MICHAEL PEREA, ASSISTANT GENERAL MANAGER
JASON STROUD, MAINTENANCE DEPARTMENT SUPERINTENDENT

ITEM 8: WATER SYSTEM UPDATES

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

ITEM 9: WASTEWATER SYSTEM UPDATES

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

ITEM 10: MAINTENANCE DEPARTMENT UPDATES

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

REGULATORY AND OTHER MATTERS

ITEM 11: OTHER MATTERS/REPORTS

RECOMMENDED ACTION:

Hear Other Matters/Reports that may have arisen after the posting of the agenda.

ADJOURNMENT

AVAILABILITY OF AGENDA MATERIALS

Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Trabuco Canyon Water District Board of Directors in connection with a matter subject to discussion or consideration at an open meeting of the Board of Directors are available for public inspection at the Trabuco Canyon Water District Administrative Facility, 32003 Dove Canyon Drive, Trabuco Canyon, California (District Administrative Facility) or will be posted online on the District's website located at www.tcwd.ca.gov. If such writings are distributed to members of the Board less than 72 hours prior to the meeting, they will be available online at www.tcwd.ca.gov at the same time as they are distributed to the Board Members, except that, if such writings are distributed immediately prior to or during the meeting, they will be posted online on the District's website located at www.tcwd.ca.gov.

COMPLIANCE WITH THE REQUIREMENTS OF CALIFORNIA GOVERNMENT CODE SECTION 54954.2

In compliance with California law and the Americans with Disabilities Act, if you need special disability-related modifications or accommodations, including auxiliary aids or services in order to participate in the meeting, or if you need the agenda provided in an alternative format, please contact the District Secretary at (949) 858-0277, at least 48 hours in advance of the scheduled Board meeting. Notification at least 48 hours prior to the meeting will assist the District in making reasonable arrangements to accommodate your request. The Board Meeting Room is wheelchair accessible.

The District may conduct future meetings electronically (via teleconferencing) during the current ongoing emergency situation.

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ADMINISTRATIVE MATTERS
ITEM 1: ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP

RECOMMENDED ACTION:
Approve the following Engineering/Operational Committee Meeting Recap(s) and recommend that the Board receive and file same (Consent Calendar):

1. *August 5, 2020*

CONTACTS (staff responsible): PALUDI/PEREA

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP | AUGUST 5, 2020

DIRECTORS PRESENT
Edward Mandich, Committee Chair

DIRECTORS VIA CONFERENCE CALL
Stephen Dopudja, Committee Member

STAFF PRESENT
Fernando Paludi, General Manager
Michael Perea, Assistant General Manager/District Secretary
Lorrie Lausten, District Engineer
Gary Kessler, Water Department Superintendent
Jason Stroud, Maintenance Department Superintendent
Karen Warner, Senior Accountant
Lisa Sangi, Administrative Assistant

PUBLIC PRESENT
None

CALL MEETING TO ORDER
Director Mandich called the August 5, 2020 Engineering/Operational Committee Meeting to order at 7:00 AM. Public access to the meeting was made available by video broadcast.

VISITOR PARTICIPATION
No comments were received.

ORAL COMMUNICATION
No comments were received.

COMMITTEE MEMBER COMMENTS
Director Dopudja expressed his appreciation to District staff for the tour of District facilities.

Director Mandich expressed his appreciation to District staff for the tour of District facilities and commented that improved Ridgeline Booster Pump Station looked good. Director Mandich reported that he would be participating in the South Orange County Watershed Management Area Executive Committee Meeting the following day.

REPORT FROM THE GENERAL MANAGER
Mr. Paludi provided updates on the following matters:

- Mr. Paludi expressed his appreciation for the District staff in facilitating the District Facility Tour during the COVID-19 pandemic.
- Mr. Paludi reported that District staff is currently working with Soto Resources on a grant application for a US Bureau of Reclamation grant for funding a District-wide Automated Meter Read/Advanced Metering Infrastructure (AMR/AMI) improvement project.

- Mr. Paludi reported that Ms. Lausten was currently assisting Municipal Water District of Orange County (MWDOC) staff on the assessment portion of the consultant selection process for the preparation of the 2020 Urban Water Management Plan (UWMP) update.
- Mr. Paludi provided a brief update on the Poseidon Desalination Project.

ITEM 1: ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP

Mr. Paludi presented the Engineering/Operational Committee Meeting Recap for Committee review in accordance with the agenda.

RECOMMENDED ACTION

The Committee recommended that the Engineering/Operational Committee Meeting Recap be forwarded to the Board of Directors for approval (Consent Calendar).

ITEM 2: DOVE AND ROBINSON RANCH RECYCLED WATER PUMP STATION REHABILITATION PROJECT

Mr. Paludi presented this matter for Committee review, and he highlighted the facility improvements reviewed at the facility tour. Ms. Lausten reported that the rehabilitation work for this facility has been completed, and she mentioned that the seven-day test was scheduled to begin that day. Ms. Lausten reported that Ferreira Construction has issued a contract change order for extra work due to unforeseen conditions for a total amount of $41,360.40. Ms. Lausten presented update construction photos for Committee review and highlighted the updated paint on the exterior suction and discharge piping. Director Mandich asked if this was the last contract change order for this project; Ms. Lausten stated there were no anticipated construction contract change orders. Director Dopudja asked what were the reasons for the contract change order; Ms. Lausten explained the issues were based on in-field observations.

RECOMMENDED ACTION

The Committee approved and recommended the Board of Directors ratify contract change order No. 2 to Ferreira Construction for a not to exceed amount of $41,360.40 (Action Calendar).

ITEM 3: SOUTH ORANGE COUNTY SALT AND NUTRIENT MANAGEMENT PLAN COOPERATIVE AGREEMENT – WATERSHED MONITORING

Mr. Paludi introduced this matter for Committee review, and he mentioned that the South Orange County Wastewater Authority (SOCWA), of which the District is a member-agency, holds the current recycled water permit. Mr. Paludi reported that he met with the San Juan Basin Authority (SJBA) staff to discuss the impacts and requirements of the proposed South Orange County Salt and Nutrient Management Plan Cooperative Agreement (Agreement) if the District decides to participate in the process; the District as a recycled water discharger is a participant in the SNMP. Mr. Paludi reviewed the terms of the agreement with the Committee and highlighted the proposed administrative costs which were not including in the Fiscal Year 2020/2021 General Fund Budget. Discussion occurred concerning certain terms of the agreement. Mr. Paludi mentioned that representatives from both SOCWA and SJBA will deliver a presentation for the Board of Directors concerning this matter.

RECOMMENDED ACTION

Recommend the Board of Directors approve Trabuco Canyon Water District's participation in the "Cooperative Agreement for Salt and Nutrient Management Plan" (Action Calendar).

ITEM 4: OTHER ENGINEERING AND OPERATIONS PROJECTS

1. Bell Canyon Sewer Lift Station Rehabilitation Project

Ms. Lausten provided a brief project update, and she provided a power point presentation of photos for fencing options. Mr. Paludi reported that District staff have considered improving the quality of the construction fencing for aesthetic purposes. Ms. Lausten presented construction fencing alternatives for Committee consideration and review, and she indicated that the construction fencing has been reviewed and approved by both the Dove Canyon Master Association (DCMA) and the Orange County Fire Authority (OCFA). Discussion occurred concerning the cost analysis of the construction fencing options. Director Mandich recommended forwarding this matter to the Board of Directors for their consideration.

2. The Oaks at Trabuco Development

Mr. Paludi mentioned that there was no update, however the Developer has expressed an interest in an extension of the sewer hauling agreement with the District.

3. SWRCB and PFAS Sampling

Ms. Lausten reported this matter was for informational purposes only, and she mentioned that the State Water Board has identified and requires the District sample for Per- and polyfluoroalkyl substances (PFAS) at the Dimension Water Treatment Plant (DWTP) in the fourth quarter sampling period of 2020.

4. Trabuco Creek Bridge Rehabilitation Project

Ms. Lausten provided an update on this matter, and she mentioned that District staff has met with Orange County Public Works (OCPW) staff to provide input on the proposed Trabuco Creek Bridge Rehabilitation Project. Discussion occurred concerning potential impacts to the District's Trabuco Creek Groundwater Treatment Facility adjacent to the bridge. Ms. Lausten reported that OCPW has requested easements which overlap the District's property and buried domestic water pipelines. Discussion occurred concerning potential improvements to the District's adjacent facility, including the placement of new rip rap on the protective berm. Director Mandich requested that District staff prepare an exhibit which indicated the proposed project and the District's property, facility, and infrastructure for Board consideration.

5. Other Projects

Mr. Paludi provided a brief update on the District's Dam Liability Insurance for Trabuco Dam with ACWA/JPIA, and he mentioned that the deductible is scheduled to increase from $50,000 to $1,000,000. Mr. Paludi mentioned that the insurance premium is scheduled to increase as well. Discussion occurred on the value of the coverage and the capacity behind the Dam.

RECOMMENDED ACTION

The Committee recommended forwarding the Board of Directors to review the construction fencing options for their consensus.

Director Mandich recused himself from the meeting and exited the building at 7:49AM.

ITEM 5: SADDLEBACK MEADOWS DEVELOPMENT (181 DU's) – HARRIS GRADE RESERVOIR FEASIBILITY STUDY

Ms. Lausten provided a brief status update on this project, and she mentioned that she met with Tetra Tech to review the preliminary feasibility study information. Ms. Lausten presented preliminary tank siting alternatives to meet the District's emergency storage requirements and the water demands of the proposed development. Ms. Lausten reviewed the updated feasibility study schedule for completion. Discussion occurred concerning potential system impacts due to head loss. Ms. Lausten reported that the draft feasibility study will be presented for review

at the following Committee Meeting. Director Dopudja asked that District staff consider vehicle access at the facility.

RECOMMENDED ACTION:
Committee to receive information at time of the Committee Meeting.

Director Mandich resumed his meeting participation after reentering the building at 7:58AM.

ITEM 6: WATER SYSTEM UPDATES

Mr. Kessler reviewed the projects and repairs for July 2020, and he provided the additional highlights:

1. Trabuco Creek Ground Water Treatment Facility is producing 450 GPM.
2. Water Operations staff conducted an Annual Inspection with the Department of Public Health and made recommended repairs.
3. Water Operations staff flushed 128 hydrants and converted two Dry Barrel's to Wet Barrel's.
4. Water Operations staff recoated top of Tank #2 at the Trabuco Highlands Reservoirs.

Mr. Kessler reviewed the Monthly Water System Operations Summary with the Committee. Mr. Kessler provided a brief update on the installation of smaller screens at the District's domestic water reservoir tanks based on the annual inspection by the Department of Public Health.

RECOMMENDED ACTION
The Committee received the status update.

ITEM 7: WASTEWATER SYSTEM UPDATES

Mr. Perea reviewed the projects and repairs for July 2020, and he provided the additional highlights:

1. Wastewater Operations staff worked with the Maintenance Department to complete the following at Golf Club Sewer Lift Station:
    a. Cleaned the wet well
    b. Remove a failed pump
    c. Installed a new pump
2. Wastewater Operations staff cleaned Golf Club Sewer Lift Station Wet Well.
3. Wastewater Operations staff installed the new air compressor system for the Dove Lake aeration system and worked with Maintenance Department and Hydrotech Electrical to clean up the electrical panel and conduit.
4. Wastewater Operations staff worked with Ferreira Construction to bypass Bell Canyon Sewer Lift Station for the wet well integrity inspection (Exhibit 2).

Mr. Perea reviewed the Monthly Wastewater System Operations Summary with the Committee. Mr. Perea reported that a minor lake turnover occurred at Dove Lake due to aeration system improvements, but that the lake had improved after Operations staff identified and remediated the system issue. Mr. Perea reported that the District received an unsolicited inquiry from the State Water Board concerning the matter, but that the District indicated the cause of the problem and subsequent resolution which satisfied their concerns. Mr. Perea reported that Wastewater Operations staff are monitoring non-domestic water supplies to meet summer month demands.

RECOMMENDED ACTION
The Committee received the status update. There was no action taken.

ITEM 8: MAINTENANCE DEPARTMENT UPDATES

Mr. Stroud reviewed the projects and repairs for July 2020, and he provided the additional highlights:

1. Maintenance Department staff assisted the following contractors with work at the Dove Recycled Booster Pump Station: Hydrotech Electric, TESCO Controls, and Ferreira Construction.
2. Maintenance Department staff assisted Wastewater Operations and Hydrotech Electric with the Dove Lake aeration compressor install.
3. Maintenance Department staff managed to troubleshoot communication issues at the Heritage Lift Station.
4. Maintenance Department staff replaced ramps for the storage located at the Robinson Ranch Wastewater Treatment Plant.
5. Maintenance Department staff completed the procurement of a new high-flow fire pump for the Topanga Booster Pump Station.
6. Maintenance Department staff completed the procurement of a new first stage pump for the Golf Club Sewer Lift Station.

RECOMMENDED ACTION

The Committee received the status update. There was no action taken.

ITEM 9: OTHER MATTERS/REPORTS

There were no other matters or reports provided to the Committee.

RECOMMENDED ACTION

There was no action taken.

ADJOURNMENT

Director Mandich adjourned the August 5, 2020 Engineering/Operational Committee Meeting at 8:20 AM.

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ENGINEERING MATTERS
ITEM 2: SOUTH ORANGE COUNTY SALT AND NUTRIENT MANAGEMENT PLAN COOPERATIVE AGREEMENT – WATERSHED MONITORING

In 2014, the South Orange County Wastewater Authority (SOCWA) submitted its *Salt and Nutrient Management Plan for the South Orange County Aliso Creek, San Juan Creek, and Portions of Other Basins* (SNMP) to the San Diego Regional Water Quality Control Board. The 2014 SNMP identified the implementation of a monitoring and data collection program to improve the existing salt and nutrient monitoring efforts in the San Juan Creek Watershed. SNMPs are required for all groundwater basins in California by the State Water Resources Control Board's Recycled Water Policy.

The SNMP provides regulatory coverage under the California Recycled Water Policy to recycled water agencies including Trabuco Canyon Water District (District), and three members of the San Juan Basin Authority (SJBA): Santa Margarita Water District (Santa Margarita), Moulton Niguel Water District (Moulton Niguel), and the City of San Juan Capistrano (City). The SJBA is a Joint Powers Authority (JPA) that also includes South Coast Water District (South Coast).

While SOCWA, as the recycled water permit holder, is ultimately responsible for reviewing and submitting the SNMP, the SJBA assumed responsibility for the SNMP monitoring program in 2015. Since that time, the District has been cooperating informally with the SJBA members (except for South Coast) on the monitoring program with the understanding that a formal cooperative agreement would follow at a later date.

On July 30, 2020, the District received a letter from the SJBA with a draft agreement (Agreement) for the District's consideration to formalize the historical cooperation on the SNMP monitoring program (SJBA letter and Agreement attached as Exhibits 1 and 2, respectively). The Agreement calls for proportional allocation of monitoring program costs among the participants according to annual recycled water sales as reported in SOCWA's Annual Recycled Water Report. The term of the Agreement is for five (5) years from the effective date.

Attached as Exhibit 3 is the "SNMP Monitoring and Data Collection Program Work Plan" to be implemented by the SJBA in coordination with TCWD, Orange County Public Works, and SOCWA. The FY 2020-21 budget for the SNMP monitoring program is attached as Exhibit 4. TCWD's total FY 2020-21 contribution as outlined in the July 30 letter is $17,188.

Based on staff's analysis of the regulatory requirements associated with SOCWA's water recycling permit and the SNMP, and after discussions with SOCWA and SMWD staff, District staff recommends that the District act in good faith with other water recyclers in the basin and participate in the Agreement. The District has not budgeted for the Agreement in FY 2020-21, but will include the expense in future operating budgets.

FUNDING SOURCE:
District's financial commitment under the proposed agreement as described would come from the General Fund.

RECOMMENDED ACTION:
1. *Committee to receive information at the time of the Committee Meeting.*
2. *Recommend the Board of Directors approve Trabuco Canyon Water District's participation in the "Cooperative Agreement for Salt and Nutrient Management Plan"*

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

EXHIBITS

1. Letter from San Juan Basin Authority dated July 30, 2020
2. Draft "Cooperative Services Agreement for Salt and Nutrient Management Plan"
3. SNMP Monitoring and Data Collection Program Work Plan
4. Proposed FY 2020-21 SNMP Budget

CONTACTS (staff responsible): PALUDI/LAUSTEN

SAN JUAN BASIN AUTHORITY

26111 Antonio Parkway • Rancho Santa Margarita, CA 92688 (949) 459-6400 FAX (949) 459-6463

Date: July 30, 2020

To: Fernando Paludi, Trabuco Canyon Water District (TCWD)
Matt Collings, Moulton Niguel Water District (MNWD)
Steve May, City of San Juan Capistrano (CSJC)
Dan Ferons, Santa Margarita Water District (SMWD)

From: Norris Brandt, SJBA Administrator

Subject: South Orange County Salt and Nutrient Management Plan (SNMP)
Cooperative Agreement – Watershed Monitoring

The purpose of this memo is to transmit to your agency the final version of the "COOPERATIVE SERVICES AGREEMENT FOR SALT AND NUTRIENT MANAGEMENT PLAN," ready for approval by your Council/Board at its earliest opportunity.

On October 15, 1997, the South Orange County Wastewater Authority (SOCWA, as successor to SOCRA) was issued Order No. 97-52 by the Regional Board. Order No. 97-52 contains the waste discharge and water recycling requirements for all SOCWA member agencies, except South Coast Water District. As a result, SOCWA has taken the lead in development and implementation of the SNMP

When the SNMP was submitted to the San Diego Regional Water Quality Control Board (Regional Board) in 2014, it identified the South Orange County recycled water agencies that would receive regulatory coverage under SNMP requirements in the California Recycled Water Policy. They include TCWD, CSJC, MNWD, and SMWD. Around 2015, the four agencies informally agreed to cooperatively move forward on the implementation of the SNMP monitoring program, and that a formal cooperative agreement would memorialize it at a later date.

SJBA is administering the monitoring program because three of the four agencies are SJBA members and SJBA is already performing extensive watershed monitoring for other purposes. This arrangement eliminates duplication of efforts and results in savings for the SNMP partners.

Over the last year, the four agencies and SJBA have negotiated the formal cooperative agreement mentioned above. Attached is the final version of the Cooperative Agreement for review and approval by your Council/Board. The parties have reviewed it and believe it describes a fair method for allocating the costs of the monitoring program. The

agreement calls for proportioning SNMP monitoring-related costs based on annual recycled water sales and allows for some in-kind service contributions to minimize combined agency cash contributions.

As for administrative costs, the three SJBA member agencies (CSJC, MNWD, SMWD) will pay approximately 24.5% of all SJBA administration costs through their annual assessments. For Fiscal Year 2020/21, Trabuco Canyon Water District, not currently an SJBA member, will pay a smaller portion (2%) of only the administration costs that are related to the SNMP.

SJBA member agencies pay their respective allocations through their annual SJBA assessments. TCWD will be invoiced separately for its total contribution.

The table below identifies how SNMP costs are being allocated for FY 2020/21. It is anticipated that on August 11, 2020, the SJBA Board will approve an updated FY 2020/21 General Budget that reflects these allocations.

	SMWD	MNWD	CSJC	TCWD
Recycled Water Use (AF)	5,364	137	553	600
Proportion of Total Use (%)	68.0%	17.4%	7.0%	7.6%
Cost Allocation ($)	$110,840	$28,362	$11,410	$12,388
			TCWD Portion of SJBA Admin Costs	$4,800
			Total TCWD FY 2020/21 Contribution	$17,188

We incorporated in the agreement an annual Cooperator group review of scope and budget in advance of the work to promote consensus among the parties, prior to work commencing on the respective monitoring work. Each party is then responsible for providing (by May 1 each year) written approval of the upcoming fiscal year budget, which funds the monitoring for the second half of the current calendar year and the first half of the subsequent calendar year. The SJBA members have already approved the budget for FY 2020/21.

In the case of TCWD, with the agreement effective date of October 1, 2020, approval of the agreement signifies approval of the Fiscal Year 2020/21 budget which funds both the second half of Calendar Year 2020 and the first half of Calendar Year 2021.

Attached is a timeline showing the various implementation steps for an example calendar year (2021). The SNMP monitoring program and guidance from the Regional Board call for a calendar year (CY) monitoring and reporting cycle. Interestingly, to facilitate this requirement, the entire process to plan, approve, and implement monitoring, and report results to the Regional Board actually spans almost 30 months.

Please submit the "Cooperative Services Agreement for Salt and Nutrient Management Plan" to your Board/Council for approval at your earliest convenience, preferably in August 2020. Once approved, please send a "wet signature" copy to me for our records. Once we have collected all the counter signatures, I will send a scanned version of the conformed agreement to you for your records.

Please feel free to call me at 949.293.6236 or email me at norris.brandt@sjbauthority.com with any questions or suggestions.

Sincerely,

Norris Brandt, PE
Administrator
San Juan Basin Authority

Attachments:

1. Final "Cooperative Services Agreement for Salt and Nutrient Management Plan"
2. FY 2020/21 SNMP Budget
3. Model Schedule and Milestones for Calendar Year 2021 Monitoring

COOPERATIVE SERVICES AGREEMENT
FOR SALT AND NUTRIENT MANAGEMENT PLAN

THIS COOPERATIVE SERVICES AGREEMENT FOR SALT AND NUTRIENT MANAGEMENT PLAN ("Agreement") is entered into as of the 11th day of August, 2020, by and between SAN JUAN BASIN AUTHORITY, a joint powers authority duly organized and existing under the laws of the State of California ("SJBA"), SANTA MARGARITA WATER DISTRICT, a California Water District duly organized and existing under the laws of the State of California ("SMWD"), MOULTON NIGUEL WATER DISTRICT, a California Water District duly organized and existing under the laws of the State of California ("MNWD"), TRABUCO CANYON WATER DISTRICT, a California Water District duly organized and existing under the laws of the State of California ("TCWD"), and the CITY OF SAN JUAN CAPISTRANO, a municipality duly organized and existing under and by virtue of the laws of the State of California ("CITY"). SJBA, SMWD, MNWD, TCWD, and CITY are referred to herein individually as a "Party" and collectively as the "Parties."

R E C I T A L S:

A. In 2009, the California State Water Resources Control Board adopted its Policy for Water Quality Control for Recycled Water ("Recycled Water Policy"). The Recycled Water Policy was amended in 2013 and 2018. The Recycled Water Policy provides goals for recycled water use in California, guidance for use of recycled water that considers protection of water quality, criteria for streamlined permitting of recycled water projects, and requirements for monitoring recycled water for constituents of emerging concern. The San Diego Regional Water Quality Board ("Regional Board") has developed Proposed Guidelines for Salinity/Nutrient Management Planning in the San Diego Region (9) ("Region 9 SNMP Guidelines"). Among other requirements, the Recycled Water Policy requires the development of salt and nutrient management plans ("SNMP") for groundwater basins throughout California, including San Juan Basin, on or before May 14, 2014.

B. The South Orange County Wastewater Authority, a joint powers authority ("SOCWA"), prepared and submitted a Salt and Nutrient Management Plan (SNMP) for the Aliso Creek, San Juan Creek, and Portions of Other Basins ("SOCWA SNMP"), which includes the SNMP for the San Juan Basin, to the Regional Board. The SOCWA SNMP identified a detailed implementation plan and schedule, which included as an initial step, the development and implementation of a monitoring and data collection work plan to enhance the existing salt and nutrient monitoring efforts in the San Juan Creek Watershed (the "Monitoring Program").

C. In 2015, the SJBA assumed responsibility for the development and implementation of the Monitoring Program, in coordination with its own existing ongoing groundwater monitoring program used to comply with its Diversion and Use of Water Permit No. 21074.

D. This Agreement is entered into and for the purpose of memorializing the Parties' agreement to cooperate and share in the cost of the implementation of the Monitoring Program.

NOW, THEREFORE, in consideration of the preceding recitals and the mutual covenants hereinafter contained, the parties agree as follows:

1. Effective Date of Agreement. This Agreement shall be effective upon the signing hereof by all Parties hereto, and shall be deemed effective as of October 1, 2020 ("Effective Date").

2. Implementation of Monitoring Program. The Parties agree that the work to be performed to implement the Monitoring Program shall be according to the SNMP Monitoring and Data Collection Program Work Plan Addendum to the 2014 Salt and Nutrient Management Plan, attached hereto as Exhibit A (the "Work Plan"), as well as any subsequent Addendum to the SNMP.

3. Responsibilities of All Parties. The Parties will perform the monitoring services identified and as assigned in the section entitled "Cooperator Data Collection Protocols" of the Work Plan and report the data obtained from such monitoring services to the SJBA as specified in the Work Plan. Each year, prior to January 1, SJBA will notify the individual Parties of the specific work to be performed by them during that calendar year, including any changes to the work from the prior year. Further, the Parties agree to report the data obtained from the monitoring services identified in the "Cooperator Data Collection Protocols" section of the Work Plan for the preceding calendar year to the SJBA no later than March 31 of the following year. To the extent that the reporting periods identified in the Work Plan differ from the March 31st deadline identified in the immediately preceding sentence, the Parties agree to be bound to the March 31st deadline. If any Party fails to report the data obtained for the preceding calendar year to the SJBA on or before March 31 of the following year, the annual report of data from SJBA to SOCWA will clearly indicate that data was not provided by that Party.

4. Responsibilities of the SJBA. The Parties agree that the SJBA is responsible for the following:

(a) Implementation and Oversight. The SJBA shall be responsible, in its sole discretion, for overseeing and coordinating the activities necessary to complete the Work Plan and implement the Monitoring Program, as may be revised from time to time due to revisions required by the Parties or the Regional Board. The Parties shall meet annually, by March 1, to determine what activities are necessary and prudent to complete the Work Plan and implement the Monitoring Program for the following calendar year, including, but not limited to, engaging competent consultants and/or contractors.

(b) Budget for Work. On or before March 1st of each year in which this Agreement is in place, the SJBA shall prepare and provide to the Parties a draft annual budget for the costs of the Work Plan and implementation of the Monitoring Program for the 18-month period beginning the subsequent January 1 and ending June 30 of the following year (18 months later). On or before May 1, each Party shall provide written approval of its proportionate reimbursement of the total cost of implementing the SNMP during the relevant 18-month period. The total cost shall include, but not be limited to the costs of, consultant contracts, field work, reporting of results, administration, maintenance of monitoring wells, and special studies associated with the SNMP, as described in the Work Plan and associated budget. It is expected that field work and related activities will be completed during a calendar yet, but costs are expected to be expended over an 18-month period to allow for reporting of results after the calendar year has ended. Each 18-month period will overlap in that the six month period of time following the end of a calendar year during which reporting of results of the field work conducted in the previous calendar year will occur at the same time as the field work conducted during first six months of the new 18 month period. Therefore, expenses will be accounted through two fiscal years for each 18-month period of SNMP

implementation. Any unexpended funds from one fiscal year will be credited to the Parties for the following fiscal year of SNMP implementation.

(c) Invoice the Parties. Parties will be invoiced on a fiscal year basis (July 1 through June 30). On or about September 30 of each year in which this Agreement is in place, the SJBA shall prepare, pursuant to the terms of this Agreement as set forth below, invoices to each of the Parties for that Party's annual fiscal year contribution ("Cost Allocation"). Each of the SMWD, MNWD, TCWD, and CITY agree to pay the invoice within thirty (30) days of receipt.

(d) Responsibility for Data and Reporting to the Regional Board. The SJBA shall be responsible for providing SOCWA with the monitoring and other data collected as part of the Work Plan and/or implementation of the Monitoring Program. In turn, SOCWA is responsible for reporting and providing the data to the Regional Board. If any Party fails to perform its work duties or provide its assigned data to SJBA as required, that portion of SJBA's annual report to SOCWA will be missing. SJBA shall note in the report that the non-performing Party did not provide the data required. The non-performing Party shall pay any and all penalties and/or extra costs associated with its data not being provided to SJBA. The non-performing Party shall be severally and fully responsible for its own compliance with SNMP requirements associated with its recycled water use. SJBA data will not be provided to the non-performing Party.

5. Allocated Reimbursement of SJBA Costs. Each fiscal year each of the SMWD, MNWD, TCWD, and CITY shall reimburse the SJBA its Cost Allocation of the cost incurred by SJBA to complete the Work Plan and implement the Monitoring Program during the subject fiscal year. The Cost Allocation of each of the SMWD, MNWD, TCWD, and CITY shall be calculated as follows:

(a) Intent of Cost Allocation Reimbursement. The Parties agree that the intent of the Cost Allocation is to equitably distribute the costs incurred by the SJBA to complete the Work Plan and implement the Monitoring Program among the other Parties in an amount equal to each Party's proportional share of the recycled water used or discharged outdoors in the Mission Viejo Hydrologic Area. The Mission Viejo Hydrologic Area, and its Sub Areas, are defined/identified by the Regional Board in its most recent "WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)" (Basin Plan).

(b) Cost Allocation. Each of the SMWD, MNWD, TCWD, and CITY shall reimburse the SJBA a percentage of the costs incurred by the SJBA to complete the Work Plan and implement the Monitoring Program. The percentage of the costs to be reimbursed by each of the SMWD, MNWD, TCWD, and CITY shall be known as the "Allocated Percentage" and shall be calculated as follows:

(c) The "Allocated Percentage" for each Party is the total amount of metered usage within the Mission Viejo Hydrologic Area from that Party's recycled water system in the immediately preceding calendar year as reported by SOCWA in its Annual Recycled Water Report ("Agency's Recycled Water Amount") divided by the total amount of metered usage within the Mission Viejo Hydrological Area from all of the Parties' recycled water systems as reported by SOCWA in its Annual Recycled Water Report ("Total Recycled Water Amount"). An example of this calculation is as follows:

Allocated Percentage = Agency's Recycled Water Amount / Total Recycled Water Amount

6. Calendar Year 2020. Notwithstanding the prior paragraphs regarding Cost Allocation, the Parties agree to negotiate in good faith reasonable Cost Allocations for Calendar Year 2020 SNMP implementation costs. All provisions shall be applied to subsequent Calendar Years.

7. Term. The term of this Agreement shall be for five (5) years from the Effective Date, unless earlier terminated as provided herein.

8. Termination. This Agreement shall only terminate upon the expiration of the Term or the unanimous consent of all Parties. Should the Parties agree to terminate this Agreement, each of the the SMWD, MNWD, TCWD, and CITY, unless otherwise agreed to by all Parties, shall be responsible for reimbursing the SJBA the full amount of its Cost Allocation.

9. Withdrawal by Individual Party. A Party may withdraw from this Agreement by providing all other Parties with written notice of that Party's election to withdraw. A Party's written notice of withdrawal must specify the date on which that Party will withdraw from this Agreement, which date shall be no sooner than ninety (90) days after that Party's service of the written notice of withdrawal. Should a Party withdraw from this Agreement, such Party, unless otherwise agreed to by all Parties, shall be responsible for reimbursing the SJBA the full amount of its Cost Allocation for the fiscal year in which the Party withdraws and report all data collected by that Party up to the effective date of withdrawal to the SJBA. Upon the effective date of said withdrawal, the withdrawing Party shall be responsible, at its sole cost and expense, for compliance with the SNMP requirements which will continue to apply to said Party. SJBA's annual report to SOCWA shall indicate any Parties that have withdrawn from this Agreement.

10. Assignment or Transfer. No Party shall assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written approval of all of the Parties to this Agreement, which approval shall not be unreasonably withheld, as well as the prior written agreement of the proposed assignee to be bound by this Agreement. Any attempt to assign, hypothecate, or transfer, either directly or by operation of law, without said prior written approvals shall be null and void, and any assignees, hypothecates or transferees shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer.

11. Notices. Any notices, requests or approvals given under this Agreement may be personally delivered or deposited with the United States Postal Service for mailing, postage prepaid, registered or certified mail, return receipt requested to the following address:

SJBA
San Juan Basin Authority
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688
Attn: Administrator

SMWD
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688
Attn: General Manager

MNWD
Moulton Niguel Water District
27500 La Paz Road
Laguna Niguel, CA 92677
Attn: General Manager

TCWD
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
Attn: General Manager

CITY
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675
Attn: City Manager

Any Party may change its address for notice by giving written notice thereof to the other Parties.

12. Entire Agreement. This Agreement contains the entire Agreement of the Parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings or agreements. This Agreement may only be modified by a writing signed by all Parties.

13. Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by all Parties.

14. Governing Law. This Agreement shall be governed by the laws of the State of California. Venue shall be in Orange County.

15. Construction; References; Captions. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. Any term referencing time, days or period for performance shall be deemed calendar days and not work days. All references to a Party or the Parties include all elected officials, officers, personnel, employees, agents, and volunteers except as otherwise specified in this Agreement. The captions of the various sections of this Agreement are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

16. Time of Essence. Time is of the essence for each and every provision of this Agreement.

17. Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Parties any contractual rights by custom, estoppel, or otherwise.

18. No Third-Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

19. Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

20. Authority to Enter Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

21. Disputes. If a dispute arises between the Parties relating to this Agreement (a "Dispute"), the Parties agree to use the following procedure prior to pursuing other legal remedies:

(a) A meeting among the Parties shall promptly be held in Orange County, California. Attendees representing each of the Parties shall be senior staff members of each of the Parties who can recommend that each of the Parties' Board of Directors approve any proposed resolution. The representatives of the Parties will attempt in good faith to negotiate a resolution of the dispute.

22. Counterparts/Duplicate Originals. Two or more duplicate originals of this Agreement may be signed by all the Parties hereto, each of which shall be an original but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties have caused this agreement to be signed as of the date first above written.

San Juan Basin Authority

By:_____
Name: _____
Title: _____

APPROVED AS TO FORM:

_____
David C. Palmer, General Counsel

[Signatures Continue on Following Page]

Santa Margarita Water District

By:_____
Name:_____
Title: _____

APPROVED AS TO FORM:

By:_____
[Name & Title: _____]

Moulton Niguel Water District

By:_____
Name:_____
Title: _____

APPROVED AS TO FORM:

By:_____
[Name & Title: _____]

Trabuco Canyon Water District

By:_____
Name:_____
Title: _____

APPROVED AS TO FORM:

By:_____
[Name & Title: _____]

[Signatures Continue on Following Page]

City of San Juan Capistrano

By:_____
Name:_____
Title: _____

APPROVED AS TO FORM:

By:_____
[Name & Title: _____]

EXHIBIT “A”

SNMP Monitoring and Data Collection Program Work Plan
Addendum to the 2014 Salt and Nutrient Management Plan

SNMP Monitoring and Data Collection Program Work Plan
Addendum to the 2014 Salt and Nutrient Management Plan

Introduction and Background

The South Orange County Wastewater Authority (SOCWA) submitted its *Salt and Nutrient Management Plan for the South Orange County Aliso Creek, San Juan Creek, and Portions of Other Basins*[1] (SNMP) to the California Regional Water Quality Control Board, San Diego Region (Regional Board) in July 2014. The 2014 SNMP identified a detailed implementation plan and schedule, which included as an initial step, the development and implementation of a monitoring and data collection program work plan to improve the existing salt and nutrient monitoring efforts in the San Juan Creek Watershed.

In 2015, the San Juan Basin Authority (SJBA) assumed responsibility for the development and implementation of the monitoring program. This work plan was developed in coordination with the following agencies, who provided detailed information regarding their current and future monitoring efforts, recycled water reuse practices, and other essential data necessary for building a successful SNMP Monitoring and Data Collection Program:

- The City of San Juan Capistrano (CSJC), SJBA member agency
- Moulton Niguel Water District (MNWD), SJBA member agency
- Orange County Public Works (OCPW)
- Santa Margarita Water District (SCWD), SJBA member agency
- SOCWA
- Trabuco Canyon Water District (TCWD)

The following work plan for the SNMP Monitoring and Data Collection Program will be implemented by the SJBA, in coordination with the OCPW, SOCWA, and TCWD.

SNMP Monitoring and Data Collection Program Objectives and Goals

The primary objective of the SNMP Monitoring and Data Collection Program is to collect the information required to: (1) evaluate "current" groundwater quality, (2) project future changes in groundwater quality, (3) determine the impact of recycled water reuse on current and future groundwater quality, and (4) determine if current or future groundwater quality exceeds the groundwater quality objectives established in the Water Quality Control Plan for the San Diego

[1] HDR and Wildermuth Environmental Inc., 2014. *Salt and Nutrient Management Plan for the South Orange County Aliso Creek, San Juan Creek, and Portions of Other Basins*. Prepared for the South Orange County Wastewater Authority, July 2014.

Basin[2] (Basin Plan). Pursuant to the 2014 SNMP, these evaluations will need to be performed every five years.

The data needed to perform these evaluations includes recycled water reuse volumes, locations, and quality; groundwater quality, levels, and production; storm and non-storm surface water quality and flow; land use and outdoor irrigation practices; and agency water supply plans and source water quality. The majority of this information is readily available from the water supply and recycled water agencies as this information is pertinent to planning and management within their services areas. There are significant data gaps related to field measurements of surface and groundwater quality, particularly in the upper reaches of the San Juan Creek Watershed where the resources are limited and do not represent a significant source of water supply. There are some data collection efforts related to groundwater and surface water throughout the San Juan Creek Watershed, but in most cases the sampling efforts do not include all of the water quality parameters of interest to the SNMP Monitoring and Data Collection Program.

The goal in developing the monitoring program is to use the monitoring efforts currently being conducted throughout the watershed and supplement those efforts with new monitoring, only where necessary, to address the SNMP. The agencies engaged in groundwater and/or surface water monitoring efforts include the CSJC, OCPW, MNWD, SJBA, the South Coast Water District (SCWD), SMWD, and TCWD. Additionally, there are private entities that collect limited data from their own groundwater wells. The development of the SNMP Monitoring and Data Collection Program involved extensive coordination with these agencies.

SNMP Monitoring and Data Collection Program Design

The San Juan Creek Watershed is divided into nine hydrologic sub areas (HSAs), each with its own set of numerical groundwater quality objectives as shown below and defined in Table 3-3 of the Basin Plan. The Watershed, HSAs, and the current and future recycled water reuse areas – by agency – are shown in Figure 1.

[2] California Regional Water Quality Control Board, San Diego Region, 2011.

Basin Plan Groundwater Quality Objectives for the San Juan Creek Watershed HSAs

Ground Water	Constituent (mg/L or as noted)												
	Total Dissolved Solids	Chloride	Sulfate	Sodium	Nitrate as N	Iron	Manganese	MBAS	Boron	Odor	Turbidity (NTU)	Color Units	Fluoride
Mission Viejo Hydrologic Area (HA 901.2)													
Oso	1,200	400	500	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Upper Trabuco	500	250	250	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Middle Trabuco	750	375	375	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Gobernadora	1,200	400	500	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Upper San Juan	500	250	250	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Middle San Juan	750	375	375	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Lower San Juan	1,200	400	500	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0
Ortega	1,100	375	450	60	45	0.3	0.05	0.5	0.75	none	5	15	1.0

HA: Hydrologic Area

To evaluate "current" groundwater quality conditions and trends over time, and to project changes in the future, field measurements of groundwater and surface water quality will be needed in each of the nine HSAs. Both surface and groundwater quality sampling are required to understand the relationship between surface and groundwater quality and their respective source waters (e.g. stormwater runoff, urban runoff, etc.). For the SNMP, the groundwater quality parameters of interest are total dissolved solids (TDS), total inorganic nitrogen (TIN), and those parameters with a numerical groundwater quality objective defined in the Basin Plan, as shown above. Additionally, water quality parameters that can be used in a source water fingerprinting analysis, such as Piper or Stiff diagrams, are required. Table 1a lists the water quality parameters that will be tested for all groundwater samples collected for the SNMP Monitoring and Data Collection Program.[3] The surface water quality parameters of interest are

[3] Note that the Recycled Water Policy states that monitoring is required for "constituents of emerging concern" or CECs. Per email communication with San Diego Regional Board staff, monitoring for CECs is only required in areas where recycled water is being used for groundwater recharge. It is not required in areas where recycled water is being used for irrigation. CEC monitoring can be added in the future if the SJBA pursues a recycled water recharge program.

TDS, TIN, and the parameters that will be used in a source water fingerprinting analyses. Table 1b lists the water quality parameters that will be tested for all the surface water samples collected for the SNMP Monitoring and Data Collection Program.

Within each HSA, monitoring sites were selected to characterize the water quality in both the upgradient and downgradient ends of the HSA, and where possible, to characterize how water quality changes, if at all, in areas downstream of large recycled water reuse areas. Figure 2 is a map of the San Juan Creek Watershed and the proposed sites that will provide data for the SNMP. The map contains the following features:

- The nine HSA boundaries: Oso, Upper Trabuco, Middle Trabuco, Gobernadora (which includes both Gobernadora and Chiquita canyons), Bell Canyon, Upper San Juan, Middle San Juan, Ortega, and Lower San Juan.[4]
- Current and future proposed areas where recycled water is/will be applied for irrigation.
- Groundwater monitoring sites—symbolized as circles and color-coded by monitoring entity. The 15 sites shown as green circles are the proposed new field-monitoring program sites. The remaining 30 sites are monitored by cooperating agencies.
- In-stream surface water monitoring sites—symbolized as green triangles. All 16 in-stream monitoring sites shown are proposed for inclusion in a field monitoring program.[5]
- Urban runoff and/or stormwater capture facilities—symbolized as squares and color-coded by monitoring entity.
- Recycled water/urban runoff storage reservoirs—symbolized as diamonds and color-coded by monitoring entity. Water stored at these reservoirs can contain recycled water from multiple treatment plants and/or urban runoff sources and represent the quality of water served for outdoor irrigation.
- Water reclamation facilities—symbolized as purple pentagons—from which tertiary treated recycled water is either directly delivered to customers or sent to non-potable storage reservoirs.

Table 2 lists all of the groundwater monitoring sites that will be included in the SNMP and contains the site name and location (as latitude/longitude coordinates), well type, owner, whether it will be part of the new field monitoring program or the cooperative data collection program, and the monitoring frequency.

[4] Note that the portions of the Upper Trabuco and Upper San Juan HSAs are not included in the map. These areas are predominantly rugged areas of the Santa Ana Mountains and are undeveloped with the exception of a few areas with low-density urban, recreational, commercial, or industrial activities. These areas are not impacted by recycled water.

[5] The OCPW is currently in the process of developing a surface water monitoring program for its MS4 Permit program. Once the OCPW's program is developed, the proposed SNMP surface water monitoring sites may be slightly altered to avoid overlap with the OCPW program and to ensure field monitoring is not being duplicated.

Table 3 lists all the surface water monitoring sites that will be included in the SNMP and contains the site name and location, site type (e.g. in-stream, urban runoff capture facility, etc.), surface water body, site owner (if applicable), whether it will be part of the new field monitoring program or the cooperative data collection program, and the monitoring frequency.

The monitoring sites that are identified as part of the cooperative data collection program in Tables 2 and 3 will be sampled at the monitoring frequencies employed by the monitoring entities, with a few exceptions where the SJBA has requested that the monitoring site owner to increase their current monitoring frequency to support the SNMP.

During the first two years of the program, all new field program groundwater and surface water monitoring sites will be sampled on a quarterly frequency. The purpose of quarterly sampling will be to determine the seasonal variability in water quality. If after the first two years of monitoring the results show little seasonable variability, the sampling frequency should be reduced. Similarly, monitoring sites (surface and groundwater) that are not meaningfully contributing to the understanding of water quality can be eliminated from the program. There may also be reasons to add new sites or to change monitoring frequencies at certain locations. For all these reasons, the SNMP Monitoring and Data Collection Program will be evaluated and modified on an annual basis.

Field Data Collection Protocols

Of the 15 groundwater wells in the field monitoring program, six are monitoring wells with small-diameter PVC casings, and nine are agricultural or domestic production wells. Each well type will require a different methodology to collect samples for water quality testing: the monitoring wells will be sampled using a low-flow pump and the production wells will be sampled from taps installed on the discharge pipe, prior to any chlorination or diversion to storage tanks. Table 4 summarizes the well type, casing size, well depth, well screen, and sampling method to be used for each of the 15 wells in the new field monitoring program. Groundwater-level measurements will be collected and recorded at all monitoring sites.

Surface water samples from the 16 new field sites will be collected in-stream using polyethylene dippers.

Standard operating procedures (SOPs) for each groundwater and surface water sampling methodology are included as attachments to this addendum. The SOPs cover methodology basics, the use of field meters to test field parameters, sample collection, and equipment decontamination procedures. Also attached are the standard field forms that will be used to record field observations during the collection of each sample.

At the end of each day of field sampling, the groundwater and/or surface water samples will be delivered to a California ELAP certified laboratory to be analyzed for the water quality parameters listed in Tables 1a and 1b, respectively.

All field and laboratory data will be reviewed and checked for Quality Assurance and Quality Control (QA/QC) and stored in a project database.

Cooperator Data Collection Protocols

The cooperating agencies (CSJC, MNWD, SJBA, SMWD, and TCWD) will be monitoring their sites at the frequencies listed in Tables 2 and 3. These datasets will be compiled by the SJBA on a semi-annual basis. Additionally, the following datasets will be compiled annually from the CSJC, MNWD, SMWD, and TCWD:

- Updated maps of recycled water reuse areas
- Total non-potable water supply served, by source type (e.g. recycled water, urban runoff, and groundwater)
- Total potable water supply served, by source type, and source water quality data

The following datasets will be collected, as needed, to perform updated analyses of ambient water quality per the five-year schedule in the 2014 SNMP:

- storm and non-storm flow data from the USGS and OCPW
- land use maps

All cooperative data sets will be checked for QA/QC and stored in a project database.

Reporting

In accordance with the 2014 SNMP, an Annual Report will be submitted to the Regional Board containing the following information:

- A summary of the annual field and cooperative monitoring and data collection efforts, including maps and tables.
- A database containing all of the field and cooperative groundwater and surface water data sets.
- Updated maps of current and future recycled water reuse areas.
- A summary of changes to the monitoring program for the following year, if any.

Schedule

The SNMP Monitoring and Data Collection Program will be implemented beginning September 2016. The first annual report, covering September 2016 through December 2017, will be submitted to the Regional Board by June 30, 2018.

Enclosures

Figures 1 and 2, Tables 1 – 4

Standard Operating Procedure for Low-Flow Purge Sampling

Standard Operating Procedure for Sampling Agriculture and Domestic Wells

Standard Operating Procedure for Surface Water Quality Sampling

Field Data Sheet for Groundwater Sample Collection

Field Data Sheet for Surface Water Sample Collection

Table 1a
Water Quality Parameters Required for the SNMP Groundwater Monitoring and Data Collection Program

Water Quality Parameters to Analyze	Purpose
Alkalinity, Total (including bicarbonate, carbonate, hydroxide)	Source Water Quality Fingerprinting
Boron	Comparison with Basin Plan Objectives
Calcium	Source Water Quality Fingerprinting
Chloride	Comparison with Basin Plan Objectives and Source Water Quality Fingerprinting
Color	Comparison with Basin Plan Objectives
Fluoride	Comparison with Basin Plan Objectives
Iron	Comparison with Basin Plan Objectives
MBAS	Comparison with Basin Plan Objectives
Magnesium	Source Water Quality Fingerprinting
Manganese	Comparison with Basin Plan Objectives
Odor	Comparison with Basin Plan Objectives
Total Inorganic Nitrogen (including nitrate-N, nitrite-N, and ammonia-N)	Salt and Nutirent Loading Analyses; Comparison with Basin Plan Objectives
Potassium	Source Water Quality Fingerprinting
Sodium	Comparison with Basin Plan Objectives and Source Water Quality Fingerprinting
Sulfate	Source Water Quality Fingerprinting
TDS	Salt and Nutirent Loading Analyses; Comparison with Basin Plan Objectives
Turbidity	Comparison with Basin Plan Objectives

Table 1b

Water Quality Parameters Required for the SNMP Surface Water Monitoring and Data Collection Program

Surface Water Quality Parameters to Analyze	Purpose
Alkalinity, Total (including bicarbonate, carbonate, hydroxide)	Source Water Quality Fingerprinting
Calcium	Source Water Quality Fingerprinting
Chloride	Source Water Quality Fingerprinting
Magnesium	Source Water Quality Fingerprinting
Total Inorganic Nitrogen (including nitrate-N, nitrite-N, and ammonia-N)	Salt and Nutirent Loading Analyses
Potassium	Source Water Quality Fingerprinting
Sodium	Source Water Quality Fingerprinting
Sulfate	Source Water Quality Fingerprinting
TDS	Salt and Nutirent Loading Analyses

Table 2
Groundwater Monitoring Sites for the San Juan Creek Watershed
SNMP Monitoring and Data Collection Program

Monitoring Site Name and Location	Well Type	Well Owner	Latitude [WGS 84[	Longitude [WGS 84]	Included in SNMP as Field or Cooperative Data Collection Site?	Monitoring Frequency
Oso Hydrologic Sub Area						
Oso - GW1	Monitoring	City of Laguna Niguel	33.56115	-117.67650	Field	Quarterly
Oso - GW4	Monitoring	City of Laguna Niguel	33.55302	-117.67503	Field	Quarterly
Rosenbaum 1	Monitoring	CSJC	33.52996	-117.67214	Cooperative	Quarterly
Upper/Middle Trabuco Hydrologic Sub Area						
Trabuco Creek Wells Facility	Production	TCWD	33.65982	-117.58618	Cooperative	Only when in operation
Middle Trabuco Hydrologic Sub Area						
Arroyo-Trabuco Creek Sump	Production	SMWD	33.58335	-117.63663	Cooperative	Quarterly
North Open Space	Production	CSJC	33.52735	-117.67124	Cooperative	Monthly, when in operation
Gobernadora Hydrologic Sub Area (Includes Gobernadora and Chiquita Canyons)						
Chiquita DH-2	Monitoring	None	33.52976	-117.60964	Field	Quarterly
Chiquita DH-21	Monitoring	None	33.55590	-117.61200	Field	Quarterly
Gobernadora DH-2	Monitoring	SMWD	33.52550	-117.59177	Field	Quarterly
Gobernadora DH-17	Monitoring	SMWD	33.55383	-117.58831	Field	Quarterly
Bell Canyon Hydrologic Sub Area						
Lower MW	Monitoring	TCWD	33.62009	-117.56497	Cooperative	Quarterly
Audubon	Production	Audubon Society	33.63470	-117.55507	Field	Quarterly
Upper MW	Monitoring	TCWD	33.64632	-117.56496	Cooperative	Quarterly

Table 2
Groundwater Monitoring Sites for the San Juan Creek Watershed
SNMP Monitoring and Data Collection Program

Monitoring Site Name and Location	Well Type	Well Owner	Latitude [WGS 84[	Longitude [WGS 84]	Included in SNMP as Field or Cooperative Data Collection Site?	Monitoring Frequency
Upper San Juan Hydrologic Sub Area						
RMV 29 (Nichols Well)	Production	RMV	33.52290	-117.55796	Cooperative	Quarterly
RMV 9 Domestic	Production	RMV	33.52473	-117.55757	Field	Quarterly
Middle San Juan Hydrologic Sub Area						
RMV 12	Production	RMV	33.51563	-117.56852	Field	Quarterly
RMV 25	Production	RMV	33.52213	-117.59982	Field	Quarterly
RMV 27	Production	RMV	33.51648	-117.57937	Field	Quarterly
RMV 28	Production	RMV	33.52707	-117.60850	Field	Quarterly
RMV 6 (Ogleby Norton)	Production	RMV	33.51579	-117.58355	Field	Quarterly
RMV 7	Production	RMV	33.51715	-117.58682	Field	Quarterly
Ortega Hydrologic Sub Area						
RMV 5D	Production	RMV	33.52403	-117.61523	Field	Quarterly
CVWD #5A	Production	CSJC	33.50610	-117.64452	Cooperative	Monthly, when in production
SJBA MW-06	Monitoring	SJBA	33.50692	-117.64249	Cooperative	Semi-Annual
South Cooks	Production	CSJC	33.50074	-117.65155	Cooperative	Monthly, when in production
Tirador	Production	CSJC	33.49797	-117.65609	Cooperative	Monthly, when in production

Table 2
Groundwater Monitoring Sites for the San Juan Creek Watershed
SNMP Monitoring and Data Collection Program

Monitoring Site Name and Location	Well Type	Well Owner	Latitude [WGS 84[	Longitude [WGS 84]	Included in SNMP as Field or Cooperative Data Collection Site?	Monitoring Frequency
Lower San Juan Hydrologic Sub Area						
CVWD-1	Production	CSJC	33.48980	-117.66920	Cooperative	Monthly, when in production
Dance Hall	Production	CSJC	33.49196	-117.66543	Cooperative	Monthly, when in production
Kinoshita	Production	CSJC	33.48712	-117.67234	Cooperative	Monthly, when in production
SJBA-2	Production	CSJC	33.48912	-117.66850	Cooperative	Monthly, when in production
SJBA-4	Production	CSJC	33.48804	-117.66774	Cooperative	Monthly, when in production
Mission Street	Production	CSJC	33.50354	-117.66581	Cooperative	Quarterly
SJBA MW-01S	Monitoring	SJBA	33.46864	-117.67819	Cooperative	Semi-Annual
SJBA MW-02	Monitoring	SJBA	33.48168	-117.67829	Cooperative	Semi-Annual
SJBA MW-04	Monitoring	SJBA	33.50066	-117.65168	Cooperative	Semi-Annual
SJBA MW-05	Monitoring	SJBA	33.50454	-117.64664	Cooperative	Semi-Annual
SJBA MW-07	Monitoring	SJBA	33.49837	-117.66553	Cooperative	Semi-Annual
SJBA MW-08	Monitoring	SJBA	33.51456	-117.66974	Cooperative	Semi-Annual
Creekside	Production	SCWD	33.47480	-117.68000	Cooperative	Monthly, when in production
Stonehill	Production	SCWD	33.47272	-117.67902	Cooperative	Monthly, when in production
SCWD MW-1D	Monitoring	SCWD	33.47277	-117.67946	Cooperative	Semi-Annual
SCWD MW-1S	Monitoring	SCWD	33.47274	-117.67947	Cooperative	Semi-Annual
SCWD MW-2D	Monitoring	SCWD	33.47522	-117.68015	Cooperative	Semi-Annual
SCWD MW-2S	Monitoring	SCWD	33.47522	-117.68015	Cooperative	Semi-Annual
SCWD MW-3	Monitoring	SCWD	33.47786	-117.67917	Cooperative	Semi-Annual
SCWD MW-4D	Monitoring	SCWD	33.46755	-117.68111	Cooperative	Semi-Annual
SCWD MW-4S	Monitoring	SCWD	33.46755	-117.68111	Cooperative	Semi-Annual

Table 3
Surface Water Monitoring Sites for the San Juan Creek Watershed SNMP Monitoring and Data Collection Program

Monitoring Site Name and Location	Surface Water Monitoring Site Type	Surface Water Body	Site Owner (if applicable)	Latitude [WGS 84[	Longitude [WGS 84]	Include in SNMP as Field or Cooperative Data Collection Site?	Proposed Monitoring Frequency
Oso Hydrologic Sub Area							
Oso Barrier	Urban Runoff Collection Facility	Oso Creek	SMWD	33.583136	-117.665579	Cooperative	Quarterly
Oso-01	In-Stream Surface Water	Oso Creek	n/a	33.540506	-117.67528	Field	Quarterly
Upper Oso Reservoir	Recycled Water and Urban Runoff Storage Reservoir	n/a	SMWD	33.661132	-117.627168	Cooperative	Quarterly
Upper Trabuco Hydrologic Sub Area							
UT-01	In-Stream Surface Water	Arroyo Trabuco	n/a	33.674348	-117.544851	Field	Quarterly
Middle Trabuco Hydrologic Sub Area							
MT-01	In-Stream Surface Water	Arroyo Trabuco	n/a	33.65970	-117.58554	Field	Quarterly
MT-02	In-Stream Surface Water	Arroyo Trabuco	n/a	33.58382	-117.63663	Field	Quarterly
MT-03 (TC1)	In-Stream Surface Water	Arroyo Trabuco	n/a	33.53703	-117.66410	Field	Quarterly
Gobernadora Hydrologic Sub Area (Includes Gobernadora and Chiquita Canyons)							
CH-01	In-Stream Surface Water	Canada Chiquita	n/a	33.56119	-117.61504	Field	Quarterly
CH-02	In-Stream Surface Water	Canada Chiquita	n/a	33.53549	-117.61083	Field	Quarterly
Gobernadora Multi-Purpose Basin	Urban Runoff/Stormwater Collection Facility	Canada Gobernadora	SMWD	33.55658	-117.58763	Cooperative	Quarterly
Portola Reservoir	Recycled Water and Urban Runoff Storage Reservoir	Canada Gobernadora	SMWD	33.63319	-117.58296	Cooperative	Quarterly
Bell Canyon Hydrologic Sub Area							
BC-01	In-Stream Surface Water	Bell Canyon Creek	n/a	33.63596	-117.55523	Field	Quarterly
BC-02	In-Stream Surface Water	Bell Canyon Creek	n/a	33.53868	-117.55812	Field	Quarterly
Dove Lake[1]	Recycled Water and Urban Runoff Reuse	n/a	TCWD	33.63879	-117.56878	Cooperative	Quarterly

Table 3
Surface Water Monitoring Sites for the San Juan Creek Watershed SNMP Monitoring and Data Collection Program

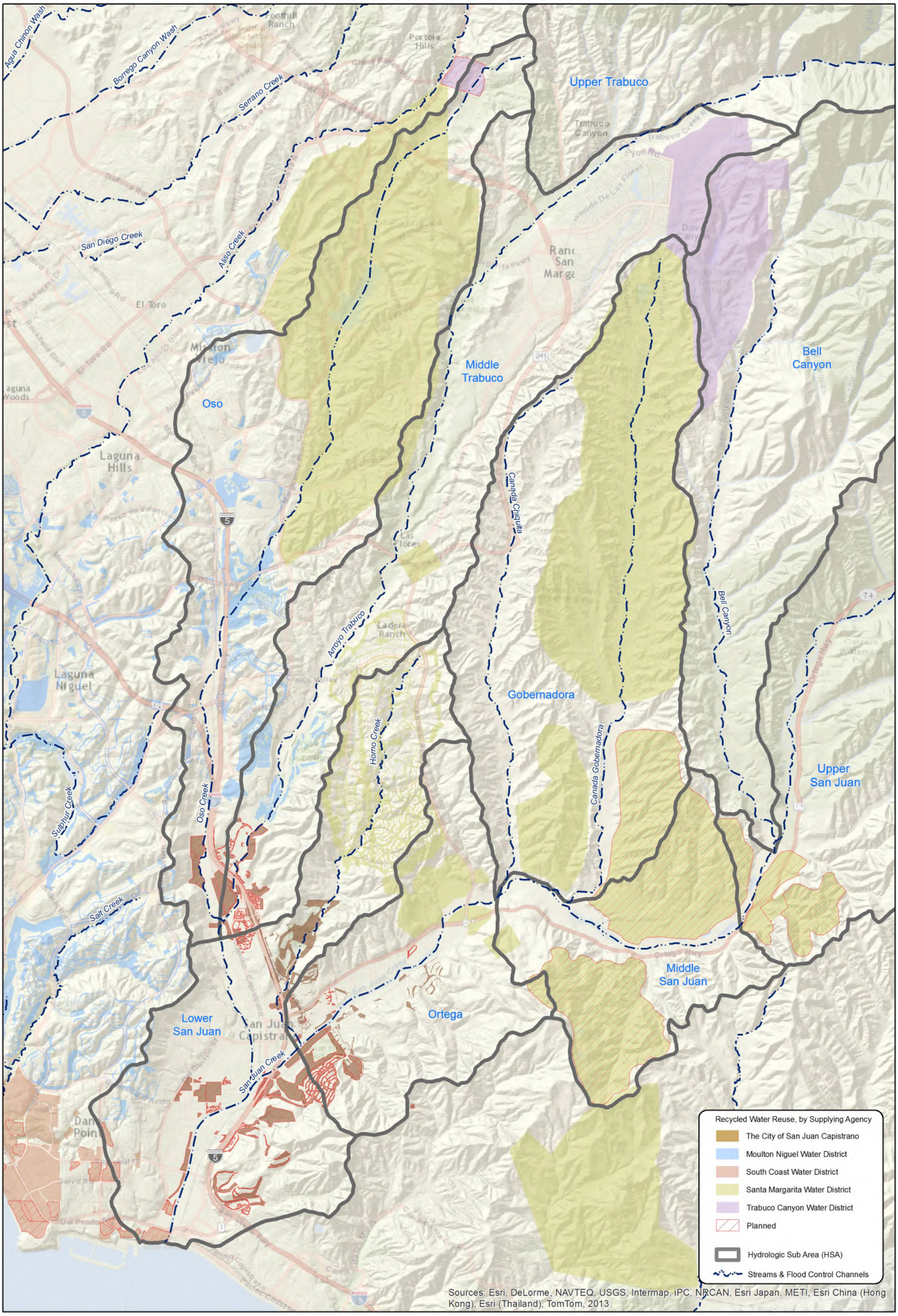
Monitoring Site Name and Location	Surface Water Monitoring Site Type	Surface Water Body	Site Owner (if applicable)	Latitude [WGS 84[	Longitude [WGS 84]	Include in SNMP as Field or Cooperative Data Collection Site?	Proposed Monitoring Frequency
Upper San Juan Hydrologic Sub Area							
USJ-01	In-Stream Surface Water	San Juan Creek	n/a	33.57345	-117.54157	Field	Quarterly
USJ-02	In-Stream Surface Water	San Juan Creek	n/a	33.53755	-117.55226	Field	Quarterly
USJ-03	In-Stream Surface Water	San Juan Creek	n/a	33.52564	-117.55867	Field	Quarterly
Ortega Hydrologic Sub Area							
ORT-01 (PMS-Control)	In-Stream Surface Water	San Juan Creek	n/a	33.51937	-117.62471	Field	Quarterly
Lower San Juan Hydrologic Sub Area							
Horno Barrier	Urban Runoff Collection Facility	Horno Creek	SMWD	33.53123	-117.64775	Cooperative	Monthly
LSJ-01 (TC@Ramos)	In-Stream Surface Water	Arroyo Trabuco	n/a	33.50162	-117.66742	Field	Quarterly
LSJ-02 (PMS-1)	In-Stream Surface Water	San Juan Creek	n/a	33.49507	-117.65869	Field	Quarterly
LSJ-03	In-Stream Surface Water	San Juan Creek	n/a	33.47537	-117.67886	Field	Quarterly

[1] A sampling location near Dove Lake, which provides a representative sample of recycled water used for irrigation purposes, will be collected at a non-potable distribution point.

Table 4

Groundwater Monitoring Sites Well Construction Details and Sampling Methods
SNMP Monitoring and Data Collection Program

Monitoring Site Name and Location	Well Type	Casing Size [in]	Screen depth [ft]	Total Depth [ft]	Sample Method?
Oso Hydrologic Sub Area					
Oso - GW1	Monitoring	2" PVC	12-35	36	Low-flow
Oso - GW4	Monitoring	2" PVC	6-30	31	Low-flow
Gobernadora Hydrologic Sub Area (Includes Gobernadora and Chiquita Canyons)					
Chiquita DH-2	Monitoring	2	50-80	80	Low-flow
Chiquita DH-21	Monitoring	2	60-90	90	Low-flow
Gobernadora DH-2	Monitoring	2	40-70	70	Low-flow
Gobernadora DH-17	Monitoring	2	30-65	65	Low-flow
Bell Canyon Hydrologic Sub Area					
Audubon	Production	*unk.*	*unk.*	*unk.*	Purge
Upper San Juan Hydrologic Sub Area					
RMV 9 Domestic	Production	16	30-90	98	Purge
Middle San Juan Hydrologic Sub Area					
RMV 12	Production	24	30-96	110	Purge
RMV 25	Production	*n/a*	*n/a*	*n/a*	Purge
RMV 27	Production	*n/a*	60-96	100	Purge
RMV 28	Production	*n/a*	42-92	102	Purge
RMV 6 (Ogleby Norton)	Production	18	30-90	92	Purge
RMV 7	Production	16	18-90	90	Purge
Ortega Hydrologic Sub Area					
RMV 5D	Production	16	30-70	90	Purge



N:\MapDocs\Clients\SJBA\SNMP2015\Regional Board Submittal 2016\20160721_Fig 1_SNMP_RW_Summary.mxd

Produced by:

WEI
WILDERMUTH ENVIRONMENTAL, INC.

Author: LBB
Date: 20160721

DRAFT

0 2,000 4,000 Feet
0 0.5 1 Miles

Salt and Nutrient Management Plan:
Monitoring and Data Collection Program
for the San Juan Creek Watershed

Recycled Water Reuse Areas

Existing (2015) and Planned

Figure 1

Upper Trabuco
Middle Trabuco
Gobernadora
Bell Canyon
Upper San Juan
Middle San Juan
Ortega
Lower San Juan
Oso
Rancho Santa Margarita
Lake Forest
El Toro
Mission Viejo
Laguna Woods
Laguna Hills
Laguna Niguel
Portola Hills
Trabuco
Aliso Creek
Agua Chinon Wash
Borrego Canyon Wash
Serrano Creek
San Diego Creek
Arroyo Trabuco
Oso Creek
Horno Creek
Canada Chiquita
Canada Gobernadora
Bell Canyon
San Juan Creek
Sulphur Creek
Salt Creek
Salado Arroyo
Upper Oso Reservoir
Trabuco Creek Wells Facility
MT-01
UT-01
UT-02
Robinson Ranch WRP
Upper MW
Dove Lake
BC-01
Audubon MW
Portola Reservoir
Lower MW
Oso Creek WRP
Oso Barrier
Arroyo-Trabuco Creek Sump
MT-02
Plant 3A AWT
Oso-GW1
Oso-GW4
Oso-01
MT-03 (TC1)
Rosenbaum 1
North Open Space(NOS)
SJBA MW-08
CH-01
Chiquita DH-21
Chiquita WRP
CH-02
Chiquita DH-2
Gobernadora Multi-Purpose Basin
Gobernadora DH-17
Gobernadora DH-2
RMV 5D
RMV 28
RMV 25
RMV 23A
RMV 18
RMV 27
RMV 12
RMV 29 (Nichols Well)
RMV 9 Lower
RMV 9 Domestic
ORT-01 (PMS Control)
Horno Barrier
Nichols Institute WRP
USJ-01
USJ-02
USJ-03
BC-02
SJBA MW-06
CVWD #5A
SJBA MW-05
SJBA MW-04
South Cooks
Tirador
LSJ-02 (PMS-1)
LSJ-01 (TC@Ramos)
Mission Street
SJBA MW-07
Capistrano
Dance Hall
CVWD-1
SJBA-2
SJBA-4
Kinoshita
SJBA MW-02
SCWD MW-3
SCWD MW-2D
Creekside
LSJ-03
Stonehill
SCWD MW-1S
SCWD MW-1D
SCWD MW-4S
SJBA MW-01S
JB Latham WWTP
SCWD MW-4D

Groundwater Sampling Location (by monitoring entity)
- SJBA-SNMP Field Program
- City of San Juan Capistrano
- Rancho Mission Viejo
- Santa Margarita Water District
- SJBA
- South Coast Water District
- Trabuco Canyon Water District

In-Stream Surface Water Sampling Location (by monitoring entity)
- SJBA-SNMP Field Program

Urban Runoff and Storm Water Capture Facility (by monitoring entity)
- Santa Margarita Water District
- Trabuco Canyon Water District

Recycled Water/Urban Runoff Reuse Source (by monitoring entity)
- Santa Margarita Water District

- Hydrologic Sub Area (HSA)
- Water Reclamation Facilities

Recycled Water Reuse
- Current
- Planned

Sources: Esri, HERE, Garmin, USGS, Interm... contributors, and the GIS User Community

N:\MapDocs\Clients\SJBA\SNMP Implementation\SNMP Work Plan 2015\Regional Board Submittal 20160120160721_Fig 2_SNMPMonitoringNetwork.mxd

Produced by:

WEI Wildermuth Environmental, Inc.

Author: LBB
Date: 20160614

DRAFT

0 2,000 4,000 Feet
0 0.5 1 Miles

San Juan Basin Authority

Salt and Nutrient Management Plan: Monitoring and Data Collection Program for the San Juan Creek Watershed

Monitoring and Data Collection Program

Proposed Monitoring Locations

Figure 2

Scope and Application

This procedure is designed to assist in collecting representative groundwater samples from monitoring wells using the low-flow (minimal drawdown) purge method. The groundwater samples will be collected using methods modeled after industry standards (Puls, and Barcelona, 1996; ASTM D 6771 - 02).

The field sampler's objective is to purge and sample the well so that the water that is discharged from the pump, and subsequently collected, is representative of the formation water from the aquifer's identified zone of interest.

The wells are sampled with portable bladder (squeeze-type) pumps. If dedicated pumps are not installed in the monitoring wells, each well should be assigned a dedicated bladder and appropriate length of discharge/air tubing that is only used at that well.

Each well should be flow tested to determine and document the specific well's optimum flow rate that would result in achieving a minimal drawdown of the initial depth to water within the drawdown parameters detailed below. Once established, this rate will be reproduced for each subsequent sampling event. If a significant change in water level occurs at a monitoring site between events, it may be necessary to reestablish the optimum flow rate at each sampling event.

Initial Pump Flow Test Procedures

If possible, the optimum flow rate for each well will be established during well development or redevelopment, or in advance of the actual sampling event. The monitoring well must be gauged for depth to water prior to the installation of the portable pump and before pumping of any water from the well. The measurement will be documented on a field data sheet.

After pump deployment and confirmation that the depth to water has returned to its original level, the bladder pump should be started at a discharge rate between 0.5 to 1.0 liters per minute without an in-line flow cell connected. The water level in the well casing must be monitored continuously for any change from the original measurement. If significant drawdown is observed, the pump's flow rate should be incrementally reduced until the drawdown ceases and stabilizes. Total drawdown from the initial depth to water should not exceed 25 percent of the distance between pump inlet location and the top of the well screen (for example, if a well has a 10-foot screen zone and the pump inlet is located mid-screen, the maximum drawdown should be 1.25 feet). In any case, the water level in the well should not be lowered below the top of the screen/intake zone of the well. In cases of wells with partially penetrating screens, the distance interval is taken to be between the pump inlet and the depth to water. All control settings are to be documented on the field data sheet specific to that particular well's ID and will be utilized for subsequent purging and sampling events.

Should it be determined that a specific well is incapable of maintaining a sustainable yield of at least 100 milliliters per minute without continuing depth to water drawdown, it will be identified as a problematic well, and alternative methods should be explored.

Method Summary

Prior to the initiation of purging a well, the depth to water will be measured and documented. The properly decontaminated portable pump will then be slowly lowered into the well until its inlet is properly positioned within the saturated screened interval or halfway between the depth to water and the bottom of the screen (for partially penetrating screens) and then started utilizing its previously documented control settings. Its flow rate will be confirmed by volumetric discharge measurement. If necessary, any minor modifications to the control settings to achieve the well's optimum flow rate will be documented on the field data sheet.

When the optimum pump flow rate has been established and the depth to water drawdown has stabilized within the required range, begin taking field measurements for pH, temperature, electrical conductivity (EC), and turbidity. All water chemistry field measurements will be documented on the field data sheet. Measurements should be taken every three to five minutes until stabilization has been achieved. Stabilization is achieved after all parameters have stabilized for three consecutive readings. Three consecutive measurements indicating stability should be within:

Parameter	Stabilization Criteria
Temperature	± 3% of reading (minimum of ± 0.2° C)
pH	± 0.2 pH units, minimum
Electrical Conductivity (EC)	± 3% of reading
Turbidity	± 10% NTU

Equipment

- Portable bladder pump, bladders, and sufficient lengths of air/liquid discharge tubing (each well should be assigned a dedicated bladder and appropriate length of discharge/air tubing that is only used at that well)
- Pump controller and air source set to operate the pump
- Sample containers, cooler, ice, and Chain-of-Custody (CoC) form.
- Field water-quality meter(s)
- A water level measurement device (water level sounder is preferable)
- Field data sheets
- 5 gallon bucket(s) for containerizing purge water if it can't be disposed of on-site
- 300-500 milliliter graduated cylinder
- Wristwatch with second hand or stopwatch
- Sufficient cleaning and decontamination supplies

Preparation of Sampling Equipment

- Acquire sample containers, cooler with ice, CoC for samples and other equipment. Organize sample containers into plastic zip-lock bags and check to make sure there are no problems with the sample containers (cracked caps, broken seals, etc.). Do not fill out container labels with well information until you are on-site to collect a sample.
- Calibrate all field instruments at the start of each day's deployment per the instrument manufacturer's instruction. Record calibration data on the field instruments' calibration documentation forms.
- Be sure to print and bring along plenty of copies of the field documentation forms.
- Prepare decontamination equipment and decontaminate the sampling equipment (portable pump and water level sounder).

Sampling Procedures

1. Perform a general site survey prior to site entry in accordance with the health and safety practices. Take note of pertinent information on the field sheet.

2. Note the well condition and activity in the vicinity of the well.

3. Properly decontaminate the portable pump and/or water level probe.

4. Measure the depth to water from the assigned reference point and record the measurement (and the reference point name) on the field data sheet. Remove the water level measurement device.

5. Connect the appropriate lengths of air and discharge tubing to set the pump at the desired level within the well's screened interval. Ensure that the air supply tubing is properly connected to the pump's air fitting and not to the pump discharge. Install the portable pump slowly and carefully.

6. Reinstall the water level measurement device, and lock the device in place so that the level can be monitored during purging and sampling.

7. Connect the compressed air source's airline to the pump controller's "AIR IN" connection (if utilizing a gas-engine operated compressor, locate the compressor at least 25 feet downwind from the wellhead).

8. Connect the pump controller "AIR OUT" air-line to the bladder pump's air supply fitting.

9. Start the air supply to the pump. Set the pump controller settings to the documented interval settings for the specific well. It is advisable that the air supply pressure be started at 40 to 50 pounds per square inch (PSI) initially and then raised in increments as the pump's discharge line becomes filled. This is especially important for deeper pump depths.

10. Confirm the final flow rate is equal to or just below the well's established optimum flow rate. Modify as necessary (documenting any required modifications).

11. Monitor the water level and confirm that the drawdown has stabilized within the well's allowable limits.

12. Begin taking field measurements for pH, temperature, electrical conductivity (EC), and turbidity. All water chemistry field measurements will be documented on the field data sheet. Measurements should be taken every three to five minutes until stabilization has been achieved. Also read and record water quality field measurements every three to five minutes until all parameters have stabilized within their allowable ranges for at least three consecutive measurements. When stabilization has been achieved, sample collection may begin.

13. Sample Collection:

    a. While holding the sample container at the base, remove plastic seal around the cap before attempting to open the container. Remove the cap with your free hand, exercising care not to touch the edge or bottom of the cap or the top or neck of the container. Avoid breathing on the cap or container. Hold the cap in one hand during the entire container filling operation; do no lay it down.

    b. If sampling VOCs, note any source of VOCs around the well, such as exhaust sources, on the field data sheet. For VOC sample containers, no head space (air bubbles) should remain in the sample container. If necessary, reduce the discharge rate of the pump for filling the sample containers. Return to the optimal flow rate after VOC containers are filled.

    c. All other sampling containers are to be filled to the "fill line," leaving enough air space in the container to allow for mixing by shaking in the lab. The cap should be carefully replaced.

    d. Place samples on ice in a cooler as soon as possible. Keep samples cold (4 degrees Celsius) until delivered to the laboratory. Transport samples to an approved laboratory within 24 hours or according to the analyte holding times, whichever is shorter.

    e. A Chain-of-Custody form shall be filled out for each cooler, and a copy shall be retained for project records. If VOCs are being sampled, be sure to indicate on the Chain-of-Custody if travel blanks are included and should be analyzed by the laboratory.

14. When all sample containers have been filled, make a final measurement of the well's depth to water, and record the measurement on the field data sheet. Remove the portable water level measurement device from the well.

15. Disconnect the controller air supply to the pump and remove the pump from the well.

16. Properly discard purged water.

17. Decontaminate all equipment and carefully prepare the dedicated bladders and tubbing for storage.

18. At the end of each day, post-calibrate all field instruments, and record the measurements on the "Field Calibration Documentation Form."

Reagents

Decontamination solutions are used for this SOP. Refer to the solution SDS for safety information and do not handle solutions that you have not been trained to handle.

Records

Scan copies of all completed field data sheets and provide them to the project manager per standard procedures. The original sheets should be kept in the project binder until the subsequent sampling event has been completed.

References

ASTM Guideline D6771-02. July 2002. Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations.

Barcelona, M.J. and R.W. Puls. 1996. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. U.S. EPA Superfund Groundwater Issue, EPA/504/S-95/504.

Scope and Application

This procedure is designed to assist field technicians in taking representative groundwater samples from privately owned, active agricultural and domestic wells. Ideally, groundwater samples should be collected per the EPA's SOP for the Standard/Well-Volume Method which dictates that a minimum of three casing volumes of water should be purged from a well prior to beginning water quality sampling procedures. However, for some wells there may not be enough data available to determine if and when a sufficient volume of water has been purged from a well. For example, the total depth and diameter is often not available for older wells. Or, the field technician may be in a situation where there is no control over how long the well has been pumping or will remain on. This modified procedure is designed to help the field technician collect the best possible sample in the absence of the information typically used to determine that sufficient water has been purged from the well casing.

Method Summary

There are two general situations encountered when sampling agricultural, or domestic wells; (a) water pumps from the well into a pressure tank, or (b) water pumps from the well directly into a pipeline system. This SOP provides procedures for each situation.

Wells that feed into a pressure tank typically cycle on and off for short periods of time. The well is triggered on when the pressure in the tank drops below a specified level. The pumping cycles can be as short as 1 minute to longer than 10 minutes, and the cycle is typically not long enough to purge three casing volumes of water. Fortunately, the wells are typically cycling on and off throughout the day, so it is unlikely that the sample collected will contain stagnant casing water.

Whenever possible, contact the well owner in advance, or speak to a property manager on site, to determine when the well is typically on so you can arrange to collect the sample after the well has been running for at least an hour or so. If no one is available to provide this information, you can still rely on parameter stabilization to indicate that it is okay to collect your sample. The length of the pumping cycle will determine how often to collect parameters to determine stabilization. Once the pump cycle length has been determined, you can begin the sampling procedure.

Wells that feed directly into a pipeline system deliver water directly to the end use, such as an irrigation system, instead of a storage container. Thus, it is easier to measure for parameter stabilization and collect samples because the well is running continuously (compared to the short cycles typical in wells hooked into pressure tanks). However, if the well is not on when you arrive at the sampling site a sample cannot be collected until permission is obtained from the well owner to power up the well. Whenever possible, contact the well owner in advance, or speak to a property manager on site, to determine when the well is typically on so you can arrange to collect the sample after the well has been running for at least an hour or so. If no one is available to grant permission to turn on the well, try returning to the site another day. The wells are generally running in the early morning hours, so that is the best time to make a return attempt to sample the well.

Equipment

- Sample containers, cooler, ice, and Chain-of-Custody (CoC) form.
- Nitrile or latex-type gloves
- Water quality field meter(s)
- Water level probe
- Field documentation forms
- Fittings and spigots
- Well stocked tool box
- Sufficient cleaning and decontamination supplies for fittings, spigots, and water level sounders

Preparation for Field Sampling

- Acquire sample containers, cooler with ice, CoC for samples and other equipment. Organize sample containers into plastic zip-lock bags and check to make sure there are no problems with the sample containers (cracked caps, broken seals, etc.). Do not fill out container labels with well information until you are on-site to collect a sample.
- Calibrate all field instruments at the start of each day's deployment per the instrument manufacturer's instructions. Record calibration data on field instruments' calibration documentation forms.
- Be sure to print and bring along plenty of copies of the field documentation forms. Blank field forms are included as an attachment to this document.
- Prepare decontamination equipment and decontaminate the sampling equipment (portable pump and water level sounder).

Sampling Procedures

1. Nitrile or latex-type gloves should be worn at all times while handling all fittings, spigots, and sampling containers. New gloves should be worn at each sampling site. The water level probe and all fittings and spigots will be decontaminated after each site.
2. Determine your sampling location and attach sampling spigot, if necessary. Sampling points must be on the well pump side of any storage container such as a water tank or reservoir. Remove any aerators, strainers, hose attachments, mixing type faucets, and purification devices from the tap.
3. Label all containers. Sample containers must be kept clean and free from contamination before and after collecting the sample. They should not be opened prior to collecting the sample.
4. Prior to the initiation of well sampling a water level will be measured and documented, if possible. Record the well activity (static, pumping, or recovering) at the time of measurement and the activity of any other wells in close proximity to the well being sampled. (Note: a water level is generally considered to be "recovering" until the water level is rising by less than 0.05 feet [1/2"] per minute).
5. Flush the sampling port for at least 10 seconds before beginning parameter stabilization and sampling procedures.
6. Begin water quality field parameter stabilization procedure (and water level measurements, if possible). All data will be documented on the field work documentation forms. Stabilization is

achieved after all parameters have stabilized for three consecutive readings. Three consecutive measurements indicating stability should be within:

Parameter	Stabilization Criteria
Temperature	± 3% of reading (minimum of ± 0.2° C)
pH	± 0.2 pH units, minimum
Electrical Conductivity (EC)	± 3% of reading
Turbidity	± 10% NTU

a. If the well feeds into a pressure tank and the pumping cycle is less than six minutes, water quality parameters should be observed during the last minute of each pumping cycle until parameter stabilization is demonstrated across three to five pumping cycles.

b. If the well feeds into a pressure tank and the pumping cycle is longer than six minutes, the water quality parameters will be measured every three to five minutes until stabilization is achieved. Continue stabilization over multiple cycles if necessary.

c. If the well feeds directly into a pipeline and is pumping continuously measure parameters every three to five minutes.

d. If the parameters are not stabilizing, contact the project manager.

7. Sample Collection:

a. Reduce the tap flow rate before taking the sample. The flow rate should be low enough to ensure that no splashing occurs as the container is filled.

b. At a well that has short cycles, it may take multiple pumping cycles to fill the entire set of sample containers. It should be noted on the field form if multiple pump cycles were needed to fill the containers.

c. Collect the samples in the following order: volatile organic compounds, semi-volatile organic compounds/pesticides, inorganics, other unfiltered samples, filtered samples.

d. While holding the sample container at the base, remove plastic seal around cap before attempting to open the container. If the cap is found to be loose or cracked, if it contains no seal, if the seal pulls away from the cap, if the container appears dirty, or if there are any other conditions which places the quality of the container in doubt, the container is to be rejected and a proper container used. (All containers should be checked prior to going in the field.)

e. Remove the cap with the free hand, exercising care not to touch the edge or the bottom of the cap or the top or neck of container. Prevent breathing on the cap or container.

f. Hold the cap in one hand during the entire container filling operation; do no lay it down.

g. Note any source of VOCs around the well, such as exhaust sources, on the sample collection form.

h. For VOC sample containers, no head space (air bubbles) should remain in the sample container.

i. All other sampling containers are to be filled to the "fill line" leaving enough air space in the container to allow for mixing by shaking in the lab. The cap is carefully replaced.

j. Place samples on ice in a cooler as soon as possible. Keep samples cold (4 deg. C) until delivered to the lab. Transport samples to an approved water quality laboratory within 24 hours.

8. A Chain of Custody form shall be filled out for each cooler and a copy retained for project records. Be sure to indicate on the Chain of Custody that travel blanks are included and should be analyzed by the lab.

9. At the end of each day, post calibrate all field instruments and record the measurements on the "Field Calibration Documentation Form".

Reagents

Decontamination solutions are used for this SOP. Refer to the solution SDS for safety information and do not handle solutions that you have not been trained to handle.

Records

Scan copies of all completed field data sheets and provide them to the project manager per standard procedures. The original sheets should be kept in the project binder until the subsequent sampling event has been completed.

References

U.S. Environmental Protection Agency, Region 9, Standard Operating Procedure for the Standard/Well-Volume Method for Collecting a Ground-Water Sample from Monitoring Wells for Site Characterization, http://www.epa.gov/region09/qa/pdfs/finalgwsamp_sop.pdf

Enclosure

Scope and Application

This procedure is applicable to the collection of representative grab samples from surface waters. Surface water quality sampling involves determining sampling locations, measurement of the water chemistry using a field water quality meter and collection of surface water samples for laboratory analysis.

Method Summary

Collecting a representative grab-sample from stream flow will be accomplished through the use of a polyethylene sample dipper. Field water quality parameters are measured and recorded, and the representative sample is collected and submitted to a laboratory for analyses.

Equipment

- Polyethylene dipper (beaker on long handle).
- Sample containers, cooler, ice, and Chain-of-Custody (CoC) form.
- Water quality field meter(s)
- Global positioning system (GPS) unit
- Digital camera
- Incrementally marked depth rod
- Clipboard, blank field data sheets, waterproof pens
- Duffel bag/backpack for equipment
- Decontamination solution/equipment:
- Personal floatation device (life preserver), if the water is rapidly flowing or if using a boat.
- Waterproof gloves (appropriate for chemicals)
- Waterproof boots and/or waders
- Protective eyewear
- Apparel appropriate to the climate
- Drinking water
- Sunscreen lotion, bug spray, umbrella

Personnel and Safety

Safety should be the number one consideration when determining the number of staff necessary for sampling. If the stream has rapid flow, or the bank of the stream could be compromised, a minimum of two persons are required. One person will stay out of the channel (on the banks) to provide assistance in case of accident or emergency. Additional safety measures shall be utilized such as personal floatation device.

Preparation for Field Sampling

- Acquire sample containers, cooler with ice, CoC for samples and other equipment. Set up coolers with ice as recommended by the laboratory. Organize sample containers into plastic zip-lock bags and check to make sure there are no problems with the sample containers (cracked caps, broken seals, etc.). Do not fill out container labels with site information until you are on-site to collect a sample.

- Calibrate all field instruments at the start of each day's deployment per the instrument manufacturer's instructions. Record calibration data on field instruments' calibration documentation forms.

- Be sure to print and bring along plenty of copies of the field documentation forms. Blank field forms are included as an attachment to this document.

- Prepare decontamination equipment and decontaminate the sampling equipment.

Sampling Procedures

Choosing a Sample Location

The general areas for surface water sampling will have been selected as part of the project setup, but the exact location of the sample collection will be selected based on field conditions.

Stream-specific criteria for selecting a sampling location include:

(1) select the largest flowing channel if the stream is braided at the sample location;

(2) there should be minimal natural and man-made obstructions in the channel, the stream should be free flowing and unrestricted by obstructions upstream or downstream, which might cause flow diversion or flow backup;

(3) stream depth is adequate for immersion of the sample equipment: and

(4) there are no eddies or still water. Turbulent water should also be avoided, if possible.

Once chosen, the sample location should be documented in notes/diagrams, and coordinates should be measured using a GPS unit and recorded on the field data sheets.

Sample Collection

1. Prior to starting sample collection at each site, decontaminate the sample dipper and any other equipment that will enter the water body. Remove visible dirt from equipment with a nylon brush and rinse with appropriate solutions.

2. Perform a general site survey prior to entry in accordance with the project-specific Health and Safety Plan.

3. If wading into the stream to collect the sample and it is rapidly flowing, wear a personal floatation device.

4. Find the deepest point of the flowing portion of the stream. If branches enter the water, sample upstream of them. If the stream is not safe to enter, use the sample dipper to collect a sample as close to the deepest point in the stream as possible from the bank or safe location.

5. Measure and record the stream depth at the sampling location on the field data sheet, if safe to do so.

6. Rinse the field sampling equipment in the native water. This helps to equilibrate the equipment to the sample environment and ensure that all cleaning-solution residue has been removed (USGS, 2015).

7. At the sampling location, use the field water quality meter to measure the following parameters, as determined by the project Sampling and Analysis Plan. Field parameters typically include: temperature, pH, conductivity, and turbidity.

    a. Measure and record water quality parameters up to three times, three to five minutes apart, to determine stability over time. Stability is defined as consecutive measurements that are within the following criteria:

Parameter	Stabilization Criteria
Temperature	± 3% of reading (minimum of ± 0.2° C)
pH	± 0.2 pH units, minimum
Electrical Conductivity (EC)	± 3% of reading
Turbidity	± 10% NTU

    b. Note whether the field water quality parameters were stable or not, and begin sampling (described below).
    c. Measure the field water quality parameters immediately following the completion of sampling.
    d. Record all field water quality data on the field data sheet.

8. If wading in the stream, stand upstream of stream sediments that were disturbed during entry. Face upstream and collect the sample upstream of you and any other persons or objects.

9. Use the sample dipper to collect native water and carefully transfer the sample to the laboratory sample containers. Containers that do not contain preservatives can be used to directly collect samples from the stream.

10. Fill sample containers to the fill line or as instructed by the lab, being careful not to overtop the containers, which can spill and dilute the preservatives. Tighten the sample container lids and label the sample containers with the location name/ID, the date and time of sample collection, and any other required information. Place the filled sample containers in the cooler with ice per the laboratory instructions. Note any potential contamination sources such as nearby exhaust sources, trash in the stream etc. on the field data sheet.

11. Decontaminate the sample dipper and other equipment, and protect it from contamination using a sealable plastic bags with clear sealing strip between sites.

Reagents

Decontamination solutions are used for this SOP. Refer to the solution SDS for safety information and do not handle solutions that you have not been trained to handle.

Records

Scan copies of all completed field data sheets and provide them to the project manager per standard procedures. The original sheets should be kept in the project binder until the subsequent sampling event has been completed.

References

U.S Geological Survey (USGS). 2015. *National Field Manual of the Collection of Water-Quality Data.* Book 9, Handbooks for Water-Resources Investigations. USGS, October 2015.

Enclosure

Field Data Sheet for Groundwater Sample Collection

Groundwater Monitoring Program Water Quality Sampling Sheet

PROJECT **WELL** **WELL ID** 1206511

DATE _____ **FIELD PERSONNEL** _____

SAMPLING ORGANIZATION_____

REFERENCE POINT TYPE _____ **ELEVATION**____ **DEPTH TO TOP**_____**BOTTOM OF SCREEN**
INTAKE AT (FT. BELOW RP) **LENGTH OF TUBING + PUMP INTAKE**
PURGING DEVICE-PUMP TYPE: **PUMP MODEL**_
BLADDER VOLUME_____**mL**___ **TUBING VOLUME**_____**mL**__ **TOTAL SYSTEM VOLUME**_____**ml**____
OPTIMAL FLOW RATE _____**mL/min** **OPTIMAL SETTINGS** **(Recommend 100 psi)**

SETTINGS USED AT SAMPLE TIME:

Flow (mL/min)_____ **Pressure (psi)**_____ **Refill (sec)**_____ **Discharge (sec)**_____

CLOCK TIME (24 HR)	WATER DEPTH (SWL)	TEMP C	SPECIFIC CONDUCT. ms/cm	PH	Turbidity NTU	Comments (flow or pressure change, observations, etc.)

SAMPLE TIME _____

PSI @ START_____ **PSI @ FINISH**_____ **ML PURGED**_____

NOTES: _____

Enclosure

Field Data Sheet for Surface Water Sample Collection

San Juan Basin Authority

Salt and Nutrient Management Plan (SNMP) Cooperative Agreement

FY 2020/21 SNMP Budget

Reflects Budget Approved by SJBA Board on: August 11, 2020

Item No.	G/L	Activity/Expense Name	Line Item Description	Approved FY 2020-21 Budget	Proposed Updated FY 2020-21 Budget	Increase/ (Decrease)	Participation %					Fiscal Year Contribution				
							City of SJC	MNWD	SMWD	SCWD	TCWD	City of SJC	MNWD	SMWD	SCWD	TCWD
SJBA Administration Costs (All Categories and Activities)																
A-1	9110	Administrative Services	Administrator (Brandt)	$ 110,000	$ 110,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 26,950	$ 26,950	$ 26,950	$ 26,950	$ 2,200
A-2	9110	Administrative Services	Administrative Assistance	$ 20,000	$ 20,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 4,900	$ 4,900	$ 4,900	$ 4,900	$ 400
A-3	9110	Financial Services	Accounting Services	$ 22,000	$ 22,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 5,390	$ 5,390	$ 5,390	$ 5,390	$ 440
A-4	9110	Audit Services	Annual audit	$ 9,000	$ 9,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 2,205	$ 2,205	$ 2,205	$ 2,205	$ 180
A-5	9110	Legal Services	General Counsel (Stradling)-Approved	$ 50,000	$ 50,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 12,250	$ 12,250	$ 12,250	$ 12,250	$ 1,000
A-6	9110	Legal Services	General Counsel (Stradling)-Reserve	$ -	$ -	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ -	$ -	$ -	$ -	$ -
A-7	9110	Legal Services	Special Counsel (Evertz)	$ 10,000	$ 10,000	$ -	25.0%	25.0%	25.0%	25.0%	0.0%	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ -
A-8	9110	Secretarial Services	Board meeting recording secretary	$ 4,000	$ 4,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 980	$ 980	$ 980	$ 980	$ 80
A-9	9110	Arundo Retreatment/Maintenance	Followup to County work after grants expire	$ 10,000	$ 10,000	$ -	25.0%	25.0%	25.0%	25.0%	0.0%	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ -
A-10	9110	WQIP Flow-Ecology Study	SJBA consultant time/advice	$ 25,000	$ 25,000	$ -	24.5%	24.5%	24.5%	24.5%	2.0%	$ 6,125	$ 6,125	$ 6,125	$ 6,125	$ 500
A-11	9110	SOCWMA Cooperative Agreement	Annual participation fee	$ 11,500	$ 11,500	$ -	25.0%	25.0%	25.0%	25.0%	0.0%	$ 2,875	$ 2,875	$ 2,875	$ 2,875	$ -
			Subtotal	$ 271,500	$ 271,500	$ -						$ 66,675	$ 66,675	$ 66,675	$ 66,675	$ 4,800
Recycled Water Support Activities (SNMP-Related)																
B-5	9170	Basin Plan Amendment	Administrator (Brandt)	$ 3,000	$ 3,000	$ -	7.0%	17.4%	68.0%	0.0%	7.6%	$ 210	$ 522	$ 2,040	$ -	$ 228
B-6	9170	Basin Plan Amendment	Technical Consultation	$ 5,000	$ 5,000	$ -	7.0%	17.4%	68.0%	0.0%	7.6%	$ 350	$ 870	$ 3,400	$ -	$ 380
B-7	9170	Monitoring	General Counsel (Stradling)	$ 13,000	$ 13,000	$ -	7.0%	17.4%	68.0%	0.0%	7.6%	$ 910	$ 2,262	$ 8,840	$ -	$ 988
B-8	9170	Monitoring	Monitoring Well Reconnaissance	$ 5,000	$ 5,000	$ -	7.0%	17.4%	68.0%	0.0%	7.6%	$ 350	$ 870	$ 3,400	$ -	$ 380
B-9	9170	Monitoring	Proactive Monitoring Well Maintenance	$ 57,700	$ 40,000	$ (17,700)	7.0%	17.4%	68.0%	0.0%	7.6%	$ 2,800	$ 6,960	$ 27,200	$ -	$ 3,040
B-10	9170	Monitoring	2020 2nd Half SNMP Monitoring (WEI)	$ 59,000	$ 59,000	$ -	7.0%	17.4%	68.0%	0.0%	7.6%	$ 4,130	$ 10,266	$ 40,120	$ -	$ 4,484
B-11	9170	Monitoring	2021 1st Half SNMP Monitoring	$ 38,000	$ 38,000	$ -	7.0%	17.4%	68.0%	0.0%	7.6%	$ 2,660	$ 6,612	$ 25,840	$ -	$ 2,888
			Subtotal	$ 180,700	$ 163,000	$ (17,700)						$ 11,410	$ 28,362	$ 110,840	$ -	$ 12,388
							Total (SJBA Admin + SNMP)					**$ 78,085**	**$ 95,037**	**$ 177,515**	**$ 66,675**	**$ 17,188**

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ENGINEERING MATTERS
ITEM 3: DISCUSSION CONCERNING THE ADOPTION OF SOUTH ORANGE COUNTY WASTEWATER AUTHORITY (SOCWA) PROPOSED WASTE DISCHARGE PRETREATMENT AND SOURCE CONTROL PROGRAM FOR WASTEWATER FLOWS UPDATE AND ENFORCEMENT RESPONSE PLAN UPDATE

Background
As a member agency of the South Orange County Wastewater Authority (SOCWA), Trabuco Canyon Water District (District) is required to adopt and enforce a Waste Discharge Pretreatment and Source Control Program to protect the environment, sewerage facilities, and the health of the District's employees. The Waste Discharge Pretreatment and Source Control Program (Program) consist of Regulations for the Discharge of Wastewater to Sewerage Facilities within the District's Service Area and an Enforcement Response Plan (ERP). The District is currently operating under the existing Ordinance No. 2015-20, which was adopted by the Board of Directors at the May 20, 2015 Regular Board Meeting.

The purpose of the Program is to (1) provide for the maximum public benefit from the use of the District's sewerage facilities through the regulation of the use of sewerage facilities and wastewater discharges, and (2) comply with federal and State regulations which allow the District to meet the applicable standards for final effluent quality. The proposed Regulations and ERP have been updated and amended by SOCWA to be in compliance with federal and state regulations and guidelines, as well as other minor updates and/or changes. District staff received, reviewed and commented on the proposed Regulations and ERP as provided by SOCWA.

Summary of Proposed Changes to Ordinance
The proposed updates by SOCWA to the District's Program are minor and are as follows for reference purposes:

- Required reference to the Enforcement Response Plan. (*see Section 102. Objectives. Line Item H., definition of "Enforcement", and Article 9. Section 901. Item C.*)
- Required addition of definition of terms for *"Indirect Discharge"* and *"Slug Discharge"*.
- Required modification of definition of terms for *"National Pretreatment Standards"* and *"Slug Discharge"*.
- Addition of definition of term for *"Non-Stormwater Discharge"*.
- Modification of definition of term for *"Stormwater"*.
- Required modification of language in *Article 8. Section 802. Self-Monitoring and Reporting. Line Item H.* – to make more consistent with Federal Regulations.

Ordinance Adoption Process & Schedule
The District is a county water district organized and operating pursuant to Water Code Section 30000 and following. Section 31141 (a) & (b) (1) of the Water Code specifies the manner in which ordinances relating to the provision of sanitation services and regulation of those services as follows:

> *(a) A district may adopt ordinances relating to the provision of sanitation services and the regulation of those services. Every such ordinance shall be in full force and effect immediately upon adoption, but shall be published once in full in a newspaper of general circulation, printed, published and circulated in the district within 10 days after adoption, or if there be no such newspaper it shall be posted within 10 days after adoption in three public places within the district.*

(b) The publication of ordinances, as required by subdivision (a), may be satisfied by either of the following actions:
(1) The district may publish a summary of a proposed ordinance or proposed amendment to an existing ordinance. The summary shall be prepared by an official designated by the board. A summary shall be published and a certified copy of the full text of the proposed ordinance or proposed amendment shall be posted in the office of the board at least five days prior to the board meeting at which the proposed ordinance or amendment or alteration thereto is to be adopted. Within 15 days after adoption of the ordinance or amendment, the board shall publish a summary of the ordinance or amendment with the names of those directors voting for and against the ordinance or amendment and the official shall post in the office of the board a certified copy of the full text of the adopted ordinance or amendment along with the names of those directors voting for and against the ordinance or amendment.

In accordance with the water code section, District staff recommend the adoption of the proposed ordinance consistent with the following:

DATE	ACTION(S)
September 2, 2020	Status update to Engineering and Operations Committee.
September 16, 2020	Status update to Board of Directors and action on proposed Ordinance and process.
No Later Than October 16, 2020	Notice of Public Hearing (Adoption of Ordinance No. 2020-21) posted at the District Administration Facility, District website, three posting locations within the District's service area, and the Orange County Register.
No Later Than October 16, 2020	Notice of Intention, with summary of proposed Ordinance text, is published in the Orange County Register and posted on the District's website at www.tcwd.ca.gov *Water Code Sections 31141 (a) and (b)(1)*
No Later Than October 16, 2020	Publish a certified summary of proposed Ordinance 2020-21 at the District Administration Facility and on the District's website at www.tcwd.ca.gov. *Water Code Sections 31141 (a) and (b)(1)*
November 18, 2020	**Regular Board Meeting** 1. Conduct Public Hearing and receive written and/or verbal public comments. 2. Adopt Ordinance No. 2020-21. *Water Code Sections 30523, 31024, and 31141(a)*
No Later Than November 28, 2020	Publish Summary of Ordinance No. 2020-21 and post text of Ordinance Full text of adopted Ordinance is posted on TCWD website. *Water Code Sections 31141(a) and (b)(1)*
Late November to December 2020	District Rules and Regulations are updated to conform to adoption of Ordinance No. 2020-21. *Water Code Section 31024*

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

RECOMMENDED ACTION:

1. *Committee to receive information at the time of the Committee Meeting.*
2. *Recommend the Board of Directors agendize Public Hearing and authorize District staff to furnish Notice of Public Hearing and Notice of Intention of adoption of Ordinance No. 2020-21 for the November 18, 2020 Regular Board Meeting (Action Calendar).*

EXHIBITS

1. DRAFT Ordinance No. 2020-21
2. DRAFT Trabuco Canyon Water District Waste Discharge Pretreatment and Source Control Program – *Red Lined*

CONTACTS (staff responsible): PALUDI/PEREA

ORDINANCE NO. 2020-21

ORDINANCE OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT SUPPLEMENTING AND READOPTING WASTE DISCHARGE PRETREATMENT AND SOURCE CONTROL PROGRAMS FOR WASTEWATER FLOWS WITHIN THE BOUNDARIES OF TRABUCO CANYON WATER DISTRICT, ADOPTING THE TRABUCO CANYON WATER DISTRICT ENFORCEMENT RESPONSE PLAN IN CONNECTION THEREWITH, MAKING CERTAIN FINDINGS AND DETERMINATIONS, SUPERSEDING PRIOR ORDINANCES AND TAKING RELATED ACTIONS

WHEREAS, the Trabuco Canyon Water District ("District") is a county water district organized and operating pursuant to Water Code Sections 30000 and following; and

WHEREAS, the Board of Directors ("Board") of the District has the statutory authority to provide for requirements for wastewater quality, pretreatment requirements and source control matters relating to wastewater flows received by or into District wastewater facilities within the District's boundaries; and

WHEREAS, the District provides wastewater collection, transportation, treatment and disposal services to certain areas within the District; and

WHEREAS, the District is a member agency of the South Orange County Wastewater Authority ("SOCWA"), which is a joint powers agency responsible for various matters relating to wastewater collection, transportation, treatment and disposal, and various state and federal regulatory requirements, within the boundaries of its member agencies; and

WHEREAS, the District has been requested by SOCWA to supplement and update its wastewater discharge, pretreatment and source control program relative to wastewater discharges to public agency facilities within the District's boundaries; and

WHEREAS, the District has previously adopted its Ordinances Nos. 92-16, 2000-17 2012-19, and 2015-20 providing for certain matters relative to wastewater discharge pretreatment and source control programs within the boundaries of the District; and

WHEREAS, notice of a Public Hearing, notice of the intention to adopt this Ordinance, and related notices have been provided as required by law and as further set forth herein; and

WHEREAS, on November 18, 2020, the Board conducted and completed a noticed Public Hearing to receive public input and comments with regard to the wastewater pretreatment quality and compliance requirements set forth herein; which Public Hearing was conducted at the District's business offices located at 32003 Dove Canyon Drive, Trabuco Canyon, California, and comments concerning such matters could be provided in person, in writing and by teleconference; and

WHEREAS, the form of this Ordinance, the waste discharge pretreatment and source control program requirements, and the Enforcement Response Plan, as set forth herein have been reviewed with SOCWA; and

WHEREAS, information to support the findings made by the Board within this Ordinance have been prepared by District staff, made available to any members of the public who would request such information and presented to the Board as part of its consideration of this matter; and

WHEREAS, the Board has previously directed that a notice of Public Hearing and a notice of intention with regard to the adoption of this Ordinance be published, posted and otherwise provided as further described herein; and

WHEREAS, the Board has previously adopted the Rules and Regulations for Water and Wastewater Service of the Trabuco Canyon Water District ("Rules and Regulations") pursuant to State law, which Rules and Regulations will be updated to reflect the adoption of this Ordinance and certain related matters as set forth herein upon the adoption hereof; and

WHEREAS, the Board has determined that it is appropriate to adopt this Ordinance to make the determinations and findings, and for the purposes, set forth herein.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT DOES DETERMINE AND FIND, AND BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT, AS FOLLOWS:

Section 1. **Recitals**. The foregoing recitals are true and correct and are incorporated herein by this reference.

Section 2. **Provision of Notice.** Pursuant to the provisions and requirements of Water Code Section 31141, and the directives of this Board, the District provided notice of the Public Hearing and the intention of the Board to adopt this Ordinance as follows:

(a) Notice of the Public Hearing was posted at this District's business offices posting location, located at 32033 Dove Canyon Drive, Trabuco Canyon, California 92679, on September 25, 2020, and remained so posted until the date and time of the Public Hearing. A copy of the executed Notice of Public Hearing is on file with the District Secretary.

(b) Notice of the intention of the Board to adopt this Ordinance ("Notice of Intention"), together with a summary thereof, was published in the Orange County Register on September 25, 2020.

(c) The Notice of Intention and summary, as described in (b) above, was posted at the District business offices posting location on September 25, 2020, and remained so posted until the date of the Public Hearing.

(d) The Notice of Intention and summary, as described in (b) above, was posted on the District's internet website beginning on September 25, 2020, and remained so posted until the date of the Public Hearing.

(e) Copies of the Notice of Intention and the summary as described in (b) above and the proposed text of the Ordinance are on file with the District Secretary, and from and after September 25, 2020, were available for public review upon request.

The District also provided notice of such proposed revision to the waste discharge, wastewater pretreatment, quality, source control and compliance requirements set forth herein, as follows:

(a) Notice of the Public Hearing and the Notice of Intention/Summary of Ordinance, the full text of this proposed Ordinance, with Exhibits, and the availability of supporting documentation therefor was posted on District's internet website located at https://www.tcwd.ca.gov for a period of more than thirty days (30) days prior to the date the Public Hearing was conducted; and

(b) Notice of the date, time, place and nature of such Public Hearing and the Notice of Intention/Summary of Ordinance was also posted at the following locations within the District boundaries on the following dates:

(i) Dove Canyon Community Association - Dove Lake Park posting location October 16, 2020;

(ii) Trabuco Highlands Community Association Message Board – October 16, 2020; and

(iii) Ridgeline Pump Station at 19314 Ridgeline Road, Trabuco Canyon, California – entry drive posting location – October 16, 2020.

Such notices remained posted until the date and time of the Public Hearing.

Section 3. Findings. The Board hereby finds and determines as follows:

(a) The District has complied, and will comply, with the notice requirements necessary for the adoption of this Ordinance.

(b) Based on applicable legal standards, water and wastewater quality requirements and current best practices, it is in the best interests of the District to adopt this Ordinance.

(c) The findings and determinations set out in the Exhibits hereto are incorporated herein at this point by this reference.

Section 4. Adoption and Implementation; Prior Ordinances Superseded.

(a) The Trabuco Canyon Water District Waste Discharge Pretreatment and Source Control Program set out in Exhibit "A" is hereby adopted and shall be in effect from and after November 19, 2020.

(b) The Trabuco Canyon Water District Enforcement Response Plan as set out in Exhibit "B," attached hereto and incorporated herein by this reference, is hereby adopted and shall take effect on November 19, 2020.

(c) The Board reserves the right to revise, amend, supplement and update the above-referenced Trabuco Canyon Water District Waste Discharge Pretreatment and Source Control Program and Trabuco Canyon Water District Enforcement Response Plan from time to time as the Board shall determine and direct.

(d) Ordinance No. 92-16, Ordinance No. 2000-17 and Ordinance No. 2012-19 shall be superceded by this Ordinance No. 2020-21, effective as of November 19, 2020.

Section 5. Amendment to District Rules and Regulations. The Trabuco Canyon Water District Rules and Regulations for Water and Wastewater Service ("Rules and Regulations") shall be amended to conform all references therein to Ordinance No. 92-16, Ordinance No. 2000-17, Ordinance No. 2012-19 and/or Ordinance No. 2015-20 to this Ordinance No. 2020-21. The General Manager, District Secretary, District officers and District consultants are authorized and directed to take such other and further actions as are necessary to carry out the directives of this Section 5.

Section 6. Partial Invalidity; Severability. If any one or more of the findings or directives set forth in this Ordinance to be performed should be contrary to law, then such findings or directives, or such portions thereof, shall be null and void and shall be deemed separable from the remaining findings and directives or portions thereof and shall in no way affect the validity of this Ordinance. The Board hereby declares that it would have adopted this Ordinance and each and every other section, paragraph, subdivision, sentence, clause and phrase hereof and would have authorized and approve the findings or directives set forth herein irrespective of the fact that any one or more sections, paragraphs, subdivisions sentences, clauses or phrases of this Ordinance or the application thereof to any person or circumstance may be held to be unconstitutional, unenforceable or invalid.

Section 7. Other Actions. The District's General Manager and other District officers and staff and District consultants are hereby authorized and directed to take all necessary and appropriate actions as may be required or desirable to carry out the directives of this Ordinance and the applicable requirements of State law. This shall include necessary publications and postings in conformance with State law.

Section 8. **Authority**. This Ordinance is adopted pursuant to the provisions of Water Code Sections 31000, 31001, 31024, 31025, 30523 and 31141.

Section 9. **Effective Date**. Except as otherwise set forth herein, this Ordinance shall be effective upon adoption.

ADOPTED, SIGNED, ORDAINED AND APPROVED this 18th day of November, 2020.

BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT

By: _____
President of the Board of Directors of the Trabuco Canyon Water District

By: _____
Secretary of the Board of Directors of the Trabuco Canyon Water District

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, Michael Perea, Secretary, Board of Directors of the Trabuco Canyon Water District, do hereby certify that the foregoing Ordinance was duly adopted by the Board of Directors of the Trabuco Canyon Water District at a meeting thereof held on the 18th day of November, 2020, at which meeting a quorum of such Board was present and acting throughout and for which notice and an agenda was prepared and posted as required by law, and that such Ordinance was so adopted by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____

Secretary, Board of Directors of the Trabuco Canyon Water District

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, Michael Perea, Secretary, Board of Directors of the Trabuco Canyon Water District, do hereby certify that the foregoing is a full, true and correct copy of Ordinance No. 2020-21 of such Board and that the same has not been amended or repealed.

Dated this 18th day of November, 2020.

_____

Secretary, Board of Directors of the Trabuco Canyon Water District

EXHIBIT "A"

TRABUCO CANYON WATER DISTRICT WASTE DISCHARGE PRETREATMENT AND SOURCE CONTROL PROGRAM

EXHIBIT "B"

TRABUCO CANYON WATER DISTRICT ENFORCEMENT RESPONSE PLAN

TRABUCO CANYON WATER DISTRICT
(TCWD)

WASTE DISCHARGE PRETREATMENT AND SOURCE CONTROL PROGRAM

An Ordinance of
Regulations for the Discharge of
Wastewater to Sewerage Facilities of the
Trabuco Canyon Water District Service Area
As amended xxx

Prepared by the
South Orange County Wastewater Authority
Industrial Waste Division
for the
Trabuco Canyon Water District

Table of Contents

ARTICLE 1
GENERAL PROVISIONS

ARTICLE 2
DEFINITIONS AND ABBREVIATIONS

ARTICLE 3
AUTHORITIES AND POWERS

ARTICLE 4
ADMINISTRATION

ARTICLE 5
GENERAL DISCHARGE PROHIBITIONS AND LIMITATIONS

ARTICLE 6
WASTEWATER DISCHARGE PERMITS

ARTICLE 7
PRETREATMENT EQUIPMENT REQUIREMENTS

ARTICLE 8
INSPECTION, MONITORING, SAMPLING, NOTIFICATION AND REPORTING REQUIREMENTS

ARTICLE 9
ENFORCEMENT

ARTICLE 10
FEES AND CHARGES

ARTICLE 11
SEVERABILITY

ARTICLE 12
REPEAL

ARTICLE 13
EFFECTIVE DATE

THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT DOES ORDAIN AS FOLLOWS:

ARTICLE 1
GENERAL PROVISIONS

101 INTRODUCTION

A. The Trabuco Canyon Water District ("TCWD") is a special district formed under provisions of the California Water Code in 1962. The TCWD provides water distribution and wastewater collection, treatment and disposal services to residential and commercial customers in Southeast Orange County.

B. The TCWD is required to adopt and implement a waste discharge pretreatment and source control program to protect the environment, sewerage facilities, and worker health.

C. The TCWD, a MA of the South Orange County Wastewater Authority (SOCWA), may opt to administer and enforce these provisions under SOCWA's oversight. The TCWD does have the option to contract with SOCWA to have these services provided directly to them, if they so desire. Interagency agreements have been adopted that defines each agency's duties and responsibilities. These interagency agreements are on file at the TCWD and SOCWA offices.

102 OBJECTIVES

A. The objectives of this ordinance are to:

1. Ensure compliance with various regulatory agencies and the National Pollutant Discharge Elimination System (NPDES) Requirements.

2. Prevent the introduction of pollutants that may cause interference of sewerage operations.

3. Identify the goals, objectives and procedures for complying with federal pretreatment standards.

4. Prevent biosolids contamination.

5. Promote the opportunity to recycle and reclaim wastewaters or biosolids from sewerage facilities.

6. Encourage waste minimization and material substitution by users.

7. Protect sewerage facility employees and the general public who may be affected by wastewater, biosolids and chemical hazards.

8. Encourage the reuse, recycling and reduction of water, wastewater or solids that are discharged to sewerage facilities.

9. Minimize the discharge of volatile organic compounds that could individually or collectively contribute to a decrease in the quality of air emission from sewerage facilities.

10. Establish an effective monitoring program for the control of user discharges to sewerage facilities.

11. Establish an enforcement response plan (ERP) to help ensure consistent application of the provisions of this Ordinance.

12. Equitably distribute costs.

13. Prevent the introduction of pollutants into sewerage facilities that may pass through a sewerage facility, inadequately treated, into the receiving waters, or otherwise be incompatible with sewerage facilities.

14. Incorporates the necessary laws and regulations in order to implement and enforce federal, State of California (State), TCWD and SOCWA standards.

15. Seek to identify users that discharge or have the potential to discharge toxic pollutants, non-compatible or excessive amounts of compatible wastes to sewerage facilities.

103 PURPOSE

A. The purpose of this ordinance is to:

1. Provide for the maximum public benefit from the use of TCWD sewerage facilities. This is accomplished by regulating the use of sewerage facilities and wastewater discharges by providing equitable distribution of costs in compliance with applicable state and federal regulations and by providing procedures that will allow the TCWD to comply with requirements placed upon it by other regulatory agencies. Any revenues derived from the application of this ordinance may be used to recover the cost of providing services by the TCWD, which include but are not limited to administration, monitoring, and enforcement.

2. Comply with federal and state regulations, which allow the TCWD to meet applicable standards for the final effluent and ocean outfall quality. This ordinance establishes quality and quantity limitations on all wastewater discharges whether or not the discharges adversely affect the TCWD's sewerage facilities, processes, effluent quality, or inhibit the TCWD's ability to meet its specific discharge limitations. It is the intent of this ordinance to improve the quality of wastewater being received for treatment and to encourage water conservation by all users connected to a sewerage facility. It is the TCWD intent to discourage the increase in quantity (mass emission) of waste constituents being discharged. This ordinance also imposes pretreatment requirements on the degree of waste authorized to be discharged to the TCWD sewerage facilities; provides for the issuance of wastewater discharge permits or other controlling mechanism to impose additional case-by-case requirements, as appropriate, and establishes fees and other penalties for noncompliance and/or violation of this ordinance.

104 POLICY

A. The policy of this ordinance is to be:

1. Interpreted in accordance with the definitions set forth in Article 2. The provisions of this ordinance shall apply to the discharge of all wastes carried to TCWD sewerage facilities, and have been liberally construed so as to effectuate the environmental purposes, objectives, and other provisions set forth herein.

2. Committed to wastewater reclamation and reuse in order to provide an alternate source of water supply. The adoption of programs for reclamation through secondary and tertiary wastewater treatment processes may necessitate more stringent quality requirements on wastewater discharges. In the event that more stringent quality requirements are necessary, this ordinance may be amended to reflect those changes.

3. Committed to the beneficial use of biosolids. The implementation of programs to land apply or provide for the marketing and distribution of biosolids may necessitate more stringent quality requirements on wastewater discharges. In the event that more stringent quality requirements are necessary, this ordinance may be amended to reflect these changes.

4. Committed to compliance with all applicable state and federal laws including the Clean Water Act in 33 United States Code 1251 et seq. and the general pretreatment regulations described in 40 CFR 403.

105 APPLICABILITY

This ordinance may apply to users within the TCWD service area and to users outside the TCWD service area who, by wastewater discharge permit or other controlling mechanism, make use of TCWD sewerage facilities.

106 AVAILABILITY OF SEWAGE FACILITIES

If capacity in a sewerage facility as a whole is not available, the TCWD may restrict discharge of existing users until sufficient capacity can be made available. The TCWD may refuse immediate service to new users where their proposed quality or quantity of wastewater is unacceptable to the available sewerage facilities.

107 NOTICE TO USERS

A. The TCWD may provide one (1) copy of this ordinance to each user, which has received a wastewater discharge permit, upon request.

B. Users who are issued a wastewater discharge permit may make available to their employees, copies of this ordinance.

C. A notice may be permanently posted in prominent places advising employees to call the TCWD in the event of an uncontrolled spill or discharge as soon as possible and to submit a report as indicated in section 803 or 804 of this ordinance. The notice shall provide for necessary instruction and information, including but not limited to:

1. TCWD phone numbers.
2. Recording the time of the incident.
3. Name and location of user.
4. Type, concentration and volume of the discharge.
5. Corrective action taken.
6. Name of person reporting the incident.

ARTICLE 2
DEFINITIONS AND ABBREVIATIONS

201 DEFINITIONS CONTAINED IN PUBLICATION

A. Unless otherwise defined herein, terms related to water quality shall be defined in the same manner as in the latest edition of Standard Methods for the Examination of Water and Wastewater, published jointly by the American Public Health Association (APHA), The American Water Works Association (AWWA), and the Water Environment Federation (WEF).

B. The testing procedure for waste constituents and characteristics shall be as described in 40 CFR 136.

202 DEFINITION OF TERMS

A. Words used in this ordinance in the singular may include the plural and the plural singular. Use of masculine shall mean feminine and the use of feminine shall mean masculine.

B. The definitions in this ordinance are not intended to narrow the scope of definitions set forth in federal or state regulations. Unless the context specifically indicates otherwise the following terms, or pronouns used in their place, shall be interpreted as follows:

1. Act or "the Act". The Federal Water Pollution Control Act also known as the Clean Water Act (CWA) as well as any amendments, guidelines, limitation or standards promulgated by the EPA pursuant to the Act, (33 USC 1251 et seq.).

2. Approval Authority. Refers to the US Environmental Protection Agency (EPA), the California State Water Resources Control Board (SWRCB), or the local California Regional Water Quality Control Board (RWQCB).

3. Baseline Monitoring Report (BMR). A required report for all industrial users subject to a categorical pretreatment standard. A BMR provides information that documents an industrial user's compliance status with all applicable pretreatment standards.

4. Batch Dump. The discharge of pollutants or compatible wastes in a manner or method that is not approved or is prohibited by the TCWD.

5. Best Available Technology (BAT). A level of technology that is based on the very best (state of the art) control and treatment measures that have been developed or are capable of being developed for a particular industrial category.

6. Best Management Practices (BMPs). A set of schedules of activities, prohibitions of practices, maintenance procedures, operating procedures and other management practices used to control a user or a group of similar users' discharge to sewerage facilities. BMPs may include, but are not limited to treatment requirements, operating procedures, and practices to control plant site runoff, spillage of leaks, sludge or waste disposal, or drainage from raw materials storage.

7. Best Practicable Technology (BPT). A level of technology represented by the average of the best existing wastewater treatment performance levels within an industrial category.

8. Biochemical Oxygen Demand (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter in wastewater using appropriate testing procedure and expressed as a concentration (m.g./L).

9. Biodegradable. A material that can be decomposed by a biological process.

10. Biohazardous Waste. A material that is likely to transmit etiologic agents that cause, or significantly contribute to the cause of, increased morbidity or mortality of human beings as set forth by the California Medical Waste Management Act.

11. Board. The Board of Directors of the Trabuco Canyon Water District (TCWD).

12. Building Sewer. The entire length of private sewage service lateral extending from the building or structure that is connected to a sewerage facility.

13. By-Pass. Any intentional diversion of waste streams around any portion of a user's pretreatment equipment.

14. Categorical Industrial User (CIU). A user subject to a federal categorical pretreatment standard or categorical standard.

15. Chain of Custody. A document used to ensure the integrity of a sample, which includes a record of each person involved in the possession of a sample, securing the sample, and final disposal of the sample.

16. Chemical Oxygen Demand (COD). The quantity of oxygen required to oxidize all compounds, both organic and inorganic, in wastewater using the appropriate testing procedure and expressed as a concentration (e.g./L).

17. Class I User. Any user determined by the TCWD that meets the criteria of significant industrial user (SIU) as described in 40 CFR 403..

18. Class II User. Any user determined by the TCWD that is not a SIU and may discharge pollutants or non-compatible wastes, which may impact sewerage facilities.

19. Class III User. Any user determined by the TCWD that is not a SIU and may discharge compatible wastes or conventional pollutants which may impact sewerage facilities.

20. Class IV User. Any user determined by the TCWD that may discharge or is proposing to discharge special wastewater that may contain toxic or conventional pollutants or non-compatible or compatible wastes which may impact sewerage facilities.

21. Code of Federal Regulations (CFR). The code of the Federal Government of the United States of America, which contains all of the federal regulations including environmental regulations.

22. Company Authorized Representative (CAR). An individual designated by the user, who is responsible for signing all submittals to SOCWA and/or MA and who meets the criteria as described in 40 CFR 403.

23. Compatible Waste. Waste that does not contain toxic pollutants or non-compatible wastes. This may include a combination of, but not limited to, conventional pollutants or other wastes that the TCWD sewerage facilities are designed to accept and/or remove. Compatible wastes are non-compatible when discharged in quantities that have an adverse effect on sewerage facilities or NPDES Permit, or when discharged in qualities or quantities violating any National Pretreatment Standard or other discharge requirement or as determined by the TCWD.

24. Composite Sample. A collection of individual samples obtained at intervals based on an increment of either flow or time. The resulting mixture, a composite sample, forms a representative sample of the wastestream discharged during the sample period.

25. Control Authority (CA). The Trabuco Canyon Water District.

26. Conventional Pollutants. Those pollutants which are designated pursuant to section 304(a)(4) of the Act which include, biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, pH, and oil and grease.

27. Daily Maximum. The arithmetic average of all effluent samples for a pollutant collected during a calendar day.

28. Daily Maximum Limit. The maximum allowable discharge limit of a pollutant during a calendar day. Where Daily Maximum Limits are expressed in units of mass, the daily discharge is the total mass discharged over the course of the day. Where Daily Maximum Limits are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

29. Discharger. Any entity which discharges or causes a discharge of wastewater that is directly or indirectly discharged to sewerage facilities. May be interchangeable with indirect discharger, industrial user, permittee, person or user.

30 Discharge Requirements. The requirements of federal, state or local public agencies having jurisdiction over the effluent discharged into sewerage facilities or the environment.

31. Dry Weather Nuisance Flow (nuisance flow) – Any water or other discharge which finds its way to storm drains from urban areas, composed primarily of runoff from lawn or landscape watering, washing of vehicles, hosing down of paved areas, storm drain infiltration, natural groundwater from sub-drain systems and a variety of other sources associated with urban activity. This nuisance flow may be high in bacteriological contamination, oil and grease, and may have high organic and inorganic mineral content. Nuisance flow does not include stormwater, as defined, unless stormwater is captured, treated, controlled (thereby becoming a non-stormwater, nuisance flow) and discharged to the sewer during dry weather. Nuisance flows may come in contact with people or the environment in undesirable ways. Nuisance flow is a component of urban runoff.

32. Disposal. A controlled release to sewerage facilities or to the environment

33. Effluent. Usually water or wastewater discharged partially or completely treated or untreated from an industrial user or treatment plant, or part thereof.

34. Enforcement. A series of progressively more stringent actions used to seek compliance with federal, state or local laws, regulations, limitations and this ordinance, guided by the Enforcement Response Plan, adopted as Resolution 2009-02. Any enforcement may include monetary fees, fines or penalties.

35. Environmental Protection Agency (EPA). The U.S. Environmental Protection Agency or, where appropriate, the Regional Water Management Division Director, the Regional Administrator, or other duly authorized official of said agency.

36. Existing Source. Any source of discharge that is not a "New Source."

37. Fee. Any amount assessed to a discharger for the use of any portion of a sewerage facility which shall include, but not be limited to, connection fees, monthly sewer service, discharge permit, excess capacity fee, industrial wastewater treatment, laboratory testing, industrial inspection, and monitoring fees.

38. Flow Monitoring Equipment. Equipment and/or structures provided at the user's sole expense to measure, totalize, record and/or sample incoming water to the user's site or the wastewater discharged to sewerage facilities.

39. General Manager. The individual duly designated by the Board of the TCWD to administer this ordinance.

40. Grab Sample. A sample collected from a waste stream without regard to the flow in the wastestream and over a period of time not to exceed fifteen (15) minutes.

41. Grease. Includes, but is not limited to fats, oils and grease (FOG), waxes and other non-volatile materials as determined by the appropriate testing procedures.

42. Groundwater. Water that is beneath the surface of the earth.

43. Hazardous Waste. Any waste that is potentially damaging to of the environment or a person's health due to toxicity, ignitability, corrosivity, chemical reactivity or other reasons.

44. Indirect Discharge or Discharge. The introduction of Pollutants into a POTW from any non-domestic source regulated under section 307(b), (c), or (d) of the Act.

45. Industrial User. Any site that discharges industrial wastewater to sewerage facilities. May be interchangeable with discharger, indirect discharger, permittee, person or user.

46. Industrial Wastewater. All liquid-carried wastes or wastewater of the community, excluding domestic wastewater, and may include all wastewater from any producing, manufacturing, processing, agricultural, or other operation or location.

47. Inspector. A person authorized by the General Manager to inspect and/or monitor any industrial user's discharge or anticipated discharge to any sewerage facility.

48. Interference. A discharge that alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts any sewerage facilities, any treatment processes or operations, or any biosolids use or disposal and therefore, is a cause of violation of the TCWD's or SOCWA's NPDES permits (including an increase in the magnitude or duration of a violation) or prevents lawful biosolids or treated effluent use or disposal.

49. Interjurisdictional Agreements (Also referred to as Interagency Agreements). An agreement between the TCWD, SOCWA, any individual or combination of MAs, or any other local sewering agency that defines the authority and responsibility to implement the waste discharge pretreatment and source control program and to enforce the regulations contained in this ordinance within the individual and/or combination of TCWD, SOCWA, MAs, or any other local sewering agency's service area.

50. Local Limits. A set of specific discharge limits developed and enforces by the TCWD and/or SOCWA upon user sites in order to implement the general and specific discharge prohibitions as described in 40 CFR 403.

51. Local Sewering Agency. Any public agency or private company responsible for the collection, treatment or disposal of wastewater to sewerage facilities that are duly authorized under the laws of the State to construct and/or maintain sewerage facilities.

52. Lower Explosive Limit (LEL). The point where an explosive gas in an area of atmosphere that is at a sufficient concentration as to result in an explosion if a sufficient ignition source is present.

53. Mass Emission Rate. The weight of material discharged to sewerage facilities during a given time interval. Unless otherwise specified, the mass emission rate shall mean pounds per day of a particular constituent or combinations of constituents.

54. May. Permissive or discretionary.

55. Member Agency (MA). Any one, combination, or all of the individual cities or districts which are members of SOCWA. They are: City of Laguna Beach (CLB), City of San Clemente (CSC), City of San Juan Capistrano (CSJC), El Toro Water District (ETWD), Emerald Bay Service District (EBSD), Irvine Ranch Water District (IRWD), Moulton Niguel Water District (MNWD), Santa Margarita Water District (SMWD), South Coast Water District (SCWD) and the Trabuco Canyon Water District (TCWD).

56. Monthly Average. The sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during the month.

57. National Pollutant Discharge Elimination System (NPDES) Permit. The document issued in the control of discharges to surface waters of the United States as detailed in Section 402 of the Act.

58. National Pretreatment Standards. Includes the following terms established pursuant to 40 CFR 403.5 and 40 CFR 403.6: "Prohibited Discharges", "General Prohibitions", "Specific Prohibitions", "Local Limits", "Categorical Standards", "Categorical Pretreatment Standards", "Pretreatment Standards" and "Standards". These terms apply to any pollutant discharge regulations that are promulgated by the EPA in accordance with Section 307 (b) and (c) of the Act that limits and/or prohibits the wastewater discharged by users into a sewerage facility.

59. New Source. Those sources that are new as defined by 40 CFR 403.3.

60. Non-Compatible Waste. Waste that contains toxic or non-compatible pollutants that may pass-through or cause interference if discharged to sewerage facilities.

61. Non-industrial Wastewater Discharge (NIWD) Form. A form issued to users that are considered to have wastewater of no concern discharging to sewerage facilities. This from may contain BMP's.

62. Non-Stormwater Discharge – Discharges that do not immediately originate from precipitation events unless precipitation is captured and discharged after a rain event. Including but not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

63. Normal Working Day. Any period of time during which production or operation is taking place or any period which discharge to sewerage facilities is occurring.

64. North American Industry Classification System (NAICS). An industry classification system that groups establishments into industries based on the activities which they are primarily engaged.

65. Nuisance. Anything which may be injurious to health or is indecent or offensive to the senses or an obstruction to the free use of property so as to interfere with the comfort or enjoyment of life or property or which affects at the same time an entire community or neighborhood or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

66. Ordinance. The document entitled "An Ordinance of Regulations for the Discharge of Wastewater to Sewerage Facilities of the Trabuco Canyon Water District Service Area" containing the TCWD's requirements, conditions and limitations for discharging to sewerage facilities, as may be amended and modified.

67. Pass Through. A discharge from a user which exits sewerage facilities into waters of the United States in quantities or concentrations which, alone or in conjunction with any discharge from other sources, is a cause of a violation of any requirement of the TCWD's or SOCWA's NPDES permits, including an increase in the magnitude or duration of a violation.

68. Permittee. A discharger who has received a wastewater discharge permit to discharge wastewater into the TCWD's sewerage facilities subject to the requirements and conditions established by the TCWD. May be interchangeable with discharger, indirect discharger, industrial user, person or user.

69. Person. Any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, tenant, lessee, renter, governmental entity, or any other legal entity; or their legal representatives, agents or assigns. This definition includes all federal, state and local government entities. May be interchangeable with discharger, indirect discharger, industrial user, permittee or user.

70. Pesticides. Those compounds classified as such under federal or state law or regulations including, but not limited to, DDT (dichlorodiphenyltrichloroethane, both isomers), DDE (dichlorodiphenylethylene), DDD (dichlorodiphenyldichloroethane), Aldrin, Benzene Hexachloride (alpha, beta and gamma isomers), Chlordane, Endrin, Endrin aldehyde, TCDD (2,3,7,8 -tetrachlorodibenzo-p-dioxin), Toxaphene, Alpha-endosulfan, Beta-endosulfan, Endosulfan sulfate, Heptachlor, Heptachlor epoxide, Dieldrin Demeton, Guthion, Malathion, Methoxychlor, Merex and Parathion.

71. pH. A measure of the acidity or alkalinity of a solution, expressed in standard units.

72. Pollutant. Any substance, constituent, compound or characteristic of wastewaters on which a discharge limitation may be imposed either by the TCWS, SOCWA or the regulatory agencies empowered to regulate the TCWD and SOCWA.

73. Polychlorinated Biphenyls (PCBs). Those compounds classified as such under federal and state law or regulation including, but not limited to Aroclors 1016, 1221, 1228, 1232, 1242, 1248, 1254, 1260 and 1262.

74. Pretreatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to, or in lieu of, introducing such pollutants into sewerage facilities. This reduction, elimination or alteration of pollutants can be obtained by physical, chemical, or biological process, by process changes or by other means except as described by 40 CFR 403.

75. Pretreatment Equipment. Any equipment, structures or devices used for the treatment or flow limitation of industrial wastewater prior to discharge to sewerage facilities.

76. Pretreatment Requirements. Any substantive or procedural requirement related to pretreatment imposed on a user, other than a national pretreatment standard.

77. Prohibited Discharges. Any prohibitions against the discharge of certain substances; these prohibitions appear in Article 5.

78. Public Agency. The State and any city, county, district, agency, other local authority or public body of or within this state.

79. Rainwater. Water resulting from precipitation which directly falls upon any surface.

80. Regulatory Agencies. Those Agencies having jurisdiction over the operation of the TCWD and/or SOCWA, including, but not limited to, the following:

    a. United States Environmental Protection Agency (EPA).

    b. State Water Resources Control Board (SWRCB).

    c. Regional Water Quality Control Board (RWQCB).

    d. South Coast Air Quality Management District (SCAQMD).

    e. Department of Health Services (DOHS).

    f. California Environmental Protection Agency, Cal-EPA)

81. Representative Sample Point. A location set forth in the user's wastewater discharge permit or other control mechanism from which wastewater can be collected that is as nearly identical in content and consistency as possible to that of the entire flow of wastewater being sampled. For categorical users, this point shall be at the end of each regulated process, and for all other users shall be determined on a case-by-case basis.

82. Resource Conservation and Recovery Act (RCRA). The RCRA Act of 1976 (42 U.S.C. 6901, et seq.) to implement the Conservation and Recovery of used or spent resources and as amended.

83. Routine Sampling. Any sampling conducted by the TCWD SOCWA to verify compliance of a user's discharge to sewerage facilities. Sampling may consist of either grab or composite samples or a combination of both.

84. Sampling Equipment. Equipment or structure provided at the user's sole expense for the TCWD, SOCWA or the user to measure and record wastewater constituents, collection of samples or provide access to plug or terminate the discharge.

85. Scum. Any layer of matter or combination of air and matter that forms on or rises to the surface of a liquid or body of water.

86. Sewage. Wastewater.

87. Sewerage Facilities. Any and all systems used for collecting, conveying, pumping, reclamation, recycling, reuse, storage, transportation, treatment or disposal of sewage, industrial waste of a liquid nature, wastewater, sludge or biosolids that is owned and operated by the TCWD, SOCWA, or other public agency which is tributary to systems operated by the TCWD or SOCWA. This definition includes, but is not limited to, publicly owned treatment works (POTW's) as defined by Section 212 of the Act (33 U.S.C. Section 1292), public sewers, trunk lines, sewer mains, wet wells, treatments plants and ocean outfalls which are owned by the TCWD or SOCWA.

88. Shall. Mandatory.

89. Significant Industrial User (SIU). A user as defined by 40 CFR 403.3(v), except as provided in paragraphs c and d of this definition, which includes the following:

    a. An industrial users subject to categorical pretreatment standards; or

    b. An industrial user that: discharges an average of twenty-five thousand (25,000) gallons per day or more of process wastewater to the TCWD (excluding sanitary, noncontact cooling water, and boiler blowdown wastewater); contributes a process wastestream which makes up five (5%) percent or more of the average dry weather hydraulic or organic capacity of TCWD's sewerage facilities; or is designated as such by the TCWD on the basis that the industrial user has a reasonable potential for adversely affecting the TCWD's operation or for violating any pretreatment standard or requirement.

    c. The TCWD may determine that an industrial user subject to categorical pretreatment standards is a Non-Significant Categorical Industrial User (NSCIU) rather than a Significant Industrial User on a finding that the industrial user never discharges more than 100 gallons per day (gpd) of total categorical wastewater (excluding sanitary, noncontact cooling and boiler blowdown wastewater, unless specifically included in the Pretreatment Standard) and the following conditions are met:

        i. The industrial user, prior to TCWD's finding, has consistently complied with all applicable categorical pretreatment standards and requirements;

        ii. The industrial user annually submits the certification statement required in 40 CFR 403.12(q) together with any additional information necessary to support the certification statement; and

        iii. The industrial user never discharges any untreated concentrated wastewater.

    d. Upon a finding that an industrial user meeting the criteria in paragraph b above of this definition has no reasonable potential for adversely affecting the TCWD's operation or for violating any pretreatment standard or requirement, The TCWD may at any time, on its own initiative or in response to a petition received from a industrial user, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user should not be considered a significant industrial user.

90. Significant Non-Compliance. A violation by a significant industrial user (or any industrial user which violates paragraphs c, d, or h of this definition) as described in 40 CFR 403.8(f)(2)(viii) which meets one or more of the following criteria:

a. Chronic violations of wastewater discharge limits, defined here as those in which sixty-six percent (66%) or more of all of the measurements taken for the same pollutant parameter during a six (6) month period exceed (by any magnitude) a numeric pretreatment standard or requirement, including instantaneous limits, as described in 40 CFR 403.3(l);

b. Technical Review Criteria (TRC) violations, defined here as those in which thirty-three percent (33%) or more of all of the measurements taken for the same pollutant parameter during a six (6) month period equals or exceeds the product of the numeric pretreatment standards or requirements including instantaneous limits, as defined in 40 CFR 403.3(l) multiplied by the applicable TRC (TRC = 1.4 for BOD, TSS, fats, oil and grease, and 1.2 for all other pollutants except pH);

c. Any other violation of a pretreatment standard or requirement as defined in 40 CFR 403.3(l) (daily maximum, long-term average, instantaneous limit, or narrative standard) that the TCWD determines has caused, alone or in combination with other discharges, interference or pass through, including endangering the health of TCWD personnel or the general public;

d. Any discharge of pollutants that has caused imminent endangerment to human health, welfare or to the environment, or has resulted in the TCWD's exercise of its emergency authority under 40 CFR 403.8(f)(1)(vi)(B) to halt or prevent such a discharge.

e. Failure to meet, within ninety (90) days after the scheduled date, a compliance schedule milestone contained in a wastewater discharge permit, other control mechanism or enforcement order for starting construction, completing construction, or attaining final compliance;

f. Failure to provide within forty-five (45) days after the due date, required reports, including but not limited to, baseline monitoring reports, 90-day compliance reports, periodic self-monitoring reports, and reports on compliance with compliance schedules;

g. Failure to accurately report noncompliance;

h. Any other violation or group of violations, which may include a violation of Best Management Practices, which the TCWD determines will adversely affect the operation or implementation of the local pretreatment program.

91. Sludge. Any solid, semi-solid or liquid decant, subnate, or supernate from an industrial manufacturing process, utility service or pretreatment equipment.

92. Slug Discharge. Any discharge of a non-routine, episodic nature, that may exceed the standards and prohibitions contained in Article 5 of this ordinance and significantly exceeds the usual industrial user flow or pollutant loading, either mass or concentration including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the regulations, local limits or permit conditions associated with sewerage facilities.

93. Solvent. Any substance that is used to dissolve another substance in it.

94. South Orange County Wastewater Authority (SOCWA). The Joint Powers Authority (JPA) which is formed by the participating MAs. The MAs individually and/or collectively use SOCWA's sewerage facilities. SOCWA is the holder of the NPDES permits, which state the pretreatment and waste discharge requirements for sewerage facilities.

95. Spent Solutions. Any concentrated industrial wastewater.

96. Spill Containment. Any protection equipment provided and installed at the user's sole expense to prohibit the discharge of non-compatible wastes to sewerage facilities.

97. Standard Methods. Procedures described in the current edition of Standard Methods for the Examination of Water and Wastewater, as published jointly by the American Public Health Association, the American Water Works Association and the Water Environment Federation.

98. Stormwater. Any flow occurring during or immediately following any form of natural precipitation, ~~including snowmelt~~, which runs off, or travels over the ground surface to a drainage area or channel or~~.~~ drains uncontrolled to a municipal storm drain system for disposal in a river, stream, lake or creek and ultimately to the Pacific Ocean.

99. Street Drainage. Water resulting from surface runoff generated by rainwater, stormwater or other sources.

100. Subsurface Drainage. A method of draining that is situated under the ground (e.g., leachate control system).

101. Surface Runoff. Runoff other than that which is caused by rainfall, stormwater, or street drainage (e.g., car wash runoff, washdown runoff) originating from a user.

102. Trabuco Canyon Water District (TCWD). The agency that is responsible for the adoption of this ordinance and is a MA of SOCWA.

103. Total Organic Carbon (TOC). The measure of total organic carbon in domestic or other wastewater as determined by the appropriate testing procedure.

104. Total Suspended Solids. Any insoluble material contained as a component of wastewater and capable of separation from the liquid portion by laboratory filtration as determined by the appropriate testing procedures and expressed in terms of milligrams per liter (mg/L).

105. Toxic Pollutant. Any pollutant or combination of pollutants listed as toxic by the EPA under the provisions of Section 307(a) of the Act or other acts or that can harm human health, aquatic life or the biological treatment processes.

106. Unpolluted Water. Water to which no constituent has been added either intentionally or accidentally.

107. Upset. Any upset that meets the criteria as described in 40 CFR 403.

108. User. Any person or entity which discharges or causes a discharge of wastewater to a sewerage facility , as defined by EPA regulations. May be interchangeable with discharger, indirect discharger, industrial user, permittee or person.

109. Volatile. Natural (plant or animal origin) or synthetic substances that is capable of being evaporated or changed to vapor at relatively low temperatures.

110. Waste. Sewage and any other waste substances, liquid, solid, gaseous or radioactive.

111. Waste Manifest. A receipt which is retained by the generator of hazardous wastes as required by the State or the United States Government pursuant to RCRA or the California Hazardous Materials Act or that receipt which is retained by the generator for recyclable wastes or liquid non-hazardous wastes as required by the TCWD

112. Wastewater. Liquid and water-carried industrial wastes and sewage from residential dwellings, commercial buildings, industrial and manufacturing facilities, and institutions, whether treated or untreated, which are discharged into or permitted to enter sewerage facilities..

113. Wastewater Constituents and Characteristics. The individual chemical, physical, bacteriological, radiological, volume, flow rate and such other parameters that serve to define, classify or measure the quality and quantity of wastewater.

114. Wastewater Discharge (WD) Permit. The form of authorization from the TCWD issued to an industrial user for the discharge wastewater. This wastewater discharge permit sets forth the limits and conditions under which the industrial user shall be able to discharge wastewater into sewerage facilities.

203 ABBREVIATION

A. The following abbreviations shall have the designated meanings:

1.	"BAT"	Best Available Technology	
2.	"BMP"	Best Management Practice	
3.	"BMR"	Baseline Monitoring Report	
4.	"BOD"	Biochemical Oxygen Demand	
5.	"BPT"	Best Practicable Technology	
6.	"CA"	Control Authority	
7.	"CAR"	Company Authority Representative	
8.	"CFR"	Code of Federal Regulation	
9.	"CIU"	Categorical Industrial User	
10.	"COD"	Chemical Oxygen Demand	
11.	"CWF"	Combined Wastestream Formula	
12.	"DO"	Dissolved Oxygen	
13.	"EPA"	Environmental Protection Agency	
14.	"ERP"	Enforcement Response Plan	
15.	"FOG"	Fats, Oils and Grease	
16.	"FROG"	Fats, Roots, Oils and Grease	
17.	"gpd"	Gallons per Day	
18.	"gpm"	Gallons per Minute	
19.	"IU"	Industrial User	
20.	"lb/day"	Pounds Per Day	
21.	"JPA"	Joint Powers Authority	
22.	"LEL"	Lower Explosive Limit	
23.	"MA"	Member Agency	
24.	"MGD"	Million Gallons Per Day	
25.	"MSDS"	Material Safety Data Sheet	
26.	"NAICS"	North America Industrial Classification System	
27.	"NPDES"	National Pollutant Discharge Elimination System	
28	"NSCIU"	Non-Significant Categorical Industrial User	
29.	"O&G"	Oil and Grease	
30.	"PCBs"	Polychlorinated Biphenyls	
31.	"POTW"	Publicly Owned Treatment Works	
32.	"PSES"	Pretreatment Standards for Existing Sources	
33.	"PSNS"	Pretreatment Standards for New Sources	
34.	"RCRA"	Resource Conservation and Recovery Act	
35.	"RWQCB"	Regional Water Quality Control Board	
36.	"SOCWA"	South Orange County Wastewater Authority	
37.	"SIU"	Significant Industrial User	
38.	"SNC"	Significant Non-Compliance	
39.	"SWRCB"	State Water Resources Control Board	
40.	"TCWD"	Trabuco Canyon Water District	
41.	"TDS"	Total Dissolved Solids	
42.	"TOC"	Total Organic Carbon	
43.	"TOMP"	Toxic Organic Management Plan	
44.	"TRC"	Technical Review Criteria	
45.	"TSS"	Total Suspended Solids	
46.	"TTO"	Total Toxic Organics	
47.	"USC"	United States Code	
48.	"mg/L"	Milligrams per Liter	(0.001)
49.	"ug/L"	Micrograms per Liter	(0.000001
50.	"ng/L"	Nanograms per Liter	(0.000000001)
51.	"pg/L"	Picograms per Liter	(0.000000000001)

ARTICLE 3
AUTHORITIES AND POWERS

301 AUTHORITY

A. The TCWD is regulated by Agencies of the United States Federal Government and the State under provisions of federal and state law. Federal law requires the TCWD, and the state grants the TCWD the authority to regulate and/or prohibit by adoption of ordinances, resolutions, and issuance of wastewater discharge permits or other control mechanisms, the discharge of any waste, directly or indirectly, to the TCWD's sewerage facilities. That authority includes, but is not limited to, the right to establish local limits, conditions, prohibitions, flow rates, prohibit flows discharged to the TCWD's sewerage facilities, and enforce federal, state and local requirements. This may require the implementation of compliance schedules for the installation of flow monitoring equipment by users and for the TCWD to take all actions necessary to enforce its authority, whether within or outside the TCWD's service area, including those users that are tributary to the TCWD or within areas for which the TCWD has contracted to provide sewerage facility services.

B. The TCWD has the authority under California Health and Safety Code 5471 and 5474 to prescribe, revise, and collect all regulatory fees and to charge for services and sewerage facilities furnished by the TCWD either within or without its service area.

B. Administration and enforcement of the pretreatment program may be carried out on a daily basis by any individual and/or combination of TCWD personnel.

D. The TCWD shall have the authority to seek compliance with 40 CFR 403, its NPDES permit and the provisions of this ordinance by, but not limited to, the following:

1. Issue wastewater discharge permits.

2. Require the installation of pretreatment equipment.

3. Require the installation of monitoring and/or sampling equipment and/or structures.

4. Require self-monitoring and reporting of the user's discharge.

5. Require the implementation of spill containment plans.

302 DELEGATION OF AUTHORITY

Whenever any authority or power is granted to or a duty imposed upon the General Manager, that authority or power may be exercised or that duty may be performed by a person authorized by the General Manager.

303 ENFORCEMENT POWERS

A. Enforcement action against a user for being in non-compliance with the provision of this ordinance may include, but is not limited to, the following:

1. Issuing a Warning Notice of Non-compliance letter.

2. Issuing a notice of non-compliance (NON) form.

3. Issuing a notice of violation (NOV) form.

4. Issuing an administrative order (AO), which may also include, but are not limited to, the following:

   a. Probation Order (PO).

   b. Show Cause Order (SCO).

   c. Cease and Desist Order (CDO).

5. Petition the courts for injunction or civil penalties.

6. Signing criminal complaints.

7. Suspension or revocation of an issued wastewater discharge permit or other control mechanism.

8. Termination of services.

9. Administrative complaints.

B. The issuance of an enforcement action shall not be a bar against, or a prerequisite for, taking any other enforcement action against the user.

ARTICLE 4
ADMINISTRATION

401 TRABUCO CANYON WATER DISTRICT (TCWD)

A. The TCWD may implement pretreatment and source control programs in accordance with federal, state, TCWD and SOCWA regulations, and the provisions of this ordinance, and any multijurisdictional agreements.

B. If the TCWD desires to perform its own pretreatment and source control program, it shall do so pursuant to an interjurisdictional agreement with SOCWA, under the oversight of SOCWA.

C. The TCWD, when operating its own pretreatment and source control program, shall keep SOCWA apprised of all activities on a regular and consistent basis. This may be accomplished by, but not limited to, correspondence, meetings~~,~~ and submittal of periodic reports.

D. The TCWD shall have the authority to use fees and charges provided for within this ordinance when a user is in non-compliance.

E. The TCWD shall provide SOCWA any and all information and submittals by users for review and central filing.

F. The TCWD, which may operate its own sewerage facilities, shall coordinate with SOCWA the establishment of technically based local limits. These limits shall be established in accordance with Section 402 H of this ordinance. These limits are to ensure that any user's effluent that is discharged to sewerage facilities does not cause, but is not limited to, the following:

1. Upset, pass through or interference of the biological treatment processes.

2. Upset, pass through or interference of the sludge digestion processes.

3. Reclaimed or recycled water or generated biosolids to be unable to meet regulatory standards for beneficial reuse or unlimited distribution as defined by regulatory agencies.

4. Violation of any TCWD or SOCWA NPDES permit limitations.

5. Pass-through or interference causing the TCWD or SOCWA to violate any discharge limits of the SOCWA ocean outfalls.

402. SOCWA

A. SOCWA has the authority to implement pretreatment and source control programs in accordance with federal and State regulations and the provisions of this ordinance, SOCWA's pretreatment and source control program ordinance, and interjurisdictional agreements with the TCWD.

B. SOCWA has the authority to approve all forms used in the pretreatment and source control programs.

C. SOCWA has the authority to, at any time, assume administration and enforcement of this ordinance within the service area of the TCWD.

D. SOCWA has the authority to locate and terminate any non-compliant discharge that is not discontinued, upon notification that a non-compliant discharge is occurring.

E. SOCWA has the authority to review all applications, wastewater discharge permits, other control mechanism and any enforcement actions that have been taken.

F. SOCWA has the authority to review all ordinances pertaining to pretreatment and source control programs before adoption or implementation by the TCWD.

G. SOCWA has the authority to audit the TCWD when performing its own waste discharge pretreatment and source control program.

H. SOCWA shall oversee the establishment of technically based local limits for the TCWD. A review of the local limits may be conducted every five years or in conjunction with the renewal of SOCWA's NPDES Permits.

403 PROGRAM ENFORCEMENT

A. The TCWD shall have first priority to enforce the regulations contained within this ordinance in accordance with, but not limited to, the following:

1. The TCWD, when performing its own program, shall inform SOCWA of all program activity.

2. The TCWD, when performing its own program, may conduct routine sampling of permitted users for constituents the industry must sample and analyze for as part of their self-monitoring program, and inform SOCWA of such activity.

3. SOCWA shall conduct the pretreatment and source control program for the TCWD unless otherwise directed by the interjurisdictional agreement with the TCWD.

404 APPLICATIONS

All applications for wastewater discharge permits may be reviewed by the TCWD and SOCWA.

405 WASTEWATER DISCHARGE (WD) PERMITS

A. All proposed WD permits may be reviewed by the TCWD and SOCWA before being issued to the user.

B. All issued WD permits shall be signed, identified and/or numbered by the TCWD or SOCWA.

406. INSPECTIONS, MONITORING AND ENFORCEMENT

A. SOCWA shall be notified by the TCWD when inspecting, monitoring, or enforcement activities will or have already occurred. This may be done by, but not limited to, the following:

1. Phone contact or correspondence.

2. Submittal of written schedule reports or status reports.

B. Emergency enforcement actions by the TCWD shall be reported to SOCWA by phone within twenty-four (24) hours during weekdays and within seventy-two (72) hours during weekends, and by written report within five (5) days of following notice to the user.

407 FUNDING

A. The TCWD may establish a schedule of wastewater discharge permit application fees, annual fees, sample analysis charges, and any other fees or charges required to recover reasonable costs of implementing this waste discharge pretreatment and source control program.

B. Costs incurred by the TCWD for its pretreatment activity may be collected by, but not limited to invoicing directly to the industrial user.

408 APPEALS

A. The TCWD shall handle appeals in accordance with the provisions of this ordinance.

1. Appeals on staff action shall be directed to the General Manager.

2. Appeals on the General Manager action shall be directed to the Board.

3. Actions by the Board shall be final.

B. SOCWA shall have the authority to handle appeals where the TCWD has no jurisdiction, or fails to enforce against a user in accordance with the provisions of this ordinance or the interjurisdictional agreements.

ARTICLE 5
GENERAL DISCHARGE PROHIBITIONS AND LIMITATIONS

501 PROHIBITED DISCHARGES

A. These prohibitions apply to all users of sewerage facilities whether or not they are subject to categorical pretreatment or any other national, state or local pretreatment standard or requirements.

B. No user shall discharge directly or indirectly a quality or quantity of wastes, solids, viscous substances, wastewater or pollutants to sewerage facilities, either alone or by interaction with other substances, which cause or will cause:

1. Obstruction of flow.

2. Pass through or interference.

3. Inhibition of biological activity.

4. The final effluent to fail a toxicity test.

5. Corrosive or physical structural damage to sewerage facilities.

6. Danger to life and/or safety of any person.

7. Impairment of the effective maintenance or operation of any sewerage facility.

8. A fire or explosion hazard based upon a closed cup flashpoint of less than 140 degrees Fahrenheit (60^{o}C) using the test method specified in 40 CFR 261.21.

9. The presence of toxic gases, vapors, fumes, or poisonous, noxious or malodorous gas producing substances that may cause acute worker health and safety problems.

10. Any product of any sewerage facility including, but not limited to, the final effluent biosolids, residue, sludge, or scum to be unsuitable for reclamation, reuse, or disposal.

11. Discoloration or any other condition which affects the quality of the final effluent in such a manner that discharge requirements established by regulatory agencies cannot be met.

12. Conditions which violate any statute, rule, regulation, or ordinance of any public agency or regulatory agency having jurisdiction over the discharge of wastewater through sewerage facilities.

13. The discharge of petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin, which cause interference or pass through.

502 PROHIBITION ON DILUTION

Except where expressly authorized to do so by an applicable standard, no user shall discharge directly or indirectly to sewerage facilities an increase in the use of water to attempt to dilute a waste being discharged, as a partial or complete substitute for treatment to achieve compliance with this ordinance, a wastewater discharge permit, other control mechanism or to establish an artificially high flow rate for mass emission rates.

503 PROHIBITION ON BIOHAZARDOUS WASTE

No user shall discharge directly or indirectly to sewerage facilities a biohazardous waste without rendering it nonbiohazardous prior to discharge if the biohazardous waste is deemed to pose any threat to public health and safety or will result in any violation of applicable waste discharge requirements.

504 PROHIBITION ON TOXIC OR HAZARDOUS WASTE

No user shall discharge directly or indirectly to sewerage facilities, any substance that is defined as a toxic or hazardous waste by regulatory agencies, except those wastes which meet the requirements of 40 CFR 403.

505 PROHIBITION ON WARFARE AGENTS

No user shall discharge directly or indirectly to sewerage facilities any radiological, chemical, or biological warfare agent.

506 LIMITATIONS ON DISPOSAL OF SPENT SOLUTIONS AND SLUDGES

A. Any spent solutions, sludges, and/or other wastes generated by the user that are a hazardous waste and not treated on site shall be hauled by a registered hazardous waste transporter. The user shall complete and maintain a hazardous waste manifest that documents the removal and transport of the waste.

B. All hazardous waste manifests shall be retained for a minimum of three (3) years and shall be made available to the TCWD upon request. The TCWD may require a longer period of retention if litigation is being considered.

C. No user shall batch dump to sewerage facilities without written approval from the TCWD.

507 LIMITATIONS ON THE USE OF GRINDERS

Wastes from industrial or commercial grinders shall not be discharged into sewerage facilities, except wastes generated in packing or preparing food or food products on a case by case bases as approved by the TCWD. Such grinders must shred the waste to a degree that all particles will be carried freely under normal flow conditions prevailing in the sewerage facilities.

508 LIMITATION ON RAINWATER, STORMWATER, AND STREET DRAINAGE

No user shall discharge or cause to be discharged directly or indirectly into sewerage facilities any rainwater, stormwater, or street drainage that exceeds the first one-tenth (1/10) of an inch of precipitation from any storm event.

509 LIMITATIONS ON GROUNDWATER AND SUBSURFACE DRAINAGE

A. Groundwater and subsurface drainage shall not be discharged directly or indirectly to sewerage facilities except as provided herein.

B. the TCWD may approve the discharge of such water, by wastewater discharge permit or other control mechanism only, when no alternate method of disposal is reasonably available or to mitigate an environmental risk or health hazard.

C. The discharge of such water shall require the following:

1. A Class IV Special Wastewater Discharge Permit or other control mechanism issued by the TCWD, and

2. Documentation from the user or user's consultant that all other alternate methods of disposal have been exhausted, and User shall pay all applicable fees and charges and shall meet any other conditions as required by the TCWD.

510 LIMITATIONS ON TRUCKED OR HAULED WASTES

A. No user shall discharge trucked or hauled wastes directly or indirectly to sewerage facilities without written approval from the TCWD. Written approval may be in the form of an individual special wastewater discharge permit or other control mechanism.

B. No user shall transport waste from one location to another for the purpose of treating or discharging it directly or indirectly to sewerage facilities without written approval from the TCWD. Written approval may be in the form of an individual special wastewater discharge permit or other control mechanism.

511 LIMITATIONS ON POINT OF DISCHARGE

No user shall discharge any wastewater directly or indirectly into a manhole or other opening in a sewerage facility other than through an approved building sewer, unless approved in writing by the TCWD.

512 LIMITATIONS ON RADIOACTIVE WASTES

A. No user shall discharge directly or indirectly to sewerage facilities any radioactive waste except as provided herein:

1. When the user is authorized to use radioactive materials by the State Department of Health or other governmental agency empowered to regulate the use of radioactive materials, and

2. When the waste is discharged in strict conformity with current California Radiation Control Regulations (Cal. Adm. Code Title 17) for safe disposal, and

3. When the user is in compliance with all other rules and regulations of all other applicable regulatory agencies, and

513 LIMITATION ON UNPOLLUTED WATER

A. Unpolluted water such as deionized, steam waste, distilled, single pass cooling water in excess of laboratory usage, blow-down or bleed water from cooling towers, other evaporating coolers, or commercial swimming pool water drainage shall not be discharged directly or indirectly to sewerage facilities except provides herein.

B. The TCWD may approve the discharge of such water when no alternate method of disposal or reuse is reasonably available or there is need to mediate an environmental risk or health hazard.

C. The discharge of such water shall require the following:

1. A Class IV Special Wastewater Discharge Permit or other control mechanism, and

2. Documentation from the user or user's consultant that all other alternate methods of disposal have been exhausted, and

3. User shall pay all applicable fees and charges and shall meet any other conditions as required by the TCWD.

514 MASS EMISSION LIMIT DETERMINATION

A. Mass emission limits for non-compatible and compatible wastes that are present or anticipated in the user's wastewater discharge may be set for each user and made an applicable part of each user's wastewater discharge permit or other control mechanism. These limits shall be based on Table I, local limits or national pretreatment standards and the user's average daily wastewater discharge for the past three (3) years, the most recent representative data, or other data acceptable by the TCWD.

B. To verify the user's operating data, the user may be required to submit an inventory of all wastewater streams and production data.

C. The TCWD may revise local limit concentration limits or mass emission limits previously established in the user's wastewater discharge permit or other control mechanism at any time, based on current and/or anticipated operating data, the ability to meet NPDES Limits, and/or changes in the requirements of regulatory agencies.

D. The increased use of water to establish an artificially high flow rate database for mass emission limit determinations is prohibited.

515 WASTEWATER STRENGTHS AND CHARACTERISTICS

A. No user shall discharge wastewater directly or indirectly to sewerage facilities with the following strengths and characteristics:

1. Having a temperature higher than 140 degrees Fahrenheit (60 degrees centigrade) or which causes the temperature at the influent to a wastewater treatment plant to exceed 104 degrees Fahrenheit (40 degrees centigrade).

2. Containing substances that may precipitate, solidify, or become viscous at temperatures between 50 degrees Fahrenheit (10 degrees centigrade) and 104 degrees Fahrenheit (40 degrees centigrade).

3. Containing materials which will readily settle or cause an obstruction to flow in sewerage facilities or be detrimental to the proper operation of a sewerage facility. These materials may include, but are not limited to, asphalt, dead animals, offal ashes, sand, mud, straw, industrial process shavings, metal, glass, rags, feathers, tar, plastics, wood, whole blood, bones, hair, coffee grounds, egg shells, flashings, diatomaceous earth, seafood shells, and paper products not intended for use in sewerage facilities.

4. Producing a gaseous mixture that is ten percent (10%) or greater of the lower explosive limit (LEL). Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, ketones, and alcohols.

5. Having a pH less than 5.0 or greater than 11.0.

6. Containing recognizable portions of human or animal anatomy.

7. Containing excessive flow, constituents or other materials, including but not limited to, biological oxygen demand, chemical oxygen demand, total organic carbon, toxic pollutants, suspended solids, grease and oil of animal or vegetable origin, total dissolved solids, detergents, surface active agents, phenolic compounds or other substances that are released in a discharge at a flow rate and/or concentration which will cause problems, pass-through or interference with sewerage facilities.

8. Containing PCBs in excess of 0.01 mg/L as a daily maximum.

9. Containing pesticides in excess of 0.01 mg/L as a daily maximum.

10. Violation of any applicable national pretreatment standards, state standards, or other local regulations covering wastewater disposal.

516 SPECIFIC LOCAL LIMITS

A. TCWD in coordination with SOCWA is authorized to establish local limits pursuant to 40 CFR 403.

B. No user shall discharge directly or indirectly a quality or quantity of wastes or wastewater containing toxic pollutants, non-compatible or compatible wastes in excess of table I, specific local limits. All local limits for the metal pollutants are for "total" amount analyzed, unless indicated otherwise.

Table I - Specific Local Limits

Pollutant	Limit (mg/L
Arsenic	3.4
Cadmium	0.93
Chromium	4.9
Copper	7.2
Lead	4.9
Mercury	0.19
Nickel	9.5
Silver	2.8
Zinc	7.9
Cyanide	4.3
Oil and Grease	300

C. Local limits are subject to more stringent standards as established by national pretreatment standards. Local limits are deemed to be pretreatment standards for the purposes of Section 307(d) of the Act, and are enforceable under Section 309 of the Act, potentially subjecting an IU to a penalty of $25,000 per day for each violation.

D. The TCWD may place more stringent standards within any wastewater discharge permit or other control mechanism issued to a user at any time, based on current and/or anticipated operating conditions presented in the wastewater discharge permit application, the ability to meet NPDES permit limits, and/or changes in the requirements of regulatory agencies.

E. TCWD may develop Best Management Practices (BMP's) for use in any wastewater discharge permit or other control mechanism to implement local limits and the requirements contained in this ordinance.

517 STATE REQUIREMENTS

Upon the adoption of any state requirements on user discharges that are more stringent than federal requirements or the limitations contained in this ordinance, that state standard shall then immediately supersede the federal standard and the limitations of this ordinance.

518 FEDERAL REQUIREMENTS

A. Upon adoption of a national pretreatment standard more stringent than those contained in this ordinance, the federal standard shall immediately supersede the limitations listed in this ordinance and the affected significant industrial users shall be notified of the new standards and applicable reporting requirements.

B. The significant industrial user shall comply with the national pretreatment standard within the time provided in the federal regulations that establish such standards even if their wastewater discharge permit has not yet been modified to incorporate the new requirement or standard.

C. The significant industrial user shall comply with any applicable requirements under Sections 204(b) and 405 of the Act and Subtitles C and D of the RCRA.

ARTICLE 6
WASTEWATER DISCHARGE PERMITS

601 WRITTEN AUTHORIZATION

A. Users may be required to obtain written authorization to use sewerage facilities. This written authorization may be in the form of a wastewater discharge permit or other control mechanism issued by the TCWD. No vested right shall be given or be granted by issuance of wastewater discharge permit or other control mechanism as provided for in this ordinance.

B. When written authorization is granted, all the types of wastewater discharge permits and any other control mechanisms shall be expressly subject to all provisions of this ordinance and all other regulations, charges for use and fees established by the TCWD. The requirements contained in wastewater discharge permits or other control mechanisms are subject to enforcement under this ordinance and under state and federal law.

C. All users that have obtained written authorization shall discharge their process wastewater only as provided for by their wastewater discharge permit or other control mechanism.

D. Compliance with wastewater discharge permit or other control mechanism provisions does not relieve the user from complying with any other applicable federal, state or local requirement.

602 TYPES OF WASTEWATER DISCHARGE PERMITS

A. The wastewater discharge permit may be in one of four (4) types and is dependent upon process, volume and pollutant characteristics of the users discharge. The four types of wastewater discharge permits are:

1. Class I – Wastewater Discharge (WD) Permit
2. Class II – Wastewater Discharge (WD) Permit
3. Class III – Wastewater Discharge (WD) Permit
4. Class IV – Special Wastewater Discharge (SWD) Permit

603 TRANSFER PROHIBITION

Wastewater discharge permits issued under this ordinance are for a specific user, for a specific operation at a specific location. Wastewater discharge permits shall not be transferred for an operation at a different location.

604 CHANGE OF OWNERSHIP

A. Upon the sale or transfer of ownership of any business operating under a wastewater discharge permit issued by the TCWD, the user shall notify the TCWD in writing prior to the change of ownership. The successor owner shall be required to apply for a new wastewater discharge permit prior to the sale or transfer of ownership.

B. In the event that the original owner fails to notify the TCWD of the sale or transfer of ownership than said original owner may be jointly liable for any charges incurred by the new owner.

C. This does not relieve the new owner of any liability for non-compliance with any federal, state, or local regulations or the provisions of this ordinance.

605 EXCESS CAPACITY REGULATORY FEE

New users or existing users that expand operations that require substantial sewerage facility capacity may be subject to an excess capacity regulatory fee in an amount and method to be solely determined by the TCWD on a case-by-case basis.

606 OUT OF SERVICE AREA WASTEWATER DISCHARGE PERMITS

Wastewater discharge permits for users located outside of the TCWD's service area but tributary to the TCWD's sewerage facilities shall only be issued after approval by the TCWD. Inspection and sampling of the user's discharge to determine compliance with discharge regulations will be made under a coordinated plan developed by the TCWD, SOCWA and the local sewering agency. The more stringent discharge regulations and effluent limitations of affected agencies shall apply to the user. The fees for use shall be determined by the TCWD and set forth in a multijurisdictional agreement.

607 REQUIRED INFORMATION

A. To provide for the equitable use of sewerage facilities, the TCWD shall have the right to require a user to provide all information necessary to maintain compliance with the provisions of this ordinance, including treatability studies to determine whether the wastewater would be compatible with all sewerage facilities. This information shall include, but is not limited to the following:

1. Wastewater discharge flow rates, peak flow rates and volume over any period of time.
2. Physical, chemical or bacteriological analysis of wastewater.
3. Information on raw materials, processes and products.
4. Quantity, disposition and waste manifests of specific liquids, sludge, oil, solvent or other materials.
5. Details of any pretreatment equipment.
6. Details of systems to prevent and control the loss of material through spills and slug discharges.
7. Review of all types of water bills.

608 CONFIDENTIAL INFORMATION

All user information and data on file shall be available to the public and governmental agencies without restriction, unless the user specifically requests and is able to demonstrate to the satisfaction of the TCWD that the release of such information would divulge information, processes of methods which would be detrimental to the user's competitive position. The demonstration of the need for confidentiality made by the user must meet the burden necessary for withholding such information from the general public under applicable state and federal law. Any such claim must be made at the time of submittal of the information by marking "Confidential Business Information" on each page containing such information within the submittal. Information, which is demonstrated to be confidential, shall not be transmitted to any governmental agency without prior notification to the user. Information concerning wastewater quality and quantity shall not be recognized as confidential information and shall be available to the public without reservation.

609 CLASS I - WASTEWATER DISCHARGE (WD) PERMIT

No user requiring a Class I WD Permit shall discharge wastewater without obtaining a Class I WD Permit. A Class I user, as determined by the TCWD, proposing to discharge directly or indirectly into a sewerage facility shall obtain a WD Permit by filing an application and paying any applicable fees before discharging.

610 CLASS II - WASTEWATER DISCHARGE (WD) PERMIT

No user requiring a Class II WD Permit shall discharge wastewater without obtaining a Class II WD Permit. A Class II user, as determined by the TCWD, proposing to discharge directly or indirectly into a sewerage facility shall obtain a WD Permit by filing an application and paying any applicable fees before discharging.

611 CLASS III - WASTEWATER DISCHARGE (WD) PERMIT

No user requiring a Class III WD Permit shall discharge wastewater without obtaining a Class III WD Permit. A Class III user, as determined by the TCWD, proposing to discharge directly or indirectly into a sewerage facility shall obtain a WD Permit by filing an application and paying any applicable fees before discharging.

612 CLASS IV - SPECIAL WASTEWATER DISCHARGE (SWD) PERMIT

A. No user requiring a Class IV SWD Permit shall discharge wastewater without obtaining a Class IV Permit. A Class IV user, as determined by the TCWD, proposing to discharge directly or indirectly into a sewerage facility shall obtain a SWD Permit by filing an application and paying any applicable fees before discharging.

B. The SWD Permit may be issued when no alternative method of disposal is reasonably available or to mitigate an environmental risk or health hazard.

C. A user proposing to discharge diverted urban nuisance water may be issued a nuisance special wastewater discharge (NSWD) permit only after they have completed the requirements contained in the "Nuisance Flow Diversion Policy."

D. A user proposing to discharge trucked or hauled wastes may be issued a hauled special wastewater discharge (HSWD) permit only after they have completed all requirements set forth by the TCWD on a case by case basis. All trucked or hauled waste users shall comply with the terms, conditions and limitation set forth in a HSWD Permit as determined by the TCWD to be necessary to protect sewerage facilities. A trucked or hauled waste user proposing to discharge waste into a TCWD sewerage facility may be required to obtain both a valid Orange County Health Department permit (where applicable) and a HSWD Permit prior to any discharge.

613 NON-INDUSTRIAL WASTEWATER DISCHARGE (NIWD) FORM

A. At the sole discretion of the TCWD, any user that is considered to have wastewater of no concern discharging to sewerage facilities may be classified as an NIWD user and issued an NIWD form.

B. Any user that has had a Class I, II, or III WD Permit that no longer has a discharge containing noncompatible wastes to the TCWD's sewerage facilities may be classified as an NIWD user and issued an NIWD form.

C. The main functions of the NIWD form are to assist in maintaining the TCWD's user survey data base and to track and verify by inspection any user that is considered to have wastewater of no concern discharging to sewerage facilities.

614 APPLICATION FOR WASTEWATER DISCHARGE PERMIT

A. Users required to obtain a WD Permit shall complete and file with the TCWD, prior to commencing discharge, if applicable, an application on a form prescribed by the TCWD.

B. Users seeking a WD Permit may be required to submit, in unit and terms appropriate for evaluation, the following information:

1. Name, address of the site, NAICS numbers (if applicable), and a description of the manufacturing process or service activity.

2. Name, address of any and all, (whichever is applicable) principals/owners/major share holders of company; articles of incorporation; most recent report of the Secretary of State and business license.

3. Flow, volume, time, duration and type of wastewater to be discharged.

4. Name, address and contact information of the individual who shall serve as the CAR.

5. Name and address of property owner, landlord and/or manager of the property.

6. Water supplier and water account numbers.

7. Wastewater constituents and characteristics as required or deemed necessary by the TCWD, including but not limited to, those mentioned in this ordinance. These constituents and characteristics shall be determined by a laboratory of the discharger approved by the TCWD, if applicable.

8. Number of employees and average hours of work per employee per day.

9. Waste minimization, best management practices and water conservation practices.

10. All production records, if applicable.

11. Waste manifests, if applicable.

12. Tons of cooling tower capacity, if applicable.

13. List of other environmental control permits and EPA Hazardous Waste Generator number, if applicable.

14. Application signed by the CAR of the user and contains the certification statement in Section 802 E.

15. Any other information as specified.

C. Users may be required to submit site floor, mechanical, plumbing, toxic organic management, and spill containment plans for evaluation.

D. After evaluation of the data furnished, the TCWD may issue a WD Permit, a NIWD Form or other control mechanism subject to the terms and conditions set forth in this ordinance and as otherwise determined by the General Manager to be necessary to protect sewerage facilities.

E. The WD Permit application may be denied if the user fails to establish to TCWD's satisfaction that adequate pretreatment equipment is included within the user's plans to ensure that the discharge limits will be met or if the user has, in the past demonstrated an inability to comply with applicable discharge limits or has in the past demonstrated an inability to keep current with invoices for items such as WD Permit fees, non-compliance fees, civil penalties, administrative civil penalties or charges for use.

615 APPLICATION FOR SPECIAL WASTEWATER DISCHARGE PERMIT

A. Users required to obtain a SWD Permit shall complete and file with the TCWD, prior to commencing discharge, if applicable, an application on a form prescribed by the TCWD.

B. Users seeking a SWD Permit may be required to submit, in unit and terms appropriate for evaluation, the following information:

1. Name, address and a description of the wastewater to be discharged.

2. Name, address and contact information of the individual who shall serve as the CAR.

3. Volume, time and duration of wastewater to be discharged.

4. Construction and plumbing plans if applicable.

5. Detailed analysis of the alternatives for wastewater disposal if applicable.

6. Wastewater constituents and characteristics as required or deemed necessary by TCWD, including but not limited to, those mentioned in this ordinance. These constituents and characteristics shall be determined by a laboratory selected by the user acceptable to the TCWD.

7. Any other data as specified.

C. Users may be required to submit site, mechanical, plumbing, toxic organic management, and spill containment plans for evaluation if applicable.

D. After evaluation of the information furnished, TCWD may issue a SWD Permit or other control mechanism subject to the terms and conditions set forth in this ordinance and as otherwise determined by the General Manager to be necessary to protect sewerage facilities.

E. In the case of diverted urban nuisance water, after evaluation of the information furnished, TCWD may issue a NSWD Permit, subject to the terms and conditions set forth in this ordinance and the "Nuisance Flow Diversion Policy" as otherwise determined by the General Manager to be necessary to protect sewerage facilities.

F. The SWD Permit application may be denied if the user fails to establish to TCWD's satisfaction that adequate pretreatment equipment is included within the user's plans to ensure that the discharge limits will be met or if the user has, in the past demonstrated an inability to comply with applicable discharge limits or has in the past demonstrated an inability to keep current with invoices for items such as SWD Permit fees, non-compliance fees, civil penalties, administrative civil penalties or charges for use .

616. APPLICATION FOR NON-INDUSTRIAL WASTEWATER DISCHARGE (NIWD) FORM

A. Users meeting the criteria for a NIWD form, may be asked to complete and file with the TCWD an application on a form prescribed by the TCWD.

B. Information on users that meet the criteria for a NIWD form may be obtained solely by the TCWD during site inspections or by other means.

C. After evaluation of the data furnished by the user or from information collected solely by the TCWD an NIWD form may be issued.

617 WASTEWATER DISCHARGE PERMIT TERMS, CONDITIONS, AND LIMITATIONS

A. All wastewater discharge permits shall be expressly subject to all terms, conditions, and limitations of this ordinance, other regulatory agencies, Best Management Practices, charge for use, and fees established by the TCWD. The terms' conditions, and limitations in a wastewater discharge permit are subject to enforcement by the TCWD in accordance with this ordinance, and applicable state and federal regulations. Any wastewater discharge permit violation shall be a violation of this ordinance.

B. The terms, conditions and limitations of any issued wastewater discharge permit may be subject to modification and changes by the TCWD during the life of the wastewater discharge permit based on:

1. The discharger's current or anticipated operating data.

2. The TCWD's current or anticipated operating data.

3. Changes in the requirements of regulatory agencies.

C. Users may request a modification to the terms, conditions and limitations of an issued wastewater discharge permit. The request shall be in writing stating the requested change, and the reasons for the change. The TCWD shall review the request, make a determination and respond in writing. A request for a wastewater discharge permit modification does not relieve a user from complying with its existing wastewater discharge permit terms, conditions and limitations.

D. Any changes to the terms, conditions, limitations in a wastewater discharge permit shall include a reasonable time schedule for compliance where allowed under applicable federal, state and local law.

E. A wastewater discharge permit may contain any, but is not limited to, the following terms, conditions and limitations:

1. Effluent limits, including mass emission rates, concentration limits or best management practices based on applicable pretreatment standards for regulating pollutants.

2. Discharge limits based upon the combined wastestream formula (CWF).

3. Limits on rate and time of discharge or requirements for flow regulation and equalization.

4. Requirements for the user to make notification in writing prior to the physical expansion or any change to any wet processes. Notification is also required in the event of changes in production if production-based limits are being applied.

5. Requirements for the user to construct and maintain, at the user's own expense, pH control, flow monitoring and/or sampling equipment and/or structures.

6. Requirements for submission of technical reports, discharge reports and waste manifests.

7. Location of sampling point(s) and the requirements to self-monitor.

8. Requirements for maintaining plant records relating to wastewater discharge and waste manifests as specified by the TCWD.

9. Predetermined rates or values for wastewater strength characteristics.

10. Requirements to submit copies of water bills.

11. Other provisions which may be applicable to ensure compliance with this ordinance.

12. Other terms, conditions and limitations determined by the TCWD to be necessary to protect sewerage facilities.

13. Predetermined rate or value for BOD and suspended solids.

14. Requirements for notification of bypass discharges.

15. Requirements for notification of any new introduction of wastewater constituents or any substantial change in the volume or character of wastewater constituents.

16. Requirements to meet compliance schedules.

17. Requirements for the user to control slug discharges by developing and implementing a slug discharge control plan if determined by the TCWD to be necessary as described in 40 CFR 403.8(f)(1)(iii)(B)(6).

18. Requirements for the user to control toxic organic discharges by developing and implementing a toxic organics management plan if determined by the TCWD to be necessary.

618 WASTEWATER DISCHARGE PERMIT DURATION

All wastewater discharge permits shall not exceed a duration of five (5) years. Any wastewater discharge permit may be issued for a shorter period of time at the sole discretion of the TCWD.

619 WASTEWATER DISCHARGE PERMIT RENEWAL

A. The user may file a new application prior to the expiration date of any existing wastewater discharge permit for renewal.

B. Discharge after the termination date of a wastewater discharge permit is prohibited except:

1. If the user filed a timely application which is complete, and:

2. The TCWD, through no fault of the user, does not issue a new wastewater discharge permit with an effective date on or before the expiration date of the previous wastewater discharge permit.

620 TCWD'S RIGHT OF REVISION

A. The TCWD reserves the right to establish, by ordinance, or by wastewater discharge permit or by Best Management Practices, or by any other control mechanism more stringent standards or requirements on the discharge of users to sewerage facilities

B. The terms, conditions and limitations contained in any wastewater discharge permit, Best Management Practices or other control mechanism may be modified by TCWD at any time. This modification shall be by written notification to the user.

ARTICLE 7
PRETREATMENT EQUIPMENT REQUIREMENTS

701 PRETREATMENT

A. All pretreatment equipment or devices may be reviewed by the TCWD. Such review shall not absolve the user of any responsibility of meeting prohibitions, limitations, requirements, standards and local limits on discharges.

B. User shall provide wastewater treatment as necessary which may include, but is not limited to, the use of best available technology (BAT) or best practicable technology (BPT) concepts to comply with this ordinance and shall achieve compliance with all prohibitions, limitations, standards and local limits before discharging to any sewerage facility. Any equipment required to pretreat, sample, control or transport wastewater shall be provided and maintained in proper operating condition at all times at the user's sole expense.

C. User may be required to submit waste analysis plans, contingency plans, and meet other requirements to ensure proper operation of pretreatment equipment and compliance with their wastewater discharge permit limits and this ordinance.

D. No user shall increase the use of water or in any other manner attempt to dilute a discharge as a partial or complete substitute for treatment to achieve compliance with this ordinance a wastewater discharge permit or other control mechanism.

702 SPILL CONTAINMENT

A. Each user shall provide spill containment for protection against the discharge of prohibited materials or other wastes regulated by this ordinance. This protection shall be designed in accordance with reasonable engineering standards to secure the discharges and to prevent them from entering into a sewerage facility. This equipment shall be provided and maintained at the user's sole expense.

B. If it can be shown that a user's spill containment equipment did not prevent a discharge which caused the TCWD to violate its requirements, incur additional operational expenses, or suffer loss or damage to sewerage facilities, that user shall be responsible for any costs or expenses, including assessment by other agencies or any costs incurred by the TCWD.

C. A notice may be permanently posted on the user's bulletin board or other prominent place advising employees who to call in the event of a prohibited discharge. Employers shall ensure that all employees who may cause or suffer such a prohibited discharge to occur are advised of the emergency notification procedure.

703 MONITORING AND METERING EQUIPMENT

A. The user may be required to construct and maintain in proper operating condition at the user's sole expense, flow and/or constituent monitoring and/or sampling equipment.

B. Any sample taken from a user's sample point shall be considered to be representative of the discharge to sewerage facilities.

C. Monitoring or metering equipment may be required to include a security enclosure that can be locked with a TCWD provided lock during any sampling and monitoring periods.

D. Location of the monitoring or metering equipment shall be subject to approval by the TCWD.

E. The TCWD shall be provided clear and uninterrupted access to monitoring or metering locations.

F. When one or more users discharge into a sewerage facility, those users may be required to install a separate monitoring location for each user. Also in the judgment of the TCWD, if there is a significant difference in wastewater constituents and characteristics produced by different operations of a single user, that user may be required to install separate monitoring locations for each operation. Separate monitoring may also be required for different processes subject to categorical pretreatment standards.

G. Users with the potential to discharge flammable solutions may be required to install and maintain at their sole expense a combustible gas detection meter.

H. All wastewater samples shall be representative of the user's discharge. Wastewater monitoring and flow measurement equipment shall be operated, kept clean, and maintained in good working order at all times. Failure by the user to keep its monitoring equipment in good working order shall not be grounds for the user to claim that sample results are unrepresentative of its discharge.

704 DRAWING SUBMITTALS

A. Detailed plans of any proposed construction of pretreatment, spill containment, monitoring and metering equipment and operating procedures shall be submitted for review by the due date contained within a written request from the TCWD.. The review of the plans and procedures shall in no way relieve the user of the responsibility of modifying the equipment or procedures in the future as necessary to meet the requirements of this ordinance or any other requirement of other regulatory agencies.

B. All drawings shall include:

1. North arrow.
2. Scale size.
3. User name and address.
4. Date drawn or revised.
5. Location of proposed pretreatment, spill containment, monitoring and metering equipment.

C. The TCWD may require drawings to scale depicting the manufacturing process (waste generating source), spill containment, pretreatment, and/or monitoring or metering equipment.

D. The TCWD may require a schematic drawing of the pretreatment, spill containment, monitoring and metering equipment.

E. The TCWD may require the drawings be prepared by a California registered chemical, mechanical, or civil engineer.

705 WASTE MINIMIZATION, RECYCLING, AND TREATMENT

A. User shall provide waste minimization plans to conserve water, investigate product and/or materials substitution, maintain inventory control records and implement employee education, and other steps as necessary to minimize waste produced by the due date contained within a written request from the TCWD.

B. Waste minimization, recycling and treatment shall be demonstrated wherever feasible in the following priority:

1. Source reduction which includes, but is not limited to, substitution of less hazardous materials, spill prevention and control measures, proper storage and handling of chemicals and raw materials.
2. Recovery and reuse which includes, but is not limited to, substitution of less hazardous materials, spill prevention and control measures, proper storage and handling of chemicals and raw materials.
3. Treatment that includes, but is not limited to, pretreatment techniques as to render hazardous wastes harmless or suitable for disposal to sewerage facilities.

ARTICLE 8
INSPECTION, MONITORING, SAMPLING, NOTIFICATION, AND REPORTING REQUIREMENTS

801 INSPECTION AND MONITORING

A. The TCWD may inspect and sample the wastewater generating and disposal equipment of any user's site to ascertain whether the requirements of this ordinance are being met and the user is complying with all requirements.

B. Where a user has instituted security measures requiring proper identification and clearance before entry onto the premises, the user shall make all necessary arrangements with its security in order that the inspectors of the TCWD shall be allowed to enter the premises without delay for the purpose of performing their authorized duties.

C. The TCWD shall have the right to set up on the user's property or any other locations, as determined by the TCWD, such devices as are necessary to conduct sampling or metering operations of the user's discharge to sewerage facilities.

D. In order for the TCWD to determine the wastewater characteristics of a discharge for compliance with this ordinance, wastewater discharge permit, or other control mechanism requirements, the user may be required to make available for inspection and copying all records including, but not limited to, production records, required self-monitoring and chain of custody records, any additional records of information obtained pursuant to monitoring activities undertaken by the user independent of such requirements, documents associated with Best Management Practices and waste manifests without restriction, but subject to the confidential provisions set forth in this ordinance. All records shall be maintained by users for a minimum of three (3) years. This period shall be automatically extended for the duration of any litigation concerning the user, or where the user has been notified by written request from the TCWD. Such records shall be made available to the TCWD upon request.

E. Any temporary or permanent obstruction to safe and easy access to the user's site to be inspected and/or sampled shall be promptly removed by the user at the written or verbal request of the TCWD and shall not be replaced. The costs of cleaning such access shall be at the sole expense of the user.

F. Inspection and/or sampling of any user's site shall be conducted at any time, by any means, in any amount, at any location, on any limit, requirement or pollutant in a manner and frequency as determined at the sole discretion of the TCWD.

802 SELF-MONITORING AND REPORTING

A. Self-monitoring of wastewater pollutants, constituents and characteristics of the user needed for determining compliance with any limitations and requirements as specified in the user's wastewater discharge permit, federal regulations, or this ordinance may be required. The self-monitoring requirement, frequency, forms and reporting shall be set forth in the user's wastewater discharge permit or other control mechanism. These reports may include, but are not limited to, the following:

1. Baseline monitoring reports (BMR's).
2. Compliance schedule progress reports.
3. 90-day compliance reports.
4. Self-monitoring reports contained monitoring and analysis to demonstrate continued compliance as described in 40 CFR 403.12(g)(1-6).
5. Other reports as required by the TCWD, other regulatory agencies or applicable law.

B. Failure by the user to perform any self-monitoring or reporting required by the TCWD shall be a violation of this ordinance, and is deemed to be a violation for each parameter and each day in the time period for which monitoring was required, and cause for the TCWD to initiate all necessary tasks and analysis to determine the wastewater pollutants, constituents and characteristics for any limitations and requirements specified in the user's wastewater discharge permit or in this ordinance. The user shall be responsible for any and all expenses incurred by the TCWD in undertaking such monitoring analysis and preparation of reports.

C. All users required to sample and analyze their wastewater shall use the sampling methods and the sampling locations as set forth in their wastewater discharge permit. For each sample collected and analyzed, the user shall maintain a record of:

1. Date, exact place, method and time of sampling and the name of the person taking the sample.

2. Date analysis performed.

3. Identity and address of the person who performed the analysis.

4. The analytical methods used.

5. Results of the analysis.

D. Samples taken shall be representative of conditions occurring during the reporting period. Users shall submit all monitoring data, even if user samples more frequently than required by its wastewater discharge permit. User is required to provide advance notice of any substantial change in the volume or character of pollutants in their discharge.

E. When required, all submitted applications and user reports shall be signed by the CAR as defined in this ordinance. Each application and any required user report shall contain the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Date: _____

Signature: _____

Print Name: _____

Title: _____

User Name: _____

User Site Address: _____

User Mailing Address: _____

Phone: _____

Permit No: _____

F. Self-monitoring reports shall be subject to the provisions of 18 U.S.C. Section 1001 relating to false statements and fraud and the provisions of Section 309(c)(2) of the Act governing false statements.

G. The analysis of a user's wastewater pollutants, constituents and characteristics shall be done by a laboratory approved by the TCWD.

H. If self-monitoring indicates a violation, the user shall notify the TCWD within 24 hours of becoming aware of the violation. The user shall repeat the sampling and analysis and submit the results of the repeat analysis to the TCWD within 30 days after becoming aware of the violation~~the repeat sampling event~~. Resampling by the user in not required if the TCWD performs the sampling at the user's site at least once a month, or if the TCWD performs sampling at the user between the time when the initial sampling was conducted and the time when the user or the TCWD receives the results of the sampling, or if the TCWD has preformed the sampling and analysis in lieu of the user.

I. The analysis of wastewater pollutants, constituents and characteristics and the preparation of the self-monitoring report shall be done at the sole expense of the user.

J. The user shall establish and maintain a sample point on each discharge line at a location representative of the discharge to sewerage facilities. The maintenance of any sample point equipment shall be done at the sole expense of the user. Any sampling location shall be set forth in the user's wastewater discharge permit.

K. Any user subject to the reporting requirements of this ordinance shall retain all records of monitoring activities and results for a minimum of three (3) years and shall make them available to the TCWD upon request. The TCWD may require a longer period of retention if litigation is being considered or has resulted.

L. Any user subject to self-monitoring reporting requirements may be required to submit self-monitoring reports on forms approved by the TCWD.

M. Any user determined to be a non-significant categorical industrial user (NSCIU) by the TCWD pursuant to Section 202.B.87.c. and 808.B shall annual submit the following certification statement signed by the CAR as defined in this ordinance. This certification shall accompany an alternative report required by SOCWA:

"Based on my inquiry of the person or persons directly responsible for managing compliance with categorical pretreatment standards under 40 CFR ___, I certify that, to the best of my knowledge and belief that during the period from January 1, ____ to December 31, ___:

(a) The facility described as _____ met the definition of non-significant categorical industrial user as described in Section 202.B.87.c.;

(b) The facility complied with all applicable pretreatment standards and requirements during this reporting period; and (c) the facility never discharged more then 100 gallons of total categorical wastewater on any given day during this reporting period.

Date: _____

Signature: _____

Print Name: _____

This compliance certification is based on the following information.

_____

_____

803 REPORT OF SPILL, SLUG DISCHARGE, BATCH DUMPING, OR UPSET

A. In the event the user is unable to comply with any of the wastewater discharge permit conditions due to a breakdown of equipment, accidents caused by human error, or intentional action by any party, or acts of God, or any other cause, the discharger shall notify the TCWD as soon as possible of any spill, slug discharge, batch dumping or upset.

B. Confirmation of this notification shall be made in writing within five (5) working days of the original notification unless waived by the TCWD. The written notification shall contain:

1. Date of the incident.

2. Reason for the spill, slug discharge, batch dumping or upset.

3. The steps that were taken to immediately correct the problem.

4. The steps that are being taken to prevent the problem from recurring.

5. Any other information the TCWD deems relevant.

C. Such notification shall not relieve the user of any expense, loss, damage, liability or fees which may be incurred as a result of damage or loss to sewerage facilities or any damage or loss to persons or property. Such notification shall never relieve the user from any fees or liability that may be imposed by this ordinance, other regulatory agencies or other applicable law.

D. Significant industrial users shall notify the TCWD immediately of any changes at its site affecting the potential for a spill, slug discharge, batch dumping or upset.

804 REPORTING OF BY-PASS

A. By-pass of industrial wastewater through the pretreatment equipment to sewerage facilities is prohibited. Enforcement action may be taken against the user, unless:

1. By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage, and

2. There were no feasible alternatives to the by-pass, such as the use of auxiliary treatment equipment, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass which occurred during normal periods of equipment downtime or preventative maintenance, and

3. The user submitted notice as required by this ordinance, or;

4. The bypass did not exceed user discharge limits and was required for essential maintenance.

B. If a user knows in advance of the need for a by-pass, it shall submit prior notice to the TCWD at least ten (10) days before the date of the by-pass.

C. The TCWD may approve an anticipated by-pass after considering its adverse effects, if the TCWD determines that it will meet the conditions listed within this section.

D. A user shall submit notice of an unanticipated by-pass that exceeds their wastewater discharge permit limitation to the TCWD within 24 hours from the time the user becomes aware of the by-pass. A written report shall also be provided within five (5) working days of the time the permittee becomes aware of the by-pass. The report shall contain:

1. Description of the by-pass and its cause.

2. Duration of the by-pass, including exact dates and times.

3. Anticipated time it is expected to continue if the by-pass has not been corrected.

4. Steps taken or planned to reduce, eliminate, and prevent recurrence of the by-pass.

E. Failure to submit notice and/or written report may be grounds for wastewater discharge permit suspension or revocation. Failure to provide timely notice under Section 804 D. is deemed a waiver of the bypass defense for the user violation.

F. Such notification shall not relieve the user of any expense, loss, damage, or other liability which may be incurred as a result of damage or loss to sewerage facilities or any other damage or loss to person or property. Such notification shall never relieve the user from any fees or liability that may be imposed by this ordinance or other applicable law.

805 BASELINE MONITORING REPORTS (40 CFR 403.12(b))

A. Within either one hundred eighty (180) days after the effective date of a categorical standard or the final administrative decision on a category determination under 40 CFR 403.6(a)(4), whichever is later, an existing categorical industrial user currently discharging to or scheduled to discharge shall submit to the TCWD a report containing the information listed below. At least ninety (90) days prior to commencement of discharge, new sources, and sources that become categorical industrial users subsequent to the promulgation of an applicable categorical standard shall submit to the TCWD a report containing the information listed below. A new source shall report the method of pretreatment it intends to use to meet applicable categorical standards. A new source also shall give estimates of its anticipated flow and quantity of pollutants to be discharged. The baseline monitoring report shall include, but is not limited to, the following:

1. Identifying information. The name and address of the site, including the name of the operator and owner.

2. Permits. A list of any environmental control permits held by or for the site.

3. Description of Operations. A brief description of the nature, average rate of production, and standard industrial classification of the operation(s) carried out by such industrial user. This description should include a schematic process diagram, which indicates points of discharge to sewerage facilities from the regulated processes.

4. Flow Measurements. Information showing the measured average daily and maximum daily flow, in gpd, to sewerage facilities from regulated process streams and other streams as necessary.

5. Measurement of Pollutants. The categorical pretreatment standards applicable to each regulated process and the results and analysis identifying the nature and concentration, and/or mass, where required by the standard or by the TCWD, of regulated pollutants in the discharge from each regulated process. Instantaneous, daily maximum, and long-term average concentrations, or mass where required, shall be reported. The sample shall be representative of daily operations. In cases where the standards requires compliance with a BMP or pollution prevention alternative, the industrial user shall submit documentation as required by the TCWD or the applicable standards to determine compliance with the standard.

6. Certification. A statement, reviewed by the user's CAR and certified by a qualified professional, indicating whether pretreatment standards are being met on a consistent basis, and if not, whether additional operation and maintenance (O&M) and/or additional pretreatment is required to meet the pretreatment standards and requirements.

7. Compliance schedule. If additional pretreatment and/or O&M will be required to meet the pretreatment standards, the shortest schedule by which the industrial user will provide such additional pretreatment and/or O&M. The completion date in this schedule shall not be latter than compliance date established for the applicable pretreatment standard.

8. Signature and certification. All monitoring reports shall be signed and certified in accordance with Section 802 E. of this ordinance.

806 REPORT ON PROGRESS IN MEETING COMPLIANCE SCHEDULES(40 CFR 403.12(c))

A. All Class I users required to submit compliance schedules shall report their progress no later than fourteen (14) days after each due date contained in their compliance schedule.

B. The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the user to comply with the applicable pretreatment standards.

C. No increment referred to above shall exceed nine (9) months.

D. In no event shall more than nine (9) months elapse between progress reports to the TCWD.

807 REPORT ON COMPLIANCE WITH CATEGORICAL PRETREATMENT STANDARDS DEADLINE (40 CFR 403.12(d))

A. Within ninety (90) days following the date for final compliance with the applicable categorical standards or within ninety (90) days of the introduction of wastewater into sewerage facilities, the affected user shall submit a report containing the information listed below. This report shall include, but is not limited to the following:

1. Flow Measurements. Information showing the measured average daily and maximum daily flow, in gpd, to sewerage facilities from regulated process streams and other streams.

2. Measurement of Pollutants. The categorical pretreatment standards applicable to each regulated process and the results and analysis identifying the nature and concentration, and/or mass, where required by the standard or by the TCWD, of regulated pollutants in the discharge from each regulated process. Instantaneous, daily maximum, and long-term average concentrations, or mass where required, shall be reported. The sample shall be representative of daily operations.

3. Certification. A statement, reviewed by the user's CAR and certified by a qualified professional, indicating whether pretreatment standards are being met on a consistent basis, and if not, whether additional operation and maintenance (O&M) and/or additional pretreatment is required to meet the pretreatment standards and requirements.

4. Signature and certification. All monitoring reports shall be signed and certified in accordance with Section 802 E. of this ordinance.

808. PERIODIC COMPLIANCE REPORT

A. All Class I users subject to federal pretreatment standards (except a non-significant categorical user) as a minimum shall submit reports containing the information required in 40 CFR 403.12 during the months of June and December, or as required in their wastewater discharge permit or other control mechanism.

B. A Class I user determined to be a non-significant categorical industrial user by the SMWD pursuant to Section 202.B.867.c. shall annually submit a report containing information as required in their wastewater discharge permit or other control mechanism.

C. All users may be required to submit periodic compliance reports containing information as required in their wastewater discharge permit, other control mechanism or as required by the TCWD.

809 RIGHT OF ENTRY

TCWD shall have the right to enter the premises of any user to determine whether the user is complying with the requirements of this ordinance and any individual wastewater discharge permit, other control mechanism or order issued hereunder. Users shall allow the TCWD ready access to all parts of the premises for the purpose of inspection, sampling, records examination and copying, and the performance of any other duties.

810 ANALYTICAL REQUIREMENTS

All pollutant analyses, including sampling techniques, to be submitted as part of a wastewater discharge permit application or report shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto, unless otherwise specified in an applicable categorical pretreatment standard. If 40 CFR Part 136 does not contain sampling or analytical techniques for the pollutant in question, or where the EPA determines that the Part 136 sampling and analytical techniques are inappropriate for the pollutant in question, sampling and analyses shall be performed by using validated analytical methods or any other applicable sampling and analytical procedures, including procedures suggested by the TCWD or other parties approved by the EPA.

811 SAMPLE COLLECTION

A. Samples collected by the user to satisfy reporting requirements contained in this ordinance, their wastewater discharge permit or other control mechanism shall be based on data obtained through appropriate sampling and analysis performed during the period covered by the report, based on data that is representative of conditions occurring during the reporting period.

B. Except as indicated in Section 811.C. and 811.D. below, the user shall collect wastewater samples using 24-hour flow-proportional composite sampling techniques, unless time-proportional composite sampling of grab sampling is authorized by TCWD. Where time-proportional composite sampling or grab sampling is authorized by the TCWD, the samples shall be representative of the discharge. Using protocols specified in 40 CFR 136 and appropriate EPA guidance, multiple grab samples collected during a 24-hour period may be composited prior to the analysis as follows: for cyanide, total phenols and sulfides the samples may be composited in the laboratory or in the field; for volatile organics and oil and grease, the samples may be composited in the laboratory. Composite samples for other parameters unaffected by the compositing procedures as documented in approved EPA methodologies may be authorized by the TCWD, as appropriate. In addition, grab samples may be required at any time to show compliance with instantaneous discharge limits.

C. Samples for analysis of oil and grease, temperature, pH, cyanide, total phenols, sulfides, and volatile organic compounds shall be obtained using grab sample collection techniques.

D. For sampling required in support of baseline monitoring and 90-day compliance reports required by this ordinance and 40 CFR 403.12(b) and (d), a minimum of four (4) grab samples shall be used for pH, cyanide, total phenols, oil and grease, sulfide and volatile organic compounds for users for which historical sampling data do not exist; for users for which historical sampling data are available, The TCWD may authorize a lower minimum. For reports required by this ordinance and 40 CFR 403.12(e) and (h), the user shall collect the number of grab samples necessary to assess and assure compliance with applicable pretreatment standards and requirements.

812 TIMING

Reports shall be deemed to have been submitted on the date postmarked. For reports that are not mailed or delivered with postage prepaid, the date of receipt of the report shall govern.

813 NOTIFICATION OF CHANGED DISCHARGE

All users that have been issued a wastewater discharge permit shall notify the TCWD in advance of any substantial change in the volume or character of pollutants in their discharge in accordance with 40 CFR 403.12(j)

814. NOTIFICATION OF THE DISCHARGE OF HAZADOUS WASTE (40 CFR 403.12(p)(1)

A. The industrial user shall notify the TCWD, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into sewerage facilities of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than one hundred (100) kilograms of such waste per calendar month to sewerage facilities, the notification shall also contain the following information to the extent such information is known and readily available to the industrial user: An identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve (12) months. All notifications must take place no later than one hundred and eighty (180) days after a discharge to sewerage facilities commences. Any notification under this section need be submitted only once for each hazardous waste discharged. However, notifications of changed discharges must be submitted under Section 813 of this ordinance and as listed in 40 CFR 403.12(j). The notification requirement in this section does not apply to pollutants already reported under the self-monitoring requirements of Sections 805, 807 and 808 of this ordinance and as listed in 40 CFR 403.12(b), (d), and (e).

B. Dischargers are exempt from the requirements of Section 814. A., above, during a calendar month in which they discharge no more than fifteen (15) kilograms of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e). Discharge of more than fifteen (15) kilograms of non-acute hazardous wastes in a calendar month, or of any quantity of acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e), requires a one-time notification. Subsequent months during which the industrial user discharges more than such quantities of any hazardous waste do not require additional notification.

C. In the case of any new regulations under Section 3001 of RCRA identifying additional characteristics of hazardous waste or listing any additional substance as a hazardous waste, the industrial user must notify the TCWD, the EPA Regional Waste Management Waste Division Director, and State hazardous waste authorities of the discharge of such substance within ninety (90) days of the effective date of such regulations.

D. In the case of any notification made under this section, the industrial user shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.

E. This section does not create a right to discharge any substance not otherwise permitted to be discharged by this ordinance, a permit issued thereunder, or any applicable Federal or State law.

ARTICLE 9
ENFORCEMENT

901 ENFORCEMENT SCOPE

A. The TCWD finds that in order for it to comply with the laws, regulations, and rules imposed upon it by regulatory agencies and to ensure that sewerage facilities and treatment processes are protected and are able to operate with the highest efficiency, specific enforcement provisions must be adopted to regulate discharges from industrial users.

B. The TCWD is willing to cooperate with all users on improvements in wastewater quality, yet must be in a position to ensure that uncooperative users shall comply with this ordinance and any conditions set forth in a wastewater discharge permit.

C. The TCWD intends to ensure that all interested parties are afforded due process of law and that any noncompliance or violation is resolved as soon as possible. . Enforcement shall be guided by the ERP, adopted by TCWD/SOCWA as Resolution No. 2009-02.

D. All users have a right of appeal pursuant to the procedures set forth in this ordinance.

E. Each non-compliance or violation per day and each day of noncompliance or violation shall be taken as a separate noncompliance or violation for determining the amount of fees, charges, fines or penalties and/or which enforcement actions may be taken. A violation of a weekly average is considered seven (7) days of violation for that parameter and a violation of a monthly average is based upon the number of days in that month. A violation of multiple parameters caused by a single operational upset is considered one violation.

F. The issuance or exercise of any type of an enforcement action provided for under this ordinance shall not be a bar against, or a prerequisite for, taking any other or additional enforcement action against a user under this ordinance or any other local, state or federal law. The remedies provided for in this ordinance are not exclusive and the TCWD is empowered to take more then one enforcement action against any noncompliant user.

902 NOTICE OF NONCOMPLIANCE (NON)

A. In the event that it is determined that a user is in noncompliance with any provision of this ordinance, or the terms, conditions and limitations of its wastewater discharge permit, the TCWD may issue a NON form, whereby the user shall comply with all directives, conditions and requirements therein within the time prescribed.

B. The issuance of a NON form may contain terms and conditions including, but not limited to, installation of pretreatment equipment, sampling structures, submittal of drawings or technical reports, payment of fees or administrative fines, limits on rate and time of discharge or any other provisions to ensure compliance with this ordinance and the user's wastewater discharge permit. This action is not a prerequisite to taking other or more severe enforcement actions.

903 NOTICE OF VIOLATION (NOV)

A. In the event that it is determined that a user has not responded to a NON form that was previously issued to them or that noncompliance of any pretreatment standards requires their immediate attention, the TCWD may issue a NOV form, whereby the user shall comply with all directives, conditions and requirements therein within the time prescribed.

B. The issuance of a NOV form may contain terms and conditions including, but not limited to, installation of pretreatment equipment and facilities, submittal of drawings or technical reports, payment of fees, administrative fines, limits on rate and time of discharge or any other provisions to ensure compliance with this ordinance. This action is not a prerequisite to taking other or more severe enforcement action.

904 ADMINISTRATIVE ORDER (AO)

A. The AO is an enforcement document from the TCWD directing the noncompliant user to undertake or to cease specific activities required to bring the user into compliance with this ordinance or the terms, conditions and limitation of a wastewater discharge permit as determined by the TCWD. The terms and conditions of the AO are not negotiable by the user. The circumstances of a user's noncompliance may dictate which theme the administrative order will takes to achieve the earliest possible return to compliance by the user. AOs may include administrative complaints. Types of AOs may include, but are not limited to, the following:

1. Probation Order (PO)

   a. The PO directs the noncompliant user to achieve compliance by a date specified in the order. The PO is usually issued when a user is in non-compliance of this ordinance, or the terms, conditions and limitations of its wastewater discharge permit or other enforcement action, or has not made payment of all amounts owed to the TCWD which include, but are not limited to, any fees, charges, fines and/or penalties. This action is not a prerequisite t taking other or more severe enforcement actions.

2. Show Cause Order (SCO)

   a. The SCO directs the noncompliant user to appear at a formal meeting, usually at a TCWD location, to explain its noncompliance, and to show cause why more severe enforcement actions against the user should not go forward. This action is not a prerequisite to taking other or more severe enforcement actions.

3. Cease and Desist Order (CDO)

   a. The CDO directs the noncompliant user to cease illegal or unauthorized discharges immediately, or to terminate its discharge altogether. A CDO may be issued in situations where a particular discharge could cause interference or pass through, or threaten human safety or the environment. The CDO may be issued immediately upon discovery of the problem. In an emergency, a CDO may be issued by any means, however, such an order should be followed by a written CDO on the user. If necessary, the TCWD may order immediate cessation of any discharge to a sewerage facility, regardless of the user's compliance status. If a user fails to comply with the CDO, the TCWD may take any independent action to halt the discharge. This action is not a prerequisite to taking other or more severe enforcement actions.

905 WASTEWATER DISCHARGE PERMIT SUSPENSION OR REVOCATION

A. Grounds

1. The TCWD may suspend or revoke any wastewater discharge permit, but is not limited to the following, when it as determined that a user:

   a. Violated an administrative order.

   b. Provided a false statement, representation, record, report or other document to the TCWD.

   c. Refused to provide records, reports, plans or other documents required to determine wastewater discharge permit terms, conditions, or limitations, discharge compliance, or compliance with this ordinance.

   d. Discharged effluent that causes pass-through or interference with sewerage facilities.

   e. Falsified, tampered with, or knowingly rendered inaccurate any monitoring device or sample collection method.

   f. Discharged effluent that endangers human health or the environment.

   g. Failed to report significant changes in operations or wastewater constituents and characteristics.

   h. Failed to comply with the terms and conditions of any enforcement action.

i. Refused reasonable access to the permittee's premises for the purpose of inspection and monitoring.

j. Failed to make timely payment of any fees, charges, fines or penalties owed to the TCWD.

k. Violated any conditions or limitations of its wastewater discharge permit or any provision of this ordinance.

l. Discharged batch dumps to sewerage facilities not authorized or permitted by the TCWD.

B. Notice of Wastewater Discharge Permit Suspension/Revocation

1. When the TCWD has reason to believe that grounds exist for suspension/revocation of a wastewater discharge permit, written notice shall be given by certified mail to the user setting forth a statement of facts and grounds deemed to exist together with a description of the time and place where the charge shall be heard by the General Manager. The hearing date shall not be less than fifteen (15) days nor more than sixty (60) days after the mailing of such notice.

C. Hearing on Permit Suspension/Revocation

1. At the wastewater discharge permit suspension/revocation hearing, the user shall have an opportunity to respond to the allegations set forth in the notice. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the TCWD's General Counsel.

2. After the hearing, the General Manager's designee shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.

3. Upon receipt of the written report, the General Manager shall make his determination. Should he find that the grounds exist for suspension/ revocation of the wastewater discharge permit, he shall issue his decision and order, in writing within thirty (30) days after the hearing by his designee. A copy of the written decision shall be sent by personal delivery or certified mail to the user.

D. Effect of Wastewater Discharge Permit Suspension

1. Upon the issuance of an order of suspension by the General Manager, the user shall have no right to discharge any industrial wastewater, directly or indirectly to sewerage facilities for the duration of the suspension. All costs for physically terminating and reinstating service shall be paid by the user.

2. An order of wastewater discharge permit suspension issued by the General Manager shall be deemed final upon delivery to the user, unless appealed to the Board as specified in Section 913 of this ordinance.

E. Effect of Wastewater Discharge Permit Revocation

1. On the effective date of a wastewater discharge permit revocation being final, the user shall permanently lose all rights to discharge any industrial wastewater directly or indirectly to sewerage facilities. All costs for physical termination shall be paid by the user.

2. Each owner and employee of the user shall be bound by the order of wastewater discharge permit revocation.

3. Any future application from any user subject to an order of wastewater discharge permit revocation will only be considered by the TCWD after fully reviewing the records of revocation. Such records may be the basis for denial of a new wastewater discharge permit.

3. An order of wastewater discharge permit revocation issued by the General Manager shall be deemed final upon delivery to the user, unless appealed to the Board as specified in Section 913 of this ordinance.

906 TERMINATION OF SERVICE

The TCWD may physically terminate water or sewer service to any user that violates or continues to violate the provisions of this ordinance, a term of any order of suspension or revocation of a wastewater discharge permit or other control mechanism. All costs for physical termination shall be paid for by the user as well as all costs for reinstating services. Service may commence only after the user has satisfactorily demonstrated its ability to comply.

907 EMERGENCY SUSPENSION

A. The TCWD may suspend water or sewer service when such suspension is necessary, in order to stop an actual or impending discharge which presents or may present an imminent or substantial endangerment to the health and welfare of persons, to the environment, cause interference to sewerage facilities, or cause the TCWD to violate any state or federal law or regulation.

B. An emergency suspension order is final and has no right of appeal.

908 INJUNCTION

Whenever a discharge of wastewater is in violation of the provisions of this ordinance, the TCWD may petition the superior court for the issuance of a preliminary or permanent injunction, or both, as may be appropriate to restrain the continuance of such discharge.

909 CIVIL FINES AND PENALTIES

A. Authority.

1. All users of sewerage facilities are subject to administrative or judicial enforcement actions by the TCWD, EPA, Regional Water Quality Control Board or the District Attorney of Orange County. Actions may be taken pursuant to the authority and provisions of several laws, including but not limited to:

   a. Federal Water Pollution Control Act (Clean Water Act).

   b. California Porter-Cologne Water Quality Act (California Water Code).

   c. California Hazardous Waste Control Law.

   d. Resource Conservation and Recovery Act (RCRA).

B. Recovery of Fines or Penalties.

1. Payment of fines or penalties by the TCWD due to enforcement actions of other regulatory agencies based upon a violation by the TCWD whose cause can be established as the discharge of any user which is in violation of any provisions of this ordinance or a wastewater discharge permit shall entitle the TCWD to recover from the user all cost and expenses, including, but not limited to the full amount of fines and penalties which the TCWD has been subjected to.

2. Each violation shall constitute a new and separate violation and shall be subject to the fines and penalties contained herein.

C. Civil Liability

1. Pursuant to the authority of California Government Code Sections 54739-54740, any user, permittee, discharger or other person who violates any provision of this ordinance, any wastewater discharge permit condition, prohibition or effluent limitation, or any order, compliance schedule, suspension of revocation shall be civilly liable for a sum not to exceed twenty-five thousand dollars ($25,000) per violation for each day in which such violation occurs.

2. Pursuant to the authority of Act. 33 U.S.C. Section 1251 st seq., any user, permittee, discharger or other person who violates any provision of this ordinance, any wastewater discharge permit condition, prohibition or effluent limitation, or any order, compliance schedule, wastewater discharge permit suspension or revocation shall be civilly liable for a sum not to exceed twenty-five thousand dollars ($25,000) per violation for each day in which such violation occurs.

3. The TCWD may petition the superior court to impose, assess and recover penalties or other such penalties as the TCWD may impose, assess and recover pursuant to federal and/or state legislative authorization.

4. Notwithstanding any other provisions of law, all civil penalties imposed by the court for a violation of this ordinance shall be distributed to the TCWD.

5. Remedies under this section are in addition to and do not supersede or limit any and all other remedies, civil or criminal, but no liability shall be recovered under this section for any violation for which liability is recovered under Section 909 D. of this ordinance.

D. Administrative Complaint

1. Pursuant to the authority of California Government Code Sections 54740.5 and 54740.6, the TCWD may issue an administrative complaint to any user, permittee, discharger or other person who violates any provision of this ordinance, any wastewater discharge permit condition, prohibition or effluent limitation, or any administrative, suspension or revocation order or other control mechanism.

2. The administrative complaint shall be served by personal delivery or certified mail on such person and shall inform the person that a hearing shall be conducted, within sixty (60) days following service. The administrative complaint will allege the act or failure to act that constitutes the violation(s), set forth the provisions of law authorizing civil liability to be imposed and the proposed civil penalty. The matter shall be heard by the General Manager or his designee. The person to whom an administrative complaint has been issued may waive the right to a hearing, in which case a hearing shall not be conducted.

3. At the hearing, the person shall have an opportunity to respond to the allegations set forth in the administrative complaint by presenting written or oral evidence. The hearing shall be conducted in accordance with the procedures established by the General Manager and approved by the TCWD's General Counsel.

4. After the conclusion of the hearing, the General Manager's designee shall submit a written report to the General Manager setting forth a brief statement of the facts found to be true, a determination of the issues presented, conclusions and a recommendation. Upon receipt of the written report, the General Manager shall make his determination and should he find that grounds exist for assessment of a civil penalty, he shall issue his decision and order in writing within thirty (30) calendar days after the conclusion of the hearing. If not appealed, the order shall be final thirty-one (31) days after it is served on the person.

5. A person dissatisfied with the decision of the General Manager may appeal to the Board pursuant to Section 913 of this ordinance within thirty (30) days of notice of the General Manager's decision.

6. If, after the hearing or appeal, if any, it is found that the person has violated reporting or discharge requirements or other provisions of the this ordinance, the General Manager or Board may assess a civil penalty against that person.

7. In the determination of the amount of the civil penalty, all relevant circumstances may be taken into consideration, including, but not limited to, the extent of harm caused by the violation, the economic benefit derived through any non-compliance, the nature and persistence of the violations, the length of time over which the violation occurs and the corrective action(s), if any, attempted or taken by the person.

8. Civil penalties may be assessed as follows:

   a. In an amount which shall not exceed two thousand dollars ($2,000) for each day for failing or refusing to furnish technical or monitoring reports.

   b. In an amount which shall not exceed three thousand ($3,000) for each day for failing or refusing to timely comply with any compliance schedule

c. In an amount which shall not exceed five thousand dollars ($5,000) per violation for each day for discharges in violation of any waste discharge limitation, wastewater discharge permit condition, or requirement issued, reissued or adopted by the TCWD.

d. In an amount which does not exceed ten dollars ($10) per gallon for discharges in violation of any suspensions, cease and desist order or other orders, or prohibition issued, reissued or adopted by the TCWD.

9. Payment of civil penalties shall be due within thirty (30) days of the date of the order assessing the penalties becomes final. The amount of any administrative civil penalties imposed which have remained delinquent for a period of sixty (60) days from the date they are due shall constitute a lien against the real property of the discharger from which the discharge resulting in the imposition of the penalty originated. The lien shall have no force and effect until recorded with the county recorder and when recorded shall have the force and effect and priority of a judgment lien and continue for ten (10) years and be renewable in accordance with law.

10. Copies of the administrative order shall be served by personal service or by registered mail upon the party served with the administrative complaint and upon other persons who appeared at the hearing and requested a copy of the order.

11. Any party aggrieved by a final order issued by the Board after granting review of the order of the General Manager may obtain review of the order of the Board in the Superior Court, by filing in the court a petition for writ or mandate within thirty (30) days following the service of a copy of the decision and order issued by the Board.

12. Any party aggrieved by a final order issued by the General Manager, for which the Board denies review, may obtain review of the order of the General Manager in the Superior Court, by filing in the court a petition for writ of mandate within thirty (30) days following service of a copy of a decision and order denying review by the Board.

13. No administrative civil penalties shall be recoverable under this section for any violation for which civil liability is recovered under Section 909 C. of this ordinance.

910 CRIMINAL PENALTIES

A. Any person who violates any provision of this ordinance is guilty of a misdemeanor, which upon conviction is punishable by a fine not to exceed one thousand dollars ($1,000) or imprisonment for not more than thirty (30) days or both.

B. Each violation shall constitute a new and separate violation and shall be subject to the penalties contained herein.

911 PUBLIC NUISANCE

A. Discharge of wastewater in a manner that is in noncompliance or violation of this ordinance or of any order issued by the TCWD, in accordance with this ordinance, shall hereby be declared a public nuisance and shall be corrected or abated as directed by the TCWD.

B. Any person creating a public nuisance is guilty of a misdemeanor and is subject to the criminal penalties identified in Section 910 of this ordinance.

912 APPEALS TO THE GENERAL MANAGER

A. General

1. Any user affected by a decision, action or determination made by TCWD staff may file with the General Manager a written request for an appeal hearing.

2. Request must be made within fifteen (15) days of the mailing of the original decision.

3. Request for hearing shall set forth details of all facts supporting the appellant's request for hearing.

B. Notice

1. The General Manager shall, within fifteen (15) days of receiving the request for appeal provide written notice to the user of the hearing date, time, and place.

2. The hearing time shall not be more than thirty (30) days from the mailing of such notice by certified mail to the appellant unless a later date is agreed to by the appellant.

3. If the hearing is not held within the time set due to actions of the appellant, then the TCWD's decision shall be deemed final.

C. Hearing

1. The appellate shall have the opportunity to present information supporting its position concerning the TCWD's original decision, action or determination.

2. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the TCWD's General Counsel.

D. Written Determination

1. After the hearing the General Manager shall make a determination whether to uphold, modify or reverse original decision, action or determination as issued by TCWD staff.

2. This decision shall be put into writing within a brief statement of facts found to be true, the determination of the issues presented, and the findings.

3. The final determination of the General Manager upon his approval shall be executed as the order.

4. A copy shall be mailed or delivered to the appellant.

5. The order of the General Manager shall be final in all respects fifteen (15) days after it is mailed to the appellant, unless appealed under Section 913 of this ordinance.

E. Wastewater Discharge Permit Suspension/Revocation Appeals

1. Appeals regarding wastewater discharge permit suspension or revocation are covered under Section 905 and Section 913 as specified in this ordinance.

913 APPEALS TO THE BOARD

A. General

1. The user may, within thirty (30) days after the date of notification of the General Manager's order upholding the TCWD's determination, file a written appeal to the Board.

2. A fee of one hundred dollars ($100) shall accompany the written appeal which shall be refunded if the Board of Directors reverses or modifies the order of the General Manager.

3. A request for appeal to the Board shall set forth details of the past record and that new arguments cannot be raised on appeal to the Board that could have been, but were not, raised in the prior appeal to the General Manager.

4. Pending the hearing on appeal, the user shall not be entitled to discharge into sewerage facilities beyond the effective date of the original order determined by the General Manager, unless it has been determined by the General Manager that the user is pursuing good faith arguments and approves such discharge.

B. Notice

1. The Board Secretary, within fifteen (15) days of receiving the request for appeal, will provide written notice to the user of the hearing date, time and place.

2. The hearing date shall not be more than forty-five (45) days from the mailing of such notice by certified mail to the appellate unless a later date is agreed to by the appellant.

3. If the hearing is not held within the time set due to action of the appellant, the General Manager's decision shall be deemed final.

C. Hearing

1. The appellant shall have the opportunity to present information supporting its position concerning the General Manager's determination.

2. The hearing shall be conducted in accordance with procedures established by the Board and approved by the TCWD's General Counsel.

D. Written Determination

1. After the hearing, the Board shall make a determination whether to uphold, modify or reverse the original decision, action or determination as ordered by the General Manager.

2. The decision of the Board shall be reduced to writing within thirty (30) days after the hearing.

3. It shall contain a brief statement of facts found to be true, the determination of the issues presented, and the findings. The decision shall be submitted to the appellant.

4. The order of the Board shall be final upon its adoption.

914 JUDICIAL REVIEW

A. Purpose and Effect

1. Pursuant to Section 1094.6 of the California Code of Civil Procedure, the time in which a user may bring an administrative mandamus action shall be limited to ninety (90) days following the final decision in the adjudicative administrative hearing in question.

B. Time Limit for Judicial Review

1. Judicial review of any decision of the TCWD's Board may be made pursuant to Section 1094.5 of the California Code of Civil Procedure only if the petition for writ of mandate is filed no later than ninety (90) day following the date on which any decision becomes final.

C. Preparation of Records

1. The complete record of the proceedings shall be prepared by the TCWD and shall be delivered or mailed to the petitioner within one hundred-ninety (190) days after they have filed a written request.

2. The TCWD shall recover from the petitioner its actual costs for preparing and transcribing the record.

D. Extension

1. If the petitioner files a request for the record within ten (10) days after the date the decision becomes final, the time within which a petition may be filed, pursuant to Section 1094.5 of the California Code of Civil Procedures, shall be extended to no later than thirty (30) days following the date on which the record is delivered or mailed, by the TCWD, to the petitioner or the petitioner's attorney of record, if appropriate.

E. Notice

1. In making a final decision, the TCWD shall provide notice to the user whose wastewater discharge permit has been denied, suspended or revoked, that the time in which judicial review must be sought is governed by Section 1094.6 of the California Code of Civil Procedures.

F. This section does not apply to action taken under Section 909 of this ordinance.

915 PAYMENT AND COLLECTION OF FEES AND CHARGES

A. Except as otherwise provided, all fees and charges are due and payable upon receipt of an invoice or notice thereof. All such amounts are delinquent if unpaid forty-five (45) days after date of invoice or notice.

B. Any invoice or notice that becomes delinquent may have added to it an assessment in accordance with the following:

1. Forty-six (46) days after the date of invoice or notice, an assessment of ten percent (10%) of the base amount, not to exceed a maximum of $1,000.

2. Ninety (90) days after the date of invoice or notice, a total of twenty-five percent (25%) of the base amount, not to exceed a maximum of $2,500.

C. Any invoice or notice that is outstanding and unpaid after ninety (90) days may be cause for immediate initiation of wastewater discharge permit revocation proceedings or immediate wastewater discharge permit suspension.

D. Delinquent assessments under this section may not accrue to those invoices or notices successfully appealed, provided the TCWD received written notice of appeal prior to the payment due date.

E. Payment of disputed fees and charges are still required by the due date during review of any appeal submitted by permittee.

F. This section does not apply to Section 909 of this ordinance.

916 RECOVERY OF ENFORCEMENT COSTS

In the event a user fails to comply with any of the terms and conditions of this ordinance, wastewater discharge permit, administrative order, wastewater discharge permit suspension or revocation, other control mechanism or any other enforcement action, the TCWD shall be entitled to reasonable attorney's fees and costs which may be incurred during enforcement of any terms and conditions with or without filing proceedings in court.

917 FINANCIAL SECURITY CONDITIONS

A. Compliance Deposit

1. Users that have been subject to enforcement actions and/or fees, charges, penalties or fines may be required to deposit with the TCWD an amount determined by the General Manager as necessary to guarantee payment of all charges, fees, costs and expenses that may be incurred in the future.

2. A compliance deposit shall be received by the TCWD before the TCWD either issues a wastewater discharge permit, other control mechanism or grants the user permission for further discharge to sewerage facilities.

B. Delinquent Accounts

1. Any user who fails to make payment in full of all fees, charges, penalties or fines assessed by the TCWD including reconciliation amounts, delinquency fees, and other costs or fees, may be required to obtain the issuance of an amendment to their wastewater discharge permit.

C. Bankruptcy

1. Any user filing any legal action in any court of competent jurisdiction, including the United States Bankruptcy Court, for purposes of discharging its financial debts or obligations or seeking court-ordered protection from its creditors, shall within ten (10) days of filing such action, apply for and obtain the issuance of an amendment to its wastewater discharge permit by the TCWD.

D. Wastewater Discharge Permit Amendments

1. An amendment issued to the user's wastewater discharge permit shall be in accordance with the provision of this ordinance.

E. Security Deposit

1. An amendment to a wastewater discharge permit issued in accordance with this ordinance may be conditional upon the permitted user depositing financial security in an amount equal to the total fees and charges from the preceding year.

2. Such a deposit shall be used to guarantee payment of all fees and charges incurred for future services and sewerage facilities provided by the TCWD and shall not be used by the TCWD to recover outstanding fees and charges incurred prior to the user filing and receiving protection from creditors in the United States Bankruptcy Court.

F. Return of Security Deposit

1. If the user makes full payment in time of all fees and charges incurred over a period of two (2) years following the issuance of an amendment to the user's wastewater discharge permit prescribed by this ordinance, the user's security deposit shall be returned or credited to the user's account.

918 REPORT OF ANALYSIS

All collected data from inspection and monitoring sampling conducted by the TCWD may be reported to the user. This data, if given to the user, shall be kept by the user and the TCWD and made available during inspections by the TCWD or any other regulatory agency.

919 DAMAGE TO FACILITIES OR INTERRUPTION OF NORMAL OPERATIONS

A. When a discharger of wastes causes an obstruction, interference, damage, or other impairment to sewerage facilities or to the operation of sewerage facilities, the TCWD may assess the costs against the user for the work required to clean, replace or repair the sewerage facility together with expenses incurred to resume normal operations. This shall also be grounds for wastewater discharge permit revocation. A service charge of twenty-five percent (25%) of costs shall be added to the costs and charges to cover the TCWD's overhead, including administrative personnel and record keeping. The total amount shall be payable within forty-five (45) days of invoicing by the TCWD

B. If it can be shown that the discharge of any user is the cause of the TCWD violating its NPDES permit and pretreatment requirements established by any Regulatory Agency or incurring additional expenses or suffering losses or damage to TCWD sewerage facilities, then that user shall be responsible for any costs, expenses, or assessments incurred by the TCWD, made by other agencies or a court.

C. Where two or more dischargers cause a single and indivisible harm to sewerage facilities, each is jointly and severally liable for the damages. The burden of proof is on the dischargers to demonstrate that the harm is divisible.

920 INDUSTRIAL WASTE PASS THROUGH

A. If an industrial waste discharge results in a "pass through" event in sewerage facilities, all costs associated with the event, including but not limited to treatment costs, fines, regulatory fines, and other indirect costs may be charged against the user.

B. The user shall submit plans, which prevent future recurrences to the satisfaction of the TCWD.

C. A second occurrence shall be grounds for wastewater discharge permit revocation without the right of appeal.

921 BATCH DUMPS

A. When the TCWD determines that a user has discharged concentrated noncompatible wastes into sewerage facilities in a manner or method that is not approved by the TCWD, any enforcement action may be taken as set forth in this ordinance.

B. The user shall be subject to wastewater discharge permit suspension or revocation in accordance with this ordinance as well as any other legal enforcement penalties or remedies available to the TCWD.

922 PUBLICATION OF USERS IN SIGNIFICANT NONCOMPLIANCE (SNC)

A. To comply with the requirements of 40 CFR 403, the TCWD shall annually publish the names of all industrial users that are in SNC of federal pretreatment standards.

B. Publication of this SNC notice shall be in the newspaper of general circulation that provides meaningful public notice within the TCWD service area.

C. The determination of SNC is based upon the definition set forth in Section 202 B.87. of this ordinance.

ARTICLE 10
FEES AND CHARGES

1001 APPLICATION FEE

A. All application fees shall be in an amount as established by the TCWD.

B. Payment of the application fee must be received before the issuance of a new or renewal of a wastewater discharge permit.

C. User shall pay any delinquent invoices in full, prior to the wastewater discharge permit renewal.

1002 ANNUAL WASTEWATER DISCHARGE PERMIT FEE

A. The annual wastewater discharge permit fee shall be in an amount as established by the TCWD.

B. The annual wastewater discharge permit fee shall be due on or before the date set by the TCWD.

1003 INSPECTION, MONITORING AND SAMPLING CHARGES

A. Any and all costs incurred by the TCWD to inspect, monitor and sample a user for the purpose of assuring compliance with this ordinance, the user's wastewater discharge permit, other control mechanism or other regulations, shall be paid for by the user only upon receipt of an invoice or bill from the TCWD or its representative.

1004 DELINQUENCY FEES

A. Any fees that become delinquent may have added to it an amount as set forth in Section 915 of this ordinance.

B. Any delinquent fee and all assessments including court costs and legal fees thereon may be collected by lawsuit in the name of the TCWD.

1005 ADDITIONAL FEES AND CHARGES

A. The user will be required to pay all applicable additional fees and charges that are established by the TCWD only upon receipt of an invoice or bill.

B. Any wastewater discharge permit issued for a location where the user is not the property owner, may be conditioned upon depositing financial security to guarantee payment of all additional fees and charges to be incurred, in accordance with the provisions of Section 917 of this ordinance.

1006 RECORDING OF FEES AND CHARGES

A. The TCWD may keep a permanent record and account of all fees and charges received under this ordinance.

B. Record information shall include, but is not limited to:

1. Name and address of user.
2. Date and amount of fee or charge.
3. Purpose for which fees or charges were paid.

ARTICLE 11
SEVERABILITY

1101 SEVERABILITY

A. If any provisions of this ordinance or the application thereof to any user or circumstances is held invalid, unenforceable, or unconstitutional by any court of competent jurisdiction, the remainder of this ordinance or the application of such provision to other users or other circumstances shall not be affected.

B. If any section, subsection, clause or phrase of this ordinance is for any reason held to be invalid, unenforceable or unconstitutional by any court of competent jurisdiction, such decision shall not affect the remaining portions of this ordinance. The Board declares that they would have passed said ordinance by section, subsection, sentence, clause or phrase thereof.

ARTICLE 12
REPEAL

1201 REPEAL

A. All ordinances or parts of ordinances inconsistent with this ordinance are hereby repealed as of the effective date set forth in Section 1301 to the extent that they are inconsistent with the provisions of this ordinance.

ARTICLE 13
EFFECTIVE DATE

1301 EFFECTIVE DATE

A. This ordinance shall become effective thirty (30) days after adoption.

B. Amendments to this ordinance shall become effective thirty (30) days after there adoption.

C. Action on this Ordinance was completed on and witnessed by the following:

TRABUCO CANYON WATER DISTRICT

Dated _____ by _____
President

Dated _____ by _____
Secretary

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ENGINEERING MATTERS

ITEM 4: 2020 UPDATE TO THE ORANGE COUNTY OPERATIONAL AREA AGREEMENT OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

The Operational Area Agreement is the legal basis for inter-jurisdictional cooperation between the County of Orange and over 100 individual political subdivisions for purposes of emergency management coordination within the Orange County Operational Area. The agreement is required by the State of California's Standardized Emergency Management System, and was first approved in 1995. The Orange County Sheriff's Department Emergency Management Division has led the effort to update the 2020 Agreement based on lessons learned and advances from over twenty years of administering the existing framework.

The 2020 Operational Area Agreement was approved by the Orange County Board of Supervisors on March 24, 2020 (Exhibit 1) and now must be approved by each individual jurisdiction, including Trabuco Canyon Water District. The jurisdiction signature page to be signed by the District is included as Exhibit 2. The major content changes are summarized in the Operational Area Agreement Overview document included as Exhibit 3. Also included for reference is the 2020 Operational Structure Overview included as Exhibit 4.

FUNDING SOURCE:
Not applicable.

FISCAL IMPACT
Not applicable.

ENVIRONMENTAL COMPLIANCE:
Not applicable.

RECOMMENDED ACTION:
1. *Committee to receive information at the time of the Committee Meeting.*
2. *Authorize Trabuco Canyon Water District to sign the 2020 Orange County Operational Area Agreement*

EXHIBITS
1. Orange County Operational Area Agreement, January 2020
2. Agreement Jurisdiction Signature Page
3. Operational Area Agreement Overview
4. 2020 Operational Structure Overview

CONTACTS (staff responsible): PALUDI/PEREA

Orange County
Operational Area Agreement

of the County of Orange
and Political Subdivisions

January 2020

This page intentionally left blank.

Table of Contents

This page intentionally left blank.

I. Recitals

OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

THIS AGREEMENT is entered into this 19th day of May, 2020 which date is enumerated for purpose of reference only, by and between the County of Orange, hereinafter referred to as County, and all other Political Subdivisions within Orange County, as defined in Government Code Section 8557 (b) of the California Emergency Services Act, hereinafter referred to as Subdivisions, collectively hereafter referred to as the Parties.

W I T N E S S E T H:

WHEREAS, it is the intent of the Parties hereto to coordinate prevention, preparedness, response, recovery and mitigation efforts for the safety of persons and property from the effects of natural, human-caused, or war-caused disasters, hereinafter referred to as emergencies, as required by the California Emergency Services Act and the Standardized Emergency Management System (SEMS) Regulations, Title 19 California Code of Regulations Sections 2400 et seq.; and

WHEREAS, the purpose of an Operational Area, as defined in Government Code Section 8605 and Title 19 California Code of Regulations Sections 2403 and 2409, is to manage and coordinate information, resources, and priorities among the local governments within the geographic area of the County, and to serve as the coordination and communication link between the local government level and the regional level of the State; and to use multi-agency or inter-agency coordination to facilitate decisions for overall operational area level emergency response activities; and

WHEREAS, this Agreement is intended to provide for the continued management of the Operational Area; cooperative and mutual handling of duties and responsibilities of the Operational Area Lead Agency; coordination of the emergency functions of the Operational Area with all other public agencies, corporations, organizations, and affected private persons within the Operational Area; and the preparation and implementation of plans for the protection of persons and property within the Operational Area in the event of an emergency; and

WHEREAS, in accordance with the requirements of California laws and regulations the County previously adopted Orange County Codified Ordinances, section 3-1-5 and Resolutions 81-1104 and 95-870 and intends to adopt an updated resolution for this Agreement to support emergency management planning and coordination of all political subdivisions within the Orange County geographic area as required by State law; and

WHEREAS, Orange County Board of Supervisors Resolution 05-144 adopted the National Incident Management System (NIMS) for the Orange County Operational Area which sets many of the same objectives as the Standardized Emergency Management System;

NOW THEREFORE, the Parties hereto agree as follows:

This page intentionally left blank.

Section One. Operational Area Establishment

1.1 Operational Area Established

The entire geographic area of Orange County constitutes an Operational Area (OA) for the purposes of coordinating the prevention, preparedness, response, recovery and mitigation efforts for the safety of persons and property from the effects of natural, human-caused or war caused disasters, hereinafter referred to as emergencies. All local governments should cooperate in organizing an effective OA, but the OA authority and responsibility is not affected by the non-participation of any local government. The County of Orange shall be the Operational Area Lead Agency as specified in Title 19 California Code of Regulations Section 2409(d).

1.2 Local Authority

In the event of an actual or threatened emergency, each jurisdiction shall retain the authority provided for by law respecting its jurisdiction. No body created by this Agreement can bind Parties to legal or financial obligations.

Section Two. Operational Area Council, Executive Board and Subcommittees

2.1 Operational Area Signatory Council

All political subdivisions within the geographic area of Orange County, California are organized into the OA, regardless of signatory status.[1] The OA Signatory Council, hereinafter referred to as the Council, is hereby created to include the signature Parties to this Agreement. The Parties acknowledge that the Council is not a separate legal entity and that it is not their intention to form a joint powers authority.

2.1.1 Membership

By approval and execution of this Agreement, all Subdivisions in the County of Orange, including cities, school districts, community college districts, special districts, joint powers authorities, and the County, are members of the Council. Each signature party shall designate annually in writing to the Orange County Sheriff's Department Emergency Management Division, hereinafter referred to as county emergency management, one primary and one alternate representative of its governing body to serve on the Council.

2.1.2 Responsibilities

It is not the intent of this Agreement that there be regular meetings of the Council. In routine matters and day-to-day decision-making, the OA Executive Board (as described in Section 2.2) will represent the interests of the OA. However, the Council shall have authority over the major policy issues of the OA, as determined by the Executive Board, including adoption of any amendments to this Agreement or adoption of any fees to support OA coordination activities. Council members will receive information regarding major OA policy issues from the Executive Board, when necessary, for consideration at their respective governing body meetings. Furthermore, whenever a majority of the Council determine that an issue should be brought before the Council, it shall be done irrespective of whether the Executive Board has identified it as a major policy issue.

2.1.3 Representatives Meeting

The representatives of the Council may meet as necessary as determined by the Executive Board or as requested by a majority of the members of the Council. Should it be necessary for the Council to meet, each member of the Council shall be entitled to one vote. The representatives present shall, by majority vote, select a Chair Pro Tem for that meeting from among the representatives present. A majority of all Council member representatives shall constitute a quorum for the transaction of business relating to the OA. Unless otherwise provided herein, a vote of the majority of those present and qualified to vote shall be sufficient for the adoption of any motion, resolution, or order and to take any other action deemed appropriate to further the

[1] Title 19 California Code of Regulations Section 2409

objectives of the OA. Voting will be conducted in accordance with Robert's Rules of Order. All meetings will be noticed and conducted in accordance with the Brown Act.

2.2 Operational Area Executive Board

2.2.1 Membership

The Council shall have an OA Executive Board, hereinafter referred to as the Executive Board, consisting of sixteen voting members. The Executive Board includes representatives from the County Board of Supervisors, public safety agencies and Mutual Aid Coordinators, key County departments, and OA jurisdictions. Individuals will only serve as a voting member in one role for any single meeting and for purposes of determining quorum.

Executive Board Members

1. The Chair of the Orange County Board of Supervisors
2. The County Executive Officer
3. The OA Law Enforcement Mutual Aid Coordinator, the Orange County Sheriff
4. The OA Fire & Rescue Mutual Aid Coordinator, as selected by the Orange County Fire Chiefs Association
5. The OA Public Works Mutual Aid Coordinator, the Orange County Public Works Director
6. The OA Health Care Mutual Aid Coordinator, the Orange County Health Care Agency Director
7. The OA Water/Wastewater Mutual Aid Coordinator
8. The Orange County Social Services Agency Director
9. A representative selected jointly from the Orange County City Managers Association
10. A representative from the Orange County Chiefs of Police and Sheriff's Association
11. A representative from the Orange County Fire Chiefs Association
12. A representative from the Orange County City Engineers and Public Works Directors Association
13. A representative from Independent Special Districts of Orange County
14. The Orange County Superintendent of Schools, representing Orange County K-12 School Districts
15. A representative selected jointly from Orange County Community College Districts
16. The Orange County Transportation Authority Chief Executive Officer

Terms, Alternates and Voting

Executive Board members subject to being "selected," which are enumerated above as numbers 4, 9-13 and 15, shall be appointed by their respective agency, jurisdiction or organizations annually and shall serve at the discretion of their organization for one year. Each jurisdiction, agency or organization shall also designate three alternate representatives. Individuals appointed to the Executive Board can be the same or different than those identified in Section 2.1.1 as a

member jurisdiction's Council primary or alternate representative. In no circumstances shall one individual occupy more than one Executive Board position or count as more than one member for purposes of determining quorum.

Each Executive Board member, or alternate in the absence of the voting member for whom he/she is the designated alternate, shall be entitled to one vote. A majority of the Executive Board (9 members) shall constitute a quorum for the transaction of business relating to the OA. Unless otherwise provided herein, a vote of the majority of those present and qualified to vote shall be sufficient for the adoption of any motion, resolution or order and to take any other action deemed appropriate to achieve the objectives of the OA. Voting will be conducted in accordance with Robert's Rules of Order. The OA Executive Board is a Brown Act meeting and is noticed and conducted as such.

Operational Area Executive Board Chair and Vice-Chair

The Chair and Vice Chair shall be elected annually by the Executive Board. In the absence of both the Chair and the Vice Chair, the members of the Executive Board present shall, by majority vote, select one of the members present to act as Chair Pro Tem.

Meetings

The Executive Board shall meet quarterly or as designated by the Executive Board Chair.

2.2.2 Responsibilities

The Executive Board shall have oversight of the actions of the OA Manager (as described in Section 4.2) in the daily operations and administration of the OA. The Executive Board's oversight authority shall include directing the development, establishment, and implementation of the policies of the OA, and keeping the Council informed of its actions. The Executive Board shall determine which major policy issues of the OA require Council approval and shall seek such approval.

Policy and Operational Area Emergency Operations Plan

The Executive Board will establish OA policy, review and approve the OA Emergency Operations Plan (EOP) and Annexes, and maintain these documents as required by SEMS and NIMS.

Mutual Aid Plans and Agreements

The Executive Board shall review proposals of emergency mutual aid plans and agreements and make recommendations on endorsement of such proposals to governing boards of Subdivisions.

Laws, Rules, Legislation and Regulation

The Executive Board shall review and may recommend for action or adoption by Subdivisions, emergency and mutual aid plans, agreements, ordinances, resolutions, and any rules and regulations necessary to implement such plans and agreements. The Executive Board may also

study, review, and make recommendations on State and Federal legislation and policy as appropriate, and on matters referred to the Executive Board in writing by Council members.

Operational Area Executive Board Emergency Advisory Capacity

The Executive Board may be convened by the Chair or the OA Coordinator, as described in Section 4.1, to review a potential or actual emergency situation and make and receive appropriate recommendations from the OA Coordinator and Council members to facilitate a coordinated OA response.

2.2.3 Subcommittees and Working Groups

The Executive Board may establish standing and ad hoc subcommittees and working groups to complete its work and to ensure communication and coordination between all interested persons or groups. Subcommittees and working groups shall elect a Chairperson and provide appropriate staff support from their participants. The OA Manager shall provide coordination between these subcommittees and the Executive Board only.

2.3 Orange County Emergency Management Organization

There is hereby established a standing subcommittee to the Executive Board, the Orange County Emergency Management Organization, hereinafter referred to as OCEMO. OCEMO is a collaboration and coordination body tasked with developing the plans, procedures, and associated documents necessary for a robust Operational Area emergency management program. The County and all Subdivisions shall be expected to participate in OCEMO, to the maximum extent possible, with the understanding that the cooperative maintenance of the OA EOP, policies and procedures, training and exercises is necessary to ensure that the OA EOP, policies, procedures, training and exercises meet the emergency needs of the Subdivisions, County, and OA.

2.3.1 Membership

The entire OCEMO body ("Members at Large") consists of three groups of representatives involved in some capacity of an emergency management function, as defined below and in the OCEMO Bylaws.

Signatory Members

Staff members with primary emergency management responsibilities from signatory agencies to this agreement are considered Signatory Members. Each signatory jurisdiction shall identify a primary and secondary representative who shall have the right to vote on behalf of the jurisdiction. To ensure compliance with the Brown Act, no more than eight OCEMO members who are also voting members of the OA Executive Board shall be present at any OCEMO meeting.

Collaborative Members

Representatives of other government, non-profit, or private agencies that are not signatories to this agreement and are not currently represented by a Signatory or Collaborative Member, but are considered to have a significant role in OA planning, response and recovery processes are considered Collaborative Members. Collaborative members must be approved by Signatory Members and have limited voting rights as outlined in the OCEMO Bylaws.

Associate Members

Other representatives of organizations interested in participating in OCEMO activities, and who may provide input into the OA EOP, annexes, and supporting Standard Operating Procedures (SOPs) are considered Associate Members. Associate members have no voting rights.

2.3.2 Responsibilities

As a subcommittee to the Executive Board, the responsibilities of OCEMO are to meet the following objectives as they relate to disaster and emergency prevention, preparedness, response, recovery and mitigation within the OA:

Operational Area Plans, Annexes, and Standard Operating Procedures

- Participate in revisions and updates of the OA EOP and associated Annexes and SOPs developed and maintained by county emergency management staff as described in Section 3.2. Once completed, plans and the associated Annexes reviewed by OCEMO shall be forwarded to the OA Executive Board for approval.

Training and Exercises

- Coordinate training and exercises for the OA, to include after action discussions, lessons learned and professional development.

Public Education and Outreach

- Coordinate the development of public education and whole community emergency preparedness programs.

Legislation

- Review and report on legislation impacting emergency plans and programs, and propose concepts for new legislation for consideration by the Executive Board.

Other

- Other duties as assigned by the Executive Board.

2.3.3 OCEMO Leadership

The OCEMO Leadership shall consist of the OCEMO Chairperson, First Vice Chairperson and Second Vice Chairperson, elected in accord with the OCEMO Bylaws, the OA Manager and the

immediate past Chairperson. Any Signatory or Collaborative Member shall be eligible to serve as a candidate for OCEMO Chairperson, First Vice Chairperson, and Second Vice Chairperson as outlined in the OCEMO Bylaws.

2.3.4 Organization and Procedures

OCEMO will maintain and approve Bylaws. The Bylaws will define, at a minimum, OCEMO purpose, membership, leadership duties, elections, voting procedures, official meeting frequency, and the process for amending the Bylaws. The Bylaws shall in all instances be consistent with this Agreement.

OCEMO will review the Bylaws, as needed. Any amendments to the Bylaws will be approved by OCEMO Signatory Members, as detailed in the OCEMO Bylaws.

If OCEMO identifies the need for additional Subcommittees or working groups, OCEMO members participating in that subcommittee or working group shall provide staff support.

2.3.5 Administrative Support

The County shall provide administrative support to OCEMO as follows:

- Attend all OCEMO and OCEMO Leadership meetings
- Maintain a contact list of the primary and alternate representatives of each OCEMO member
- Organize and manage OCEMO Leadership elections and votes on other issues
- Notify members of their appointment to office or subcommittees
- Create and distribute OCEMO meeting agendas
- Take and transmit OCEMO meeting minutes
- Maintain official OCEMO records, including agendas and minutes, in compliance with County record retention policies.

Section Three. Responsibilities

3.1 Operational Area Jurisdiction Responsibilities

Subdivisions of the OA have the responsibilities as set forth below:

Participation

Actively participate as a member jurisdiction in the Council, Executive Board (if designated), and subcommittees such as OCEMO.

Cooperation

Promote cooperation among all Subdivisions in order to improve the overall OA emergency management program.

Emergency Management Program

Develop an emergency management program to provide for the needs of the Subdivision, which shall be complementary to and compatible and coordinated with the needs of the OA in the event of an emergency.

Emergency Plan and Organization

Develop and maintain an EOP and organization to provide for the emergency needs of the Subdivision according to SEMS Regulations and NIMS, and coordinate with and, where able, support other Subdivisions, the County, and the OA Emergency Operations Center (EOC).

Procedures

Develop Subdivision procedures that outline the steps necessary to satisfy responsibilities as a member jurisdiction of the OA.

Training and Exercises

Maintain a thorough knowledge of the Parties' and OA's EOPs and ensure that the supporting services and key personnel are properly trained and organized to meet all of their responsibilities in the event of an emergency. Conduct regular exercises and participate in regional exercises, when offered.

Emergency Assistance

Parties shall offer assistance to other jurisdictions and secondary and relief support to the OA within the limits of capabilities and according to applicable mutual aid agreements. Parties should participate in mutual aid agreements wherever possible.

Resource Lists

Maintain current resource listings of staff, facilities, equipment and supplies available in the jurisdiction for use in the event of an emergency.

Critical Points of Contact

Identify 24-hour or other critical points-of-contact for the Subdivision that may be used by the OA EOC during emergency operations. If the points-of-contact are individuals, identify a primary and at least three alternates for each. Inform county emergency management staff when critical points-of-contact change or are updated.

Disaster Recovery and Financial Reimbursement

Subdivisions have ultimate responsibility for their own recovery program and will work directly with FEMA and Cal OES throughout the cost recovery process. Each Subdivision is individually responsible for developing, submitting, and receiving their own emergency aid, loans or grants from any source including local, state, and federal governments. Each is individually responsible for the timeliness, accuracy, and compliance of its own expenditures submitted for reimbursement through such mechanisms.

3.2 County-Specific Responsibilities

The County acts as the OA Lead Agency. The OA Lead Agency has the following responsibilities to the OA in addition to those responsibilities specified under Section 3.1 of this Agreement:

24-Hour Contact Point

The County will serve as the 24-hour contact point for the OA and act as lead in activating the OA EOC, hereinafter referred to as OA EOC.

Operational Area Emergency Operations Center

The County EOC and Alternate EOC (as designated) shall serve as the OA EOC. The OA EOC shall exist as a dedicated essential facility and be capable of serving as the central point for:

- coordinating information and resources with OA subdivisions
- coordinating all levels of government as a component of Orange County's Multiagency Coordination System (MACS)
- coordinating with other OAs
- reporting information to and coordinating with the California Office of Emergency Services (Cal OES) Southern Region EOC

County emergency management staff shall be responsible for ensuring the OA EOC is maintained in a state of constant readiness, in accord with the FEMA Emergency Operations Center Assessment Checklist and ASTM E2668 – Standard Guide for Emergency Operations Center Development, or subsequent standards if revised.

Initial EOC Activation Staffing

The County shall provide initial OA EOC activation staff. Subdivisions with available resources may provide secondary and relief OA EOC staffing.

Disaster Recovery and Financial Reimbursement

The County shall be responsible for coordinating the formal recovery process through Cal OES and FEMA and will assist with:

- Coordinating initial OA disaster recovery
- Scheduling damage assessment site visits
- Other duties as outlined in the Recovery Annex to the OA EOP

Operational Area Emergency Operations Plan and Annexes

County emergency management staff shall be responsible for coordinating with the Orange County Emergency Management Organization to maintain and revise the OA EOP, annexes and SOPs as directed by the Executive Board.

Operational Area Executive Board Support

County emergency management staff shall provide support to the Executive Board for agendas and minutes for meetings and coordinating follow-up only.

Subcommittee and Working Group Support

County emergency management staff shall provide support to Executive Board subcommittees and working groups.

Section Four. Operational Area Coordinator and Operational Area Manager

4.1 Operational Area Coordinator

By this Agreement, the Council creates and recognizes the position of an OA Coordinator, hereinafter referred to as the Coordinator. During an emergency the OA Coordinator position will be filled by the Orange County Director of Emergency Services, as specified by Section 3-1-6 of the Orange County Code of Ordinances and County Board of Supervisors Resolution 12-036, as presently existing or as hereafter amended.

4.1.1 Powers and Duties

The Coordinator shall direct and coordinate the OA during times of emergency. In addition to his/her responsibilities as Director of Emergency Services, the Coordinator shall have the additional duties and powers, as described below and in the OA EOP:

Direction and Coordination

Serve as key decision-maker in the OA EOC, providing direction and coordination necessary to accomplish the purposes of this Agreement and responsibilities of the OA Lead as specified in Title 19 California Code of Regulations Section 2409(e).

Operational Area Representative

Represent the OA in all dealings with the public or private agencies on matters pertaining to emergencies as defined in Section 3-1-2 of the Orange County Code of Ordinances.

4.2 Operational Area Manager

By this Agreement, the Council creates and recognizes the position of an OA Manager. The OA Manager shall be the County Emergency Manager as specified in Section 3-1-6 of the Orange County Code of Ordinances and County Board of Supervisors Resolution 12-036, as presently existing or as hereafter amended.

4.2.1 Powers and Duties

The OA Manager shall have the following powers and duties:

Administration of Operational Area Agreement

On a day-to-day basis, ensure County-specific responsibilities detailed in Section 3.2 are met.

Staff to the Operational Area Executive Board

Serve as staff to the Executive Board, maintain close liaison with the Executive Board, and coordinate all activities of assigned OA staff with the Executive Board.

Daily Coordination and Assistance

Direct the daily coordination and cooperation between the county emergency management staff, Subdivisions, and Executive Board Subcommittees, including OCEMO. Resolve questions of authority and responsibility that may arise between them, and work closely with and assist the Executive Board, as required.

Notification of Emergency Operations Center Activation

Notify the Board of Supervisors, the Executive Board, and OCEMO of an OA EOC activation as soon as practical, and keep the Executive Board and Board of Supervisors informed on all aspects of a current emergency situation as soon as information becomes available.

OCEMO Support

Serve on OCEMO Leadership. Provide support to OCEMO for agendas, minutes and administrative support only. Staff support to OCEMO subcommittees shall be provided by OCEMO members.

Budget and Staffing

Develop an annual operating budget and staffing recommendations, and monitor the expenditures at the direction of the Executive Board.

After Action Reports

Coordinate with OCEMO for the development of after action reports for the Executive Board following activations of the OA EOC.

Resource Coordination

Act as the coordination point between Subdivisions and the Cal OES on a day-to-day basis for Emergency Management Mutual Aid (EMMA) resource requests, in accordance with the State of California Emergency Management Mutual Aid Plan. The OA Manager may also coordinate other OA mutual aid requests, as appropriate.

Section Five. Operational Area Response Systems

5.1 Operational Area Emergency Operations Plan

Under the direction of the Executive Board, county emergency management staff shall be responsible for maintaining the OA EOP, which shall provide for the effective mobilization of all OA resources, both public and private, to meet any condition constituting an emergency; and shall provide for the organization, powers and duties, and staff of the OA emergency response organization. This responsibility is inclusive of the EOP and any associated Annexes and SOPs.

5.1.1 Compliance

The OA Emergency Operations Plan shall comply with applicable local, state and federal planning criteria, including NIMS and SEMS.

5.1.2 Functional Assignments

The OA EOP shall include the functions assigned to the mutual aid organizations, County agencies/departments and Subdivisions. It shall be the responsibility of agency/department heads and Subdivisions to appoint staff who shall report to the OA EOC and carry out the assigned duties as appropriate.

5.1.3 Approval

Updates and revisions to the OA EOP and annexes will be effective on approval by the Executive Board. SOPs and other support documents may be updated on an ongoing basis by county emergency management staff as long as changes are consistent with approved plans and annexes.

5.2 Operational Area Emergency Operations Center

5.2.1 Location

The primary and dedicated County EOC located at 2644 Santiago Canyon Rd., Silverado, California, or alternate as designated, shall serve as the OA EOC. Communication connection to the OA EOC shall be the responsibility of each Subdivision and Mutual Aid Coordinator or their representative.

5.2.2 Required Activation

Activation of the OA EOC is required under the conditions defined by SEMS, Title 19 California Code of Regulations Section 2409(f), the Orange County OA EOP and associated Annexes.

5.2.3 Staff for the Operational Area Emergency Operations Center

The County shall provide initial OA EOC activation staff. Subdivisions with available resources shall provide secondary and relief OA EOC staffing. Emergency management or other mutual aid shall be used to staff the OA EOC as necessary. The County declares its willingness to provide a staff member to an impacted Subdivision's EOC or Incident Command Post to act as an OA coordination point, if desired by the Subdivision and as personnel availability and safety concerns allow.

Section Six. Operational Area Finance

6.1 Operational Area Expenses and Revenues

Operational Area Administrative Expenses

This Agreement recognizes that there are day-to-day costs associated with OA administration and emergency management activities; these costs are separate from County-specific emergency management activities. The County shall provide administrative staffing for the OA to carry out the duties as delineated in Section 3.2 and Section 4 of this Agreement; however, the County shall not be solely responsible for the costs of administering the OA.

The County Board of Supervisors has the over-arching authority and responsibility to approve the county emergency management budget that supports both County and OA emergency management activities.

To offset costs of the OA, the Executive Board shall be responsible for the acquisition and distribution of federal, state, and business or private foundation emergency management grant funds. For emergency management grant funds made available to the OA for distribution among the Subdivisions, the Executive Board will review and approve proposed funding allocation methods. Their review will take into consideration recommendations from OCEMO, acting in their role as subcommittee to the Executive Board. To offset administrative costs, a percentage of such grants may be allotted to the OA before apportionment among the subdivisions. If funding becomes available with a short application period that does not allow for OCEMO, Executive Board, and County Board of Supervisors pre-approval, then approval will be sought retroactively through the ratification process set forth by the County Board of Supervisors.

The County or any Subdivision may fund through general or special funds any services, supplies, or programs that they separately or jointly determine are necessary to comply with laws or regulations, or that serve the purposes of emergency prevention, preparedness, response, recovery and mitigation on an OA level.

Costs of Operational Area during Emergency Response and Recovery

During emergencies, all OA jurisdictions shall be expected to participate to the maximum extent possible, according to mutual aid and other agreements, with the understanding that during an emergency, the priorities are life safety, property, and the environment (in that order), regardless of which jurisdiction is impacted. This Agreement incorporates by reference the reimbursement concepts of the Emergency Management Assistance Compact, the California Disaster and Civil Defense Master Mutual Aid Agreement, and the State of California Emergency Management Mutual Aid Plan. Expenditures made in connection with such emergency activities required by this Agreement, the California Emergency Services Act and/or SEMS, including mutual aid activities,

shall be deemed conclusively to be for the direct protection and benefit of the persons and property in the OA.

In deciding the level of OA response and resource commitment during emergencies, the County and Subdivisions agree to operate according to the EOP and supporting documents defined in Section 5.1 of this Agreement.

Financial Reimbursement and Recovery Following Emergencies

The County and each Subdivision are each individually responsible for developing, submitting, and receiving their own emergency aid, loans or grants from any source including local, state, and federal governments. Each is individually responsible for the timeliness, accuracy, and compliance of its own expenditures submitted for reimbursement through such mechanisms.

Section Seven. Operational Area Agreement Administration

7.1 Existing Agreements

Nothing contained in this Agreement shall be construed as superseding or modifying any existing agreements, including mutual aid agreements, except for superseding the existing OPERATIONAL AREA AGREEMENT OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS dated October 3, 1995, and addenda; and nothing herein shall be construed as preventing any Party from entering into or modifying mutual aid or other emergency response agreements.

7.2 Effective Date

This Agreement shall become effective six months after approval and execution by the County Board of Supervisors and at least one Subdivision. Any Subdivision in Orange County may become a Party hereto by executing this Agreement. Notice shall be provided to the County upon a Subdivision's execution of this Agreement.

7.3 Withdrawal

Any Party may withdraw from this Agreement by providing written notice to county emergency management staff. Said notice shall be given 30 days before withdrawal from this Agreement.

7.4 Indemnification

Each Party shall defend, indemnify, and hold harmless the other Parties, and their officers, agents, employees and representatives from any and all losses, liability, damages, claims, suits, actions, administrative proceedings, demands, and litigation, and all expenses and costs relating directly to the negligent or otherwise wrongful acts or omissions of the indemnitor, its officers, agents, employees, or representatives arising out of or incidental to performance under this Agreement. No Party assumes liability for the acts or omissions of persons other than that Party's respective officers, agents, employees or representatives.

7.5 Counterparts

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, and all of which shall constitute one and the same instrument.

7.6 Interpretation

Save to the extent that the context or the express provisions of this Agreement otherwise require:

- Headings and sub-headings are for ease of reference only and shall not be taken into consideration in the interpretation or construction of this Agreement;
- All references to Parts, Sections, and Paragraphs are references to Parts, Sections and Paragraphs contained herein;

- All references to any ordinance, resolution, law, regulation or guidance shall include references to any ordinance, resolution, law, regulation or guidance which amends, extends, consolidates or replaces the same or which has been amended, extended, consolidated, supplemented, substituted, novated, replaced, or assigned by the same and shall include, without limitation, any instrument, proclamation, bylaw, directive, decision, regulation, rule, order, notice, codes of practice, code of conduct, rule of court, instrument or delegated or other subordinate legislation thereto;
- The words "herein", "hereto" and "hereunder" refer to this Agreement as a whole and not to the particular Section, or Paragraph in which such word may be used;
- Any reference to a public organization or representative shall be deemed to include a reference to any successor to such public organization or representative or any organization or entity or representative which has taken over the functions or responsibilities of such public organization or representative.

7.7 Ambiguities

In the case of any ambiguity or discrepancy:

- Between the provisions in this Agreement and the provisions of any underlying Executive Order, law, or regulation, the provisions of underlying Executive Order, law, or regulations will be incorporated by approval of the Executive Board and written notice shall be provided to all Parties.
- Between the provisions in this Agreement and the provisions of any underlying mutual aid agreement or EOP, the provisions of this Agreement shall prevail until such time as the OA Executive Board considers the matter and notice of proposed resolution to such issues are provided to all Parties.

7.8 Amendment

This Agreement may not be amended or modified except in a writing executed by a majority of all signature Parties as defined by Section 2.1 of this Agreement.

OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

DATED: 5/19/20

County of Orange
(City or Jurisdiction)

BY _____

Michelle Steel, Chairwoman

County of Orange

ATTEST:

By: _____

Robin Stieler, Clerk of the Board

County of Orange

Date 5/19/20

NOTICE TO COUNTY OF ORANGE TO BE GIVEN TO:
City/Jurisdiction

Donna Boston
Name

County of Orange
City/Jurisdiction

2644 Santiago Canyon Road
Address

Silverado, CA 92676
City/State/Zip

714-628-7154
FAX Number

APPROVED AS TO FORM:

_____

Wendy Phillips, Senior Deputy County Counsel

County of Orange

Dated 5/26/20

ATTEST:

By: _____

_____

_____

Date _____

NOTICE TO _____ TO BE GIVEN TO:
City/Jurisdiction

_____
Name

_____
City/Jurisdiction

_____
Address

_____
Chapter 3 City/State/Zip

_____
FAX Number

APPROVED AS TO FORM:

Wendy J Pullyzi
Senior Deputy County Counsel
Orange County
Dated 2/26/20

OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

DATED: _____

_____
(City or Jurisdiction)

BY _____

_____

_____

ATTEST:

By: _____

_____

_____

Date _____

NOTICE TO _____ TO BE GIVEN TO:
City/Jurisdiction

_____
Name

_____
City/Jurisdiction

_____
Address

_____
City/State/Zip

_____
FAX Number

APPROVED AS TO FORM:

_____

_____

_____

Dated _____

OPERATIONAL AREA AGREEMENT OVERVIEW

BACKGROUND

The Operational Area Agreement formally organizes the County of Orange and its political subdivisions as the Orange County Operational Area for purposes of emergency management coordination, as required by the State of California's Standardized Emergency Management System. First approved in 1995, the document lays out a framework for inter-jurisdictional cooperation and the responsibilities of the County of Orange and its individual subdivisions. This document was reviewed and approved by the County of Orange and the 100+ political subdivisions that make up the Orange County Operational Area, and it has served as the foundation for nearly 25 years of regional emergency management collaboration.

In 2017, the Orange County Sheriff's Department Emergency Management Division began a process to revise the Operational Area Agreement to account for changes in emergency operations plans, incorporate advances and new perspectives in the emergency management discipline and ease administration of Operational Area functions. The Operational Area Agreement Revision Working Group was formed and met for more than a year to develop an updated document taking into account new programs and paradigms at the local, state and federal level, as well as lessons learned from more than twenty years of administering the existing framework. Following an extensive review and revision process in 2018 and 2019, the revised Operational Area Agreement was approved by the County Board of Supervisors on March 24, 2020. The Agreement must now be approved by each individual jurisdiction in the Orange County Operational Area.

WHAT'S NEW IN THE 2020 AGREEMENT

The new OA Agreement developed by the OA Agreement Revision Working Group has major structural and significant content changes from the original 1995 document. Agreement sections were reorganized to make the document easier to understand and reference and the document was reformatted to more closely align with the Emergency Management Division's plan document style guide. *A complete crosswalk of structural changes is available on request from the Emergency Management Division.*

The major content changes are outlined below:

NEW OPERATIONAL AREA EXECUTIVE BOARD MEMBERS

Five new Operational Area Executive Board seats were added to the body to more accurately represent the interests of the Operational Area. The following seats were added:

- The County Executive Officer
- The Orange County Social Services Agency Director
- The Operational Area Water/Wastewater Mutual Aid Coordinator
- A representative selected jointly from the Orange County Community College Districts
- The Orange County Transportation Authority Chief Executive Officer

ORANGE COUNTY EMERGENCY MANAGEMENT ORGANIZATION (OCEMO) UPDATE

Since the 1995 Agreement was approved, OCEMO has transitioned to a simpler model than was outlined in the original document. Several changes were made in the new Agreement draft to reflect the current operational practices of OCEMO and ensure alignment with the new OCEMO bylaws approved in 2018, but the major shift was

the removal of the OCEMO Representative Board, which has not been practically in use for a decade or more. The new draft also provides clarity on the nature of the administrative support provided to OCEMO by the County of Orange.

Operational Area Coordinator Staffing

The 1995 Agreement specifically outlined which agencies are responsible for staffing the Operational Area Coordinator (OAC) position. At the time of approval, this staffing arrangement aligned with the staffing of the Director of Emergency Services (DES) position and was meant to outline additional responsibilities for the DES during an Operational Area-wide incident. Since approval, the County Ordinance that defines staffing for the DES role was updated by Board Resolution and created a conflict with the original OAC staffing arrangement. To rectify this conflict and to prevent similar issues in the future, the language in the updated draft was streamlined to reference the County Ordinance and Resolution rather than separately defining OAC staffing.

Operational Area Finance

The New Operational Area Agreement includes a significant reworking of language related to OA finances and grant funding and administration. Relevant language once contained in Addendum Two (See Addendums section below) is now incorporated in the main body of the agreement. Language referencing specific grant programs was replaced with broader language that reflects the shifting nature of grant funding and the challenges of grant administration. The new language also addresses lessons learned related to the financial aspects of mutual aid and disaster recovery.

Addendums

The 1995 Agreement as approved had three addendums that addressed various issues brought forth during the development of the original document. Addendum One clarifies roles and responsibilities for the Operational Area, the Operational Area Executive Board, and the Operational Area Coordinator. Addendum Two includes documents related to the administration of the Emergency Management Assistance Program grant that no longer exists. Relevant portions of these two addendums were incorporated into the main body of the new Agreement draft as appropriate.

Addendum Three is the Operational Area Mutual Aid Plan. This critical document will become an attachment to the Unified County of Orange and Orange County Operational Area Emergency Operations Plan. This will put the Mutual Aid Plan on a more defined schedule of review and revision.

OA Agreement Jurisdiction Approval Process

With the approval of the OA Agreement by the Orange County Board of Supervisors, the agreement is now ready for presentation to Orange County's jurisdictions for approval. The OCSD Emergency Management Division is available to support jurisdictions with this process with documents and sample language for agenda staff reports. Jurisdictions approving the Agreement will be asked to provide the following items to the OCSD Emergency Management Division:

- Physical copy of OA Agreement signature page with wet signatures mailed to:
  Emergency Management Division
  Orange County Sheriff's Department
  ATTN: Ethan Brown
  2644 Santiago Canyon Road
  Silverado, CA 92676
- Scanned copy of OA Agreement signature page sent to ETBrown@ocsd.org as soon as possible after approval
- Digital copy of any other approval documents (Agenda Staff Report, Resolution, etc.) sent to ETBrown@ocsd.org

2020 OA Agreement Structure Overview

FOR REFERENCE ONLY: In case of discrepancy, the Agreement itself shall prevail. This chart depicts the OA structure only and does not describe the entirety of the OA Agreement.

Orange County Operational Area – All subdivisions within the County

Section 2.1

OA Signatory Council

Section 2.2

OA Executive Board

1. Chair of the OC Board of Supervisors
2. OC County Executive Officer
3. Operational Area Law Enforcement Mutual Aid Coordinator, the OC Sheriff
4. Operational Area Fire & Rescue Mutual Aid Coordinator, as selected by the OC Fire Chiefs Association
5. Operational Area Public Works Mutual Aid Coordinator, the OC Pubic Works Director
6. Operational Area Health Care Mutual Aid Coordinator, the OC Health Care Agency Director
7. Operational Area Water/Wastewater Mutual Aid Coordinator
8. OC Social Services Agency Director
9. Rep. selected jointly from the OC City Managers Association
10. Rep. from the OC Chiefs of Police and Sheriff's Association
11. Rep. from the OC Fire Chiefs Association
12. Rep. from the OC City Engineers and Public Works Directors Association
13. Rep. from Independent Special Districts of OC
14. OC Superintendent of Schools
15. Rep. selected jointly from OC Community College Districts
16. OC Transportation Authority Chief Executive Officer

Section 3.1

OA Jurisdiction Responsibilities

- Participate
- Cooperate
- Emergency Management Program
- Emergency Plan and Organization
- Procedures
- Training and Exercises
- Emergency Assistance
- Resource Lists
- Critical Points of Contact
- Disaster Recovery

Section 3.2

County Specific Responsibilities as OA Lead Agency

- 24 hour contact
- Operational Area Emergency Operation Center
- Initial EOC Activation Staffing
- Disaster Recovery
- Operational Area Emergency Plan and Annexes
- Operational Area Executive Board Support
- Executive Board Subcommittee and Working Group Support

Section 2.2.3

Other Sub Committees & Working Groups formed by OA Board

Section 2.3

Orange County Emergency Management Organization

OCEMO Leadership

- Chairperson
- 1st Vice Chairperson
- 2nd Vice Chairperson
- OA Manager
- Immediate Past Chair
- Elected

*No more than eight OCEMO members who are also voting members of the OA Executive Board shall be present at any OCEMO meeting

OCEMO Members at Large*

- Signatory Member "Voting"
- Collaborative Member "Limited Voting"
- Associate Member "No Voting"

OCEMO Responsibilities

- OA Area Plans, Annexes & SOPs
- Training and Exercises
- Public Education and Outreach
- Legislation
- Other, as assigned by the OA Executive Board

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ENGINEERING MATTERS

ITEM 5: APPLICATION FOR THE U.S. BUREAU OF RECLAMATION'S WATERSMART GRANTS PROGRAM FOR AN ADVANCED METERING INFRASTRUCTURE (AMI) IMPLEMENTATION PROJECT

The Automatic Meter Reading/Advanced Metering Infrastructure (AMR/AMI) project has been considered part of the District's long-term Capital Improvement Plan (CIP) but has not moved forward due to lack of funding. Fortunately, it is considered a water use efficiency project and therefore qualifies for certain state and federal grant programs targeting water and energy conservation.

The AMR/AMI project includes the upgrade of approximately 3,424 existing touch meters (currently read via walking) with an AMI network system that will automatically collect and store hourly consumption data, aiding in water conservation, improved water management, and energy savings. The District has already converted 812 meters to AMR and this project will allow all 4,236 meters to be AMR/AMI. Because the new system can provide hourly water usage information, customers will be able to know their consumption in near real time on their computer or mobile devices, or receive high usage and leak alerts. This allows for better customer service and an enhanced customer experience with the District. Because manual meter reading is no longer necessary with AMR/AMI, the project also has operational benefits in terms of labor and equipment resource efficiencies. The District has secured letters of support for the project from MWDOC, Metropolitan Water District, and several HOAs served by TCWD.

The Bureau of Reclamation's (Reclamation) WaterSMART Water and Energy Efficiency Grants provide up to 50/50 cost share funding for projects that use water and energy more efficiently and contribute to water reliability in the Western United States. The District is applying for funding in both the Funding Group I (up to $500,000 in federal cost share) and Funding Group II (up to $2 million in federal cost share) categories. The total project budget is approximately $1.9 million. A condition of submittal of the grant application is an official resolution of the Board of Directors. The deadline for the grant application is September 17, 2020.

RECOMMENDED ACTION:

1. Committee to receive information at the time of the Committee Meeting.

2. Adopt Resolution No. 2020-1283 – Resolution of the Board of Directors of the Trabuco Canyon Water District Authorizing the Submittal of an Application for the WaterSMART: Water and Energy Efficiency Grants for 2020 and 2021.

EXHIBITS

1. DRAFT Resolution No. 2020-1283 - Resolution of the Board of Directors of the Trabuco Canyon Water District Authorizing the Submittal of an Application for the WaterSMART: Water and Energy Efficiency Grants for 2020 and 2021.

CONTACTS (staff responsible): PALUDI/PEREA

RESOLUTION NO. 2020-1283

RESOLUTION OF THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT AUTHORIZING THE SUBMITTAL OF AN APPLICATION FOR THE WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS FOR 2020 AND 2021

WHEREAS, the United States Bureau of Reclamation is currently offering grant opportunities through the WaterSMART: Water and Energy Efficiency Grants for Fiscal Years ("FY") 2020 and 2021;

WHEREAS, said WaterSMART: Water and Energy Efficiency Grants for FYs 2020 and 2021 is a cost-shared program emphasizing water and energy efficiency;

WHEREAS, the Board of Directors ("Board") of the Trabuco Canyon Water District ("District" or "TCWD") supports the submission by the TCWD of a grant application, prepared and approved by the TCWD, to the WaterSMART: Water and Energy Efficiency Grants for FYs 2020 and 2021; and

WHEREAS, under the WaterSMART: Water and Energy Efficiency Grants for FYs 2020 and 2021 program, the United States Bureau of Reclamation may award up Five Hundred Thousand Dollars and 00/100 ($500,000.00) towards the maximum 50/50 cost sharing to pay for the Project costs and the TCWD is capable of providing an additional One million three hundred forty-one thousands five hundred thirty-two and 00/100 ($1,341,532.00) in cash and/or in-kind contributions specified in the grant application's funding plan to pay for all remaining Project costs.

WHEREAS, if selected for a WaterSMART: Water and Energy Efficiency Grant for FYs 2021, TCWD will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement regarding funding for the Project.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

Section 1: The Board does hereby approve the submission of the application for the WaterSMART: Water and Energy Efficiency Grants for FYs 2020 and 2021 for the Advanced Metering Infrastructure Project by TCWD for FY 2020-21.

Section 2: In the event grant funding is provided by the United States Bureau of Reclamation, the General Manager and legal counsel to the District and the District's staff and consultants are authorized to take any and all actions necessary to accept the grant and sign any contract for administration of the grant funds.

Section 3: The recitals provided in this resolution are true and correct and are incorporated into the operative part of this resolution.

Section 4: If any section, subsection, sentence, clause or phrase of this resolution is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity or constitutionality of the remaining portions of this resolution. The Board hereby declares that it would have passed this resolution, and each section, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid or unconstitutional. The District Secretary shall certify to the adoption of this resolution and henceforth and thereafter the same shall be in full force and effect.

Section 5: The Board finds the adoption of this resolution is not subject to the California Environmental Quality Act ("CEQA") pursuant to Sections 15060(c)(2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment) and 15060(c)(3) (the activity is not a project as defined in Section 15378) of the CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, because it has no potential for resulting in physical change to the environment, directly or indirectly.

Section 6: This resolution shall be effective as of August 19, 2020 ("Effective Date").

ADOPTED, SIGNED, and APPROVED this 19th day of August 2020.

TRABUCO CANYON WATER DISTRICT

_____

President/Vice President

_____

District Secretary

STATE OF CALIFORNIA)
) mp.
COUNTY OF ORANGE)

I, Michael Perea, Secretary of the Board of the Trabuco Canyon Water District, do hereby certify that the foregoing resolution was duly adopted by the Board of said District at a meeting of said Board held on the 19th day of August, 2020, of which meeting all of the members of the Board had due notice and at which a quorum thereof were present and acting throughout and for which notice and an agenda was prepared and posted as required by law and that at such meeting such resolution was adopted by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____
Secretary of the Board,
Trabuco Canyon Water District

STATE OF CALIFORNIA)
) mp.
COUNTY OF ORANGE)

I, Michael Perea, Secretary of the Board of the Trabuco Canyon Water District, do hereby certify that the foregoing is a full, true and correct copy of Resolution No. 2020-1283 of such Board and that the same has not been amended or repealed.

Dated this 19th day of August, 2020.

_____

Secretary of the Board,
Trabuco Canyon Water District

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ENGINEERING MATTERS

ITEM 6: SADDLEBACK MEADOWS DEVELOPMENT (181 DU's) – HARRIS GRADE RESERVOIR FEASIBILITY STUDY DRAFT REPORT

The proposed Saddleback Meadows residential development (Development) is located on 222 acres of property within the unincorporated area of southeastern Orange County, California, in the Foothill-Trabuco area. The parcel is being planned and engineered for the California Quartet, LTD, ("CQ") by Hunsaker and Associates ("Hunsaker"). The proposed development has gone through several iterations and modification, and most recently, consisted of 181 detached single-family homes. A Sub-Area Master Plan ("SAMP") for this development was originally prepared by PSOMAS in May 2006. Hunsaker requested that the District prepare an updated SAMP for the Development. Staff has been working with PSOMAS on the updated SAMP.

The total storage (operational, fire flow and emergency) required for the development is 870,000 gallons. Due to geological constraints and potential litigation from the adjoining landowner, the proposed elevation of the storage is much lower than previous plan, which would create an isolated zone for the Development. PSOMAS' recommendation is to utilize the money that the developer would have spent on the on-site reservoir and pool it with other available storage fee funds to construct additional storage at the Harris Grade Reservoir site. The District has contracted with Tetra Tech for $119,211 to perform a Feasibility Study on removing the 420,000-gallon tank at the site and replacing it with a tank that can accommodate the storage needs of both the District and the Development. The study lends itself to a cost-sharing agreement between TCWD and CQ based on each party's percentage of the new planned storage volume for Harris Grade (870,000 gallons or 39% for Saddleback Meadows, and 1,380,000 gallons or 61% for TCWD).

District Staff is currently reviewing the Draft Harris Grade Reservoir Siting Study completed by Tetra Tech (Exhibit 1).

FUNDING SOURCE:
Funds for the Feasibility Study will originate from the Developer and the WRES Fund.

FISCAL IMPACT
TCWD's share of the project is estimated to be $72,719, not including any potential contract amendments.
Development Sub-Area Master Plan: $34,000 (Paid for by the Developer)

ENVIRONMENTAL COMPLIANCE:
All Environmental Compliance will be met by the Developer.

RECOMMENDED ACTION:
Committee to receive information at time of the Committee Meeting.

EXHIBITS:
1. Harris Grade Reservoir Siting Study-Draft

CONTACTS (staff responsible): PALUDI/LAUSTEN

DRAFT

Trabuco Canyon Water District

Harris Grade Reservoir Siting Study

TETRA TECH

August 2020

Harris Grade Reservoir Siting Study

August 2020

PREPARED FOR

Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679

PREPARED BY

Tetra Tech
17885 Von Karman Ave. #500
Irvine, CA 92614
Phone: 949.809.5000
Fax: 949.809.5010
tetratech.com

Kyle Bohn, PE
Project Manager
Date

Mark Bush, PE
Principal-in-Charge
Date

CONTENTS

Appendices

Tables

1. PROJECT OBJECTIVES AND BACKGROUND

1.1 PURPOSE

In 2016 the Trabuco Canyon Water District (District) completed the "Domestic Water Storage and Reservoir Siting Study" to determine ideal locations within the District's system for additional water storage for future planned developments and emergencies. The study determined that the Harris Grade Reservoir site is one of four locations for adding potable water storage within the District.

The District retained Tetra Tech to conduct a Reservoir Siting Study evaluating the feasibility of demolishing an existing 0.42 MG steel reservoir and constructing a new 2.0 to 2.7 MG reservoir, including upgrading of the inlet and outlet piping leading up the slope to the site. This siting study will present alternatives on the location, shape, and size for a new reservoir at the existing Harris Grade Site. Additionally, this siting study will address the reservoir type (prestressed concrete, steel, or conventional cast in place concrete), interconnections with the existing facilities, inlet and outlet piping, drainage impacts, site access, and any required site modifications or relocations.

1.2 BACKGROUND

The Harris Grade Pressure Zone (HGL 1504-feet) is the largest pressure zone within the District and receives water from the Cooks Pressure Zone (HGL 1250-feet) via the Ridgeline Booster Pump Station, which boosts the water through 14-inch and 10-inch pipelines on Live Oak Canyon Road. The Harris Grade site sits on a hill, with slopes as great as 2:1, above Live Oak Canyon Road and is connected to the waterlines in the road with an existing 10-inch and 14-inch pipeline running in a 20-foot wide easement down the hillside.

The site is located within the Cleveland National Forest on land leased to the District from the United States Forest Service. The site can be accessed from Live Oak Canyon Road through a 10-foot wide access road within a 20-foot wide easement. The grade of the existing access road to the reservoir site varies from flat to 16 to 17 percent. Overhead electrical lines coming from Live Oak Canyon Road provide the site power. The overall site is shown on Figure 1-1.

The District owns and operates two reservoirs within the Harris Grade Reservoir Site, one 2.0 MG steel reservoir constructed in 1981 (Reservoir No. 1) and one 0.42 MG steel reservoir, constructed in 1965 (Reservoir No. 2). Summarized below are the characteristics of the existing Harris Grade Reservoirs. The existing Harris Grade Reservoir site is shown on Figure 1-2.

Table 1 – Existing Harris Grade Reservoir Characteristics

	Reservoir No. 1	Reservoir No. 2
Material	Steel (Circular)	Bolted Steel (Circular)
Capacity	2.0 MG	0.42 MG
Year Constructed	1981	1965
Finished Floor High Water Level (HWL)	1473 feet 1504 feet	1473 feet 1496 feet

Due to the high water elevation difference between the two tanks; they are unable to float off each other. The District operates an on-site bypass pump to pump water from the small tank to the larger tank.

2. DESIGN CRITERIA

Design criteria for the new tank and appurtenances is summarized in the table below:

Table 2 – Design Criteria Summary
Reservoir Design Standards: The new tank shall be designed to the following design standards 1. California Department of Drinking Water (DDW) requirements outlined in the California Code of Regulations Title 22 "Design and Construction of Water Distribution Reservoirs" 2. American Water Works Association (AWWA) a. For pre-stressed concrete tanks: Standard D110; "Wire and Strand-Wound Circular Prestressed Concrete Water Tanks" b. For steel tanks: Standard D100; "Welded Carbon Steel Tanks for Water Storage" 3. Trabuco Canyon Water District Standard Plans and Specifications
Storage Volume: 1. Minimum Storage Volume: 2.0 MG 2. Desired Storage Volume: 2.7 MG
Floor Elevation (Match Existing): 1473-feet (record drawings – NGVD29) / 1475.4 (survey – NAVD88)
High Water Level Elevation (Match Existing): 1504-feet (record drawings – NGVD29) / 1506.4 (survey – NAVD88)
Sidewater Depth: 31-feet
Inlet/Outlet Piping and Valves: 16-inch separate inlet and outlet connections
Overflow and Drain Piping: • Overflow and drain pipes of the existing reservoirs empty to the surface and sheet flow off site to the adjacent natural terrain. It is anticipated the new overflow and drains will similarly sheet flow off the site. • The overflow size of the new reservoir will be confirmed during preliminary design based on the maximum anticipated fill rate of the reservoir. It is anticipated the proposed tank overflow will go through the tank wall and feature an air gap facility to meet California Department of Drinking Water (DDW) requirements. • A tank drain should be provided to remove unusable water from the reservoir and feature an air gap facility to meet California Department of Drinking Water (DDW) requirements.
Tank Intertie Piping: Tank intertie piping is assumed to be 16-inches to match the new piping from Live Oak Canyon Road (size to be based on the system fill and draw rates and should be confirmed during preliminary design).
Minimum Required Clearance Around Tank: 12-feet
Assumed Temporary Cantilever Shoring Height: 14-feet
Assumed Permanent Retaining Wall Height: 12-feet
Site Access Design Vehicle Size (Interim Site): Single Unit Truck – 30-feet long x 8-feet wide; 42-foot turning radius
Site Access Design Vehicle Size (Final Site): Pickup truck

2.1 STORAGE REQUIREMENTS

The District has the following storage requirements for the Harris Grade Site:

1. A minimum of 1.38 million gallons (MG) of additional storage is required within the District to meet the requirements of the Water Reliability Emergency Storage (WERS) fund. District customers are contributing to the WERS fund, which is reserved for an additional 2.0 MG storage within the District. A portion of the required storage has been built at the Saddlecrest development (0.62 MG) in 2019, but the remaining 1.38 MG is still pending.

2. A minimum of 0.87 MG of storage is required for the future Saddleback Meadows development.
3. A minimum of 0.42 MG of storage is required to replace the existing steel Reservoir No. 2 to be demolished to make room for a new tank.

In order to meet the storage requirements above a minimum 2.7 MG tank is needed.

2.2 PIPING AND APPURTENANCES

The existing piping and appurtenances at the Harris Grade Reservoirs consists of combined tank inlet/outlet pipes, overflow pipes, drain pipes, tank intertie piping, and combined inlet/outlet piping to Live Oak Canyon Road as shown on Figure 1-2. Currently the Reservoirs No. 1 and 2 are operated as follows to promote tank mixing:

1. Flow is let into Reservoir No. 2 through a 6-inch altitude valve and 8-inch inlet/outlet pipeline.
2. Flow is pumped out of Reservoir No. 2 into Reservoir No. 1 through a 6-inch tank intertie. A pump is required because the high water level (HWL) of Reservoir No. 2 is 8-feet higher than that of Reservoir No. 1.
3. Flow to the distribution system is conveyed through a 14-inch outlet on Reservoir No. 1.

The new tank will be designed to float with the existing Reservoir No. 1, therefore both tanks will have identical HWL and finished floor elevations, and a pumped tank intertie will not be required. The proposed tank will have separate inlet and outlet connections, overflow structure, drain line, and intertie piping. Proposed tank piping layouts are shown on Figures 4-1.1, 4-2.1, and 4-3.1. The proposed piping will be configured to accommodate the following:

1. System fills and draws from either tank, while the other tank is isolated.
2. System fills one tank and draws from the other.
3. System fills and draws from both tanks simultaneously.

2.2.1 Piping to Live Oak Canyon Road

Currently the District has a 20-foot wide easement containing existing 10-inch and 14-inch steel pipelines connecting the Harris Grade Reservoirs No. 1 and No. 2 to 10-inch (steel) and 14-inch (ACP) waterlines in Live Oak Canyon Road. The District has determined that the existing 10-inch pipeline will need to be upsized to 16-inches to meet the expected increased system demands.

Constructability of the new 16-inch pipeline is discussed further in Section 5.

2.2.2 Tank Inlet Outlet Piping

Reservoir No. 1

The existing 2.0 MG Reservoir No. 1 was originally designed with a 14-inch combined inlet/outlet pipeline. A 12-inch outlet connection was constructed as a modification to the original design intended to be used as a separate outlet, but is no longer used. The no longer used 12-inch outlet connection contains above grade piping, pump, gate valve, double ball expansion joint, and Cla-Val and is shown in the photo following this paragraph.

Photo 1 – Existing Reservoir No. 1 Inlet Piping Modification

The 12-inch tank outlet was originally intended to boost water approximately 10 psi to give higher pressures at the outskirts of the system, but is no longer in use.

There are two below grade pipe penetrations coming off the 12-inch tank connections. Record drawings are not available showing how the piping from the 12-inch tank connection ties back to the main line. It is recommended that during preliminary design the below grade pipes be located to determine how they are connected to the system.

Currently the District fills to Reservoir No. 2 and draws from Reservoir No. 1. When Reservoir No. 2 is out of service during construction all Reservoir No. 1 will need to operate independently. It is recommended that the unused 12-inch connection be converted to a separate inlet connection with an altitude valve to protect the tank against overfilling.

New Harris Grade Reservoir

The design of the new tank should include the following inlet and outlet design features:

- Separate inlet and outlet connections designed to fill and draw from the tank at opposite sides to promote tank mixing.
- The size of the inlet and outlet lines has been assumed to be 16-inchs to match the diameter of the new pipeline from Live Oak Canyon Road. The size should be confirmed during preliminary design and based on the anticipated tank fill and draw rates.
- A new altitude valve should be sized during preliminary design and be placed on the inlet pipe to prevent overfilling the tank.

- Flexible expansion joints installed at all tank connections to protect the piping and tank against differential settlement or movement during a seismic event.

2.2.3 Tank Overflow and Drain Piping

Overflow and drain pipelines of the existing reservoirs empty to the surface and sheet flow to a riprap pad then off site to the adjacent natural terrain. It is anticipated the new overflow and drain pipelines will also be directed to riprap and sheet flow off the site in a similar manner.

The overflow size of the new reservoir will be confirmed during preliminary design based on the maximum anticipated fill rate of the reservoir. It is anticipated the proposed tank overflow will penetrate through the tank wall and feature an air gap to meet California Department of Drinking Water (DDW) requirements.

A tank drain should be provided to remove unusable water from the reservoir. This is usually the last few feet that cannot be sent to the system and/or any wash down water due to tank cleaning. On a concrete tank the drain will penetrate through the floor and collect in a manhole, where the water can be dechlorinated and released to sheet flow to riprap and then offsite to the natural terrain. On a steel tank a flush type cleanout will be provided through the tank wall, near the bottom of the tank wall.

The required size and connection points of the drain and overflow facilities should be studied in more detail during the preliminary design phase to determine the environmental mitigation measures related to draining the tank.

2.2.4 Tank Intertie Connection

The existing tank intertie connection and pump will be removed and replaced. The new tank will be designed to float off the existing Reservoir No. 1. The new tank intertie should be designed for the maximum tank fill and draw rates in order to fill through one tank and draw from the other. Isolation valves and flexible expansion joints should be placed at each tank connection.

2.3 SITE DESIGN REQUIREMENTS

The following site design elements were considered when developing the tank siting alternatives.

Construction clearance: A minimum of 12-feet of clearance is required around the tank during construction.

Site access (Final): The final site will have similar vehicle accessibility as the existing. The existing site has space for a pickup truck to enter the site and drive around the existing reservoir.

Site access (Interim): The interim construction site will have access for large a single unit truck, approximately the size of a concrete truck or crane (30-feet long x 8-feet wide; 42-foot turning radius).

Final site grading: The site will be graded so that the surface slopes away from the tanks, to avoid ponding adjacent to the tank foundation.

Cantilever shoring: A maximum 14-foot high cantilever shoring was assumed for the purposes of this siting study. Ultimately the shoring design is part of the Contractor's means and methods, however it is recommended that a conceptual shoring plan be developed in the preliminary design phase of the project.

On-site retaining wall: A maximum 12-foot high retaining wall was assumed for the purposes of this siting study. The final retaining wall height and design will be developed during the preliminary design phase of the project.

3. GEOTECHNICAL INVESTIGATION

A "Preliminary Geotechnical Exploration Report" for the project was completed by Leighton Consulting, dated June 18, 2020. As part of the preliminary investigation two hollow-stem auger borings were taken at the site, ranging in depths from 33 to 41 feet below the existing grade. Both borings were terminated due to auger refusal. The complete geotechnical report can be found in Appendix A of this report.

This section summarizes the findings of the preliminary geotechnical report and outlines additional geotechnical investigations required for final design.

3.1 GEOTECHNICAL FINDINGS

Summarized below are geotechnical characteristics of the site and recommendations outlined in the preliminary geotechnical report.

Table 3 – Geotechnical Characteristics
Subsurface Conditions: In general, the borings at the site consisted of artificial fill, alluvium, and bedrock. The southern side of the site consisted of deeper artificial fill and alluvium layers (up to 25 feet below grade), while bedrock was encountered as high as 1 foot below grade at the northern side of the site.
Groundwater: Groundwater was not encountered during the field exploration to a maximum depth of 41-feet. Groundwater is not anticipated to adversely impact the proposed project.
Expansive Soil Characteristics: The expansion potential of the near-surface onsite soils is considered to be low; however, variability in the expansion potential of the near surface onsite soils should be anticipated.
Soil Corrosivity: • Soils exhibit negligible potential for sulfate attack on concrete. • Soils exhibit low corrosion potential to buried ferrous metal in direct contact with the soils.
Rippability: • Near surface bedrock is expected to be excavatable using conventional heavy duty earth moving equipment. • Deeper bedrock excavations may require special ripping techniques such as jackhammers or other percussion devices.
Faulting and Seismicity: There are no known active or potentially active faults traversing the site.
Secondary Seismic Hazards: • Liquefaction Potential is very low. • Seismically-Induced Landslides: The western portion of the site and northerly ascending slope are located within an area that has been identified by the State of California as being potentially susceptible to the occurrence of seismically-induced landslides. • Earthquake-Induced Flooding: The site is not located within an inundation area for dam failure, however the potential for earthquake-induced flooding may exist if the existing reservoir does not meet the current seismic design standards.

3.2 FUTURE GEOTECHNICAL INVESTIGATIONS

Based on the preliminary geotechnical investigation the proposed project is feasible from a geotechnical standpoint. The geotechnical report provided in the attached Appendix A provides recommendations on foundation design parameters, concrete slab on grade design, retaining wall and shoring design parameters, seismic design parameters, and pavement design.

The report found that the potential for seismically-induced landslides exists and should be further evaluated during final design, once a site plan is developed for the project. For this reason it is recommended that a supplemental geotechnical report be prepared during a future phase of design to conduct additional slope stability analysis and confirm geotechnical subsurface conditions.

4. SITING ALTERNATIVES

Based on the design criteria and geotechnical information outlined in the previous sections Tetra Tech has developed the following reservoir siting alternatives shown in Table 4 below.

Table 4 – Summary of Tank Alternatives

Alternative	Description	Material/Shape	Capacity
1A	• 0.42 MG Reservoir No. 2 is demolished, making room for a new reservoir cut into the northern slope of the site • Retaining wall (12-feet high max) • 2:1 and 1:1 permanent slopes	Steel / Circular (97-feet ID)	1.7 MG
1B	Same layout and requirements as Fig 4-1A	Concrete / Circular (97-feet ID)	1.7 MG
2	• 0.42 MG Reservoir No. 2 is demolished, making room for a new reservoir cut into the northern slope of the site • Partially buried tank • Temporary shoring required (assumed 14-feet max high cantilever shoring)	Concrete / Circular (109-feet ID)	2.0 MG
3	• 0.42 MG Reservoir No. 2 is demolished, making room for a new reservoir cut into the northern slope of the site • Partially buried tank • Temporary shoring required (assumed 14-feet max high cantilever shoring) • Temporary construction easement from US Forest Service	Concrete / Circular (125-feet ID)	2.7 MG
4	• 2.0 MG Reservoir No. 1 and 0.42 MG Reservoir No. 2 are demolished for a new reservoir, using the whole site • Requires both tanks to be out of service during construction (approx. 18 months) • Partially buried tank • Temporary shoring required (assumed 14-feet max high cantilever shoring)	Concrete / Rectangular (200-feet x 91-feet, inside wall dimensions)	4.0 MG

As shown in the table above, the only alternative that meets the District's desired 2.7 MG storage volume is Alternative 3. Conceptual final grading and site plan, interim grading plan, and sections are shown in Figures 4-3.1, 4-3.2, and 4-3.3, respectively. As shown in the conceptual grading plans, this alternative requires a temporary easement from the US Forest Service for interim grading operations. The grade around the tank wall varies from 17 feet along the north side and tapers to the finished floor grade along the south of the tank). An AWWA D-110 steel tank is not a feasible tank material for this alternative because steel tanks cannot have differential fill around the tank wall.

The largest tank that can be provided, keeping all grading operations within the limits of the District's lease limits is 2.0 MG, shown in Alternative 2. Similar to Alternative 3, an AWWA D-100 Steel Tank is not a feasible material because the final grading plan requires the north portion of the tank to be partially buried. Conceptual final grading and site plan, interim grading plan, and sections are shown in Figures 4-2.1, 4-2.2, and 4-2.3, respectively.

The largest AWWA D-100 Steel Tank that can be provided on the site is a 1.7 MG tank, as shown in Alternative 4-1. Alternative 4-1 can accommodate circular welded steel AWWA D-100 tank or a prestressed concrete cylinder tank per AWWA D-110 because either tank can be constructed with the clearances shown.

The rectangular concrete tank, Alternative 4-4, can provide approximately 4.0 MG of storage. However, this alternative does not meet District storage requirements when an additional 2.0 MG is included to account for the existing Reservoir No. 1 that will need to be removed for the 4.0 MG tank to be constructed. Additionally, this alternative takes all storage away from the Harris Grade site for the duration of construction. For these reasons, this alternative is not favorable, and has not been developed further in this study.

Alternatives 1, 2, and 3 each meet the District's WERS storage requirement, however Alternatives 1 and 2 do not meet the Saddleback Meadows storage requirement. Additional storage within the District is still required for the Saddleback Meadows development if Alternatives 1 or 2 are selected.

5. CONSTRUCTION CONSIDERATIONS

The three feasible alternatives (1, 2, and 3) presented in Section 4 have been further developed in this section. The three alternatives all have relatively similar impacts and challenges as described below.

5.1 CONSTRUCTION ACCESS, CONTRACTOR STAGING AREA, AND HAUL ROUTES

During construction of the new tank and demolition of the existing 0.42 MG tank construction equipment will need access to and around the construction site. The existing construction access road is single lane, 10-feet wide, with grades as steep as 16 to 17 percent. We evaluated the existing access road for access by large trailered vehicles. A program was used to simulate the following two design vehicles:

- Tractor trailer: 69-feet long x 8-feet wide and has a 50-foot turning radius
- Single unit truck: 30-feet long x 8-feet wide and has a 42-foot turning radius

Based on the results of this analysis, the larger tractor trailer cannot stay within the 20-foot limits of the access lease and cannot turn onto the access road from Live Oak Canyon. Large delivery vehicles will need to deliver materials to a staging area at the bottom of the access road, then the materials will need to be taken to the reservoir site using a smaller vehicle. This results in increased handling of materials, increased staging, and increased overall project costs. We recommend that the improvements be made and confirmed in preliminary design to widen the access road entrance at Live Oak Canyon Road to accommodate a tractor trailer delivery vehicle. If this improvement is not done the Contractor will be required to limit delivery vehicle size, resulting in additional deliveries and increased project costs.

There are portions of the access road that we recommend localized improvements to widen the roadbed to a 16-feet to accommodate the smaller single unit truck. This additional width at these localized areas are to facilitate the turning radius of the vehicle. Localized improvements to the road width as well as clearing of brush and overhanging trees is recommended and should be confirmed during the preliminary design phase of the project. Additionally, as shown on Figures 4-1.1, 4-2.1, and 4-3.1 a widened site entrance is recommended at the top of the access road near the gate. The widened sit entrance will allow a single unit truck to more easily enter the site and turn around the tanks. If the improvements are not done, then the Contractor will be required to limit the vehicle size and this will result in increased staging, increased handling of material and increased costs.

Due to the steep grade of the access road it is expected concrete trucks will not be able to carry full loads up to the site, resulting in increased construction costs.

There is an existing hiking/biking trail that crosses the access road, as shown in Figure 1-1. Coordination with the Forest Service will be required during preliminary design and construction to provide a trail detour or closure.

Three potential Contractor staging area have been identified below, and shown in Figure 5-1.

1. ***Lower staging area:*** The proposed lower staging area closes a portion of the private access road to provide approximately 6,000 square feet for Contractor staging area. A detour can be provided, as shown in Figure 5-1, through the Hamilton Oaks Private Community gates to reach the area blocked by the proposed staging area. Further coordination with the community will be required to secure this staging area. If this staging area cannot be secured the Contractor will need to find an offsite storage and staging area, increasing the cost of the overall project.

2. ***Upper staging area (east of tank):*** It is recommended that a working pad be built up to the east of the site within the lease area. This will act as a temporary laydown area for the Contractor. The Contractor will need a minimum of approximately 5,000 square feet of laydown area adjacent to the proposed tank. Assuming a 2:1 grade can be built up along the east side of the lease area, approximately 2,500 square feet of Contractor staging area can be provided. Due to the reduced staging area near the tank it is anticipated that the Contractor will be required to double handle materials, increasing the overall project costs.
3. ***Upper staging area (outside of lease boundary):*** Due to the limited working area within the lease boundary, additional Contractor laydown area, outside of the lease boundary was investigated. A flat pad can be graded to the south of Reservoir No. 1 providing the Contractor up to an additional 10,000 SF of laydown area, as shown in Figures 5-1 and 5-2. This laydown area will require the removal of approximately 4,000 cubic yards of material, but will decrease tank construction costs and increase the contractors production rate while constructing the tank. This laydown area will require a temporary construction easement from the Forest Service and should be investigated further during preliminary design.

The anticipated haul route to the site from the Interstate 5 Freeway, is north along El Toro Road, then east along Live Oak Canyon Road.

5.2 IMPACTS TO EXISTING FACILITIES

The three reservoir alternatives all have relatively similar site impacts and challenges as follows:

- Demolition of Reservoir No. 2 (0.42 MG): Each alternative requires the demolition of the existing Reservoir No. 2. In addition to the removal of the steel tank, the removal of the 6-inch altitude valve vault, 8-inch inlet piping, tank intertie piping and pump, tank overflow and drain piping will be required.
- During demolition activities the existing Reservoir No. 1 must stay in service. An isolation valve on the Reservoir No. 2 8-inch inlet/outlet pipeline and a valve on the 6-inch tank intertie can be closed to isolate the 0.42 MG Reservoir No. 2 from the system.
- Reservoir No. 2 will need to be drained before demolition. The District should plan to drain the tank to the system as much as possible to prepare for the Contractor's demolition. The Contractor will drain any remaining water through the tank's drain line to the existing surface which will sheet flow off the site.
- Overhead Electrical Line and Power Poles: Two power poles are located within the site, both to the east of the tank. A smaller power pole containing the site's electrical service will need to be relocated, as shown in the grading figures. A large transmission pole serving the site, located north of the site entrance must be protected in place. The conceptual grading figures keep a 10-foot clear buffer around the existing transmission pole, however SCE clearance requirements will need to be confirmed during preliminary design. The transmission pole serving the site contains overhead lines that go down to Live Oak Canyon Road. These overhead lines cross the site access road and will need to be considered during construction and clearance requirements will need to be coordinated with SCE. The overhead line will limit the height of the Contractor's equipment that can pass under it.
- Site fencing: The site fencing will need to be revised to enclose the larger site.
- Tree and brush pruning and/or removal is anticipated and will need to be coordinated with the Forest Service. Further investigation during primary design should be completed to determine environmental requirements.

5.3 SITE GRADING AND DRAINAGE IMPACTS

The site grading and drainage impacts for Alternatives 1, 2, and 3 are all similar and they do not significantly alter how the site is graded and drains. These three alternatives all feature a built-up pad on the north east of the site, and a widened entrance at the access gate. These features will allow for more room when constructing the tank

and provide additional useable space at the site. Overall site drainage patterns will be maintained, sending runoff away from the tanks, off site.

Alternative 2 and 3 (shown in Figures 4-2.1 and 4-2.3) feature a final grading concept with a partially buried concrete tank. In order to maintain drainage away from the tank a concrete v-ditch will need to be constructed around the northern perimeter of the tank. The concrete v-ditch will catch runoff coming towards the tank from the adjacent hillside and direct it around the tank and off site.

The amount of runoff from a new, larger tank will decrease the overall site permeability consequently increasing overall site runoff. During final design the District may be required to provide an on-site BMP to treat runoff prior to discharging it.

5.4 PIPELINE CONSTRUCTION TO LIVE OAK CANYON

The District has requested that the existing 10-inch steel pipeline located within the 20-foot wide easement from Live Oak Canyon Road up to the Harris Grade Reservoir site be upsized to a 16-inch pipeline to meet future demands. The following two conceptual alignments and cross sections were developed and shown in Figure 5-3.

- Alternative A: This alignment uses the available 10-foot wide corridor between the existing 10-inch pipeline and the edge of easement.
- Alternative B: This alignment uses the same corridor as the existing 10-inch pipeline and requires replace-in-place construction.

Both alignments have the following construction considerations:

- **Environmental:** Similar to the adjacent areas surrounding the site and access road, the existing 20-foot wide easement is covered in mature trees and brush. Before construction can begin clearing and grubbing of the existing surface will be required. During preliminary design additional environmental investigations should determine any environmental mitigation measures required during construction.

- **Pipe Construction in Slope:** The existing 20-foot wide easement extends from the Harris Grade Site down the hill to Live Oak Canyon Road. Grades on the hill side are as much as 2:1. It is recommended that concrete slope anchors are be constructed at intervals throughout the trench to hold backfill in place, and to achieve good compaction over the pipe. It is unknown if concrete slope anchors were installed on the existing 10-inch and 14-inch lines. If slope anchors were installed on the existing pipe, the Contractor may encounter them during excavation and have difficulty constructing the proposed trench.

  The geotechnical report determined that this area was susceptible to seismically induced landslides. During preliminary design additional slope stability investigations should be conducted by a geotechnical engineer to confirm any bedding and backfill, trenching, shoring, or construction requirements to mitigate seismically induced landslides.

- **Utility separation:** The ideal minimum trench-to-trench horizontal clearance from the proposed water pipeline to parallel existing utilities is 3-feet. As excavation activities get closer to existing utilities, the Contractor runs the risk of running into unstable, previously disturbed soils, resulting in the trench caving in. The 20-foot easement only allows space for a 2 foot to 2.5 foot trench to trench clearance. The minimal clearance will likely slow the Contractor's production rate, as they will need to excavate carefully to avoid impacting the adjacent trench.

- **Work area:** The ideal work area to install the proposed pipeline is approximately 24 feet wide, however the existing easement limits the work area to 20-feet. During preliminary design the District may want to investigate an additional 10 to 15 foot temporary construction easement, which will allow the Contractor additional staging and laydown area, resulting in an increased production rate and lower installation costs.

  If a temporary easement cannot be obtained the existing 20-foot easement can be utilized. The existing easement limits the available staging area for materials and slows the production rate because work will need to be sequenced.

Advantages and disadvantages to each alternative are summarized below:

Alternative A:

- Does not require removal of existing 10-inch.
- More room on the south east side of the pipe staging of materials and spoils.
- Farther away from the existing 14-inch water and therefore, a lower risk of disturbing the existing 14-inch pipe to be protected in place.
- Without the temporary easement Alternative A is only 5-feet from the edge of the existing easement. The Contractor will not have access to the north west side of the pipe trench, this will require additional sequencing of material, resulting in a slower production rate.
- Excavating in undisturbed soil, may lead to less ripable soils and less favorable production rates.

Alternative B:

- Excavation in previously disturbed soil, can lead to more favorable production rates.
- Requires removal and disposal of the existing 10-inch steel pipe.
- Typically, concrete slope anchors are constructed for pipeline construction along steep grades. It is unknown based on record drawings if concrete slope anchors were constructed over the existing 10-inch. If they were the contractor would need to remove the existing concrete slope anchors.

5.5 PERMITTING

It is anticipated that permitting and coordination with the following agencies will be required:

- County of Orange
- Regional Water Quality Control Board
- California Department of Drinking Water
- US Forest Service: Temporary construction easements will be required for Alternative 3, and the upper contractor staging area shown in Figures 4-3.1 and 5-1 (if the District elects to pursue this additional staging area).
- Environmental permits (a table of anticipated environmental requirements is given in Appendix C)

Continued permit coordination and development should continue in preliminary and final design.

5.6 CONSTRUCTION PHASING

Planning, sequencing, and phasing of construction activities will be critical to keep the Reservoir No. 1 in service during construction. In general, the following construction sequencing is recommended.

1. Site access road improvements: Tree and brush removal and pruning along the access road to accommodate construction vehicles.
2. Site preparation: clearing of the site and preparing the site for grading activities.

3. Construct piping modifications to Reservoir No. 1: Install altitude valve on inlet piping; remove pump and abandoned equipment.
4. Close valves and isolate Reservoir No. 2 from the system.
5. Demolish Reservoir No. 2 and appurtenances.
6. Construct temporary shoring/retaining walls and site grading.
7. Construct new tank, onsite piping, new 16-inch pipe to Live Oak Canyon Road, valving, drains, overflow, electrical, etc.
8. Construct the tank intertie connection and connect the new 16-inch pipeline to Live Oak Canyon Road to the existing 14-inch.
9. Disinfect and hydrotest new tank.
10. Fill tank and bring new reservoir online.
11. Complete final site grading, landscaping, and miscellaneous site work.

Further refinement of the construction sequencing and phasing should be undertaken during the preliminary and final design phases of this project.

5.7 CONSTRUCTION DURATION

Each alternative is anticipated to have a similar construction duration. The construction duration of this project is expected to require approximately 24 months with the following required durations:

1. Site preparation and clearing of access road – 1 month
2. Reservoir No. 1 piping modifications – 2 months
3. Demolition of Reservoir No. 2 – 2 months
4. Reservoir construction, including grading operations, shoring, piping and appurtenances, and pipeline construction to Live Oak Canyon Road – 15 months
5. Piping connections – 2 weeks
6. Reservoir disinfection and testing – 2 weeks
7. Final grading, site work, landscaping, and miscellaneous work – 2 months

5.8 RESERVOIR TYPE

The reservoir types under consideration in this study are:

1. Circular pre-stressed (wire-wrapped) concrete reservoir per AWWA D110
2. Welded steel reservoir per AWWA D100

A welded steel reservoir is not feasible for Alternatives 2 and 3 because the conceptual final grading plan includes a partially buried tank. Steel tanks are typically are only buried if the loading can be distributed equally around the tank. In these alternatives the partially buried, north portion of the tank would have additional dead load on the tank wall. A welded steel reservoir is only feasible for Alternative 1. The structural/construction advantages and disadvantages of the two reservoir types are listed below:

Table 5 – Reservoir Type Advantages and Disadvantages

	Prestressed Concrete Reservoir	Steel Reservoir
Construction Cost	Higher capital cost	Lower capital cost
Useful Life	75 to 100 years	50 to 75 years
Maintenance Cost	Lower maintenance cost	Typically higher maintenance (re-painting tank outside; re-coating inside surfaces; and replacement of underside floor cathodic protection and interior anodes)

Table 5 – Reservoir Type Advantages and Disadvantages		
Water Quality	In an unmixed tank 9-inch to 12-inch thick walls provide enhanced insulation, keeping water cooler and a more consistent temperature within the tank	In an unmixed tank thinner walls result in warmer water and dead zones near the top of the tank, leading to poor tank circulation and water quality issues.
Fire Resistance	Enhanced fire resistance	More susceptible to fire damage
Appurtenances	Tank connections are below grade through the reservoir floor slab. This leaves more useable space above the site for vehicle access around the tank.	Tank connections are above grade through the reservoir wall. This leaves less space for vehicle access round the tank.

6. CONSTRUCTION COST

Construction cost estimates were prepared for each of the four feasible alternatives and are presented in the table below.

Table 6 – Reservoir Alternative Cost Analysis

Alternative	Estimated Construction Cost
1A – 1.7 MG Steel Tank	$4,500,000
1B – 1.7 MG Concrete Tank	$5,100,000
2 – 2.0 MG Concrete Tank	$7,100,000
3 – 2.7 MG Concrete Tank	$7,900,000

The cost estimates above include a 30% contingency.

7. ALTERNATIVES ANALYSIS

The advantages and disadvantages of each of the three reservoir siting alternatives are presented below.

Table 7 – Alternative Analysis

Alternative	Advantages	Disadvantages	Construction Cost
1A/1B – 1.7 MG Steel or Concrete Tank (Material Analysis in Table 5)	1. Requires least amount of temporary grading/shoring 2. More contractor work area is available at the site 3. Largest feasible steel tank 4. Temporary construction easements from USFS are not required	1. Does not meet minimum storage requirement, additional storage at Saddleback Development is required	$4,500,000 (Steel) $5,100,000 (Concrete)
2 – 2.0 MG Concrete Tank	1. Temporary construction easements from USFS are not required 2. Requires less grading/shoring than Alternative 3.	1. Does not meet minimum storage requirement, additional storage at Saddleback Development is required 2. Steel tank not feasible	$7,100,000
3 – 2.7 MG Concrete Tank	1. Meets minimum storage requirement	1. Requires temporary construction easement from USFS 2. Requires the most amount of temporary grading and shoring 3. Steel tank not feasible	$7,900,000

8. CONCLUSION AND RECOMMENDATION

To be completed in the final document, after discussions with the District.

Appendix A. Geotechnical Report

PRELIMINARY GEOTECHNICAL EXPLORATION REPORT
TRABUCO CANYON WATER DISTRICT
HARRIS GRADE RESERVOIR REPLACEMENT
FEASIBILITY STUDY
18975 LIVE OAK CANYON ROAD
TRABUCO CANYON, ORANGE COUNTY, CALIFORNIA

Prepared for:

TETRA TECH, INC.

17885 Von Karman Avenue, Suite 500
Irvine, California 92614

Project No. 12753.001

June 18, 2020

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

June 18, 2020

Project No. 12753.001

Tetra Tech, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, California 92614

Attention: Mr. Kyle Bohn, PE

Subject: Preliminary Geotechnical Exploration Report
Trabuco Canyon Water District
Harris Grade Reservoir Replacement Feasibility Study
18975 Live Oak Canyon Road
Trabuco Canyon, Orange County, California

In accordance with your request, Leighton Consulting, Inc. has performed a preliminary geotechnical exploration as your subconsultant for the Trabuco Canyon Water District (District) Harris Grade Reservoir Replacement Feasibility Study. This report is prepared in accordance with our revised proposal dated January 29, 2019, and information provided by you.

Earth materials encountered during the field exploration consisted mostly of bedrock of the Silverado Formation (clayey sandstone, sandstone and siltstone). At the southern portion of the site, Quaternary-aged alluvium/colluvium consisting of medium stiff clay and medium dense to dense clayey sand was encountered to a depth of 25 feet. Groundwater was not encountered in any of our borings drilled to a maximum depth of 41 feet below the existing grade.

Geotechnical aspects of the site that should be considered in the feasibility study include potential for seismically-induced landslides on the northerly and westerly slopes, the presence of undocumented fill and alluvium/colluvium at the southern portion of the site, and the potential presence of hard rock concretions within the bedrock if deep excavations are planned.

17781 Cowan ▪ Irvine, CA 92614-6009
949.250.1421 ▪ 949.250.1114 Fax

The proposed project is feasible from a geotechnical standpoint, provided the findings and preliminary recommendations presented in this report are considered in development of the project plan and preliminary design. Additional subsurface exploration and analysis may be required when a site plan is available to verify the geotechnical conditions throughout the site are generally consistent with the conditions encountered during our limited field exploration. This report presents the results of our field exploration, laboratory testing, and geotechnical analyses, and provides our preliminary recommendations for the proposed project.

Our professional services were performed in accordance with the prevailing standard of professional care as practiced by other geotechnical engineers in the area. We do not make any warranty, either expressed or implied. The report may not be used by others or for other projects without the expressed written consent of our client and our firm.

We appreciate the opportunity to work with you on this project. If you have any questions or if we can be of further service, please contact us at your convenience.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Christian Delgadillo, PE, GE 3144
Senior Project Engineer

Jeff Pflueger, PG, CEG 2499
Associate Geologist

Reviewed by:

Djan Chandra, PE, GE 2376
Senior Principal Engineer

CD/DJC/JMP/lr

Distribution: (1) Addressee

Leighton

TABLE OF CONTENTS

Section **Page**

Tables

Leighton

LIST OF ATTACHMENTS

Figures

Appendices

1.0 INTRODUCTION

1.1 Site Location and Proposed Project

The Harris Grade Reservoir site is located in the unincorporated community of Trabuco Canyon in the foothills of the Santa Ana Mountains in eastern Orange County. The site location (latitude N33.6869° and longitude W117.6061°) and immediate vicinity is shown on Figure 1, *Site Location Map.*

The project site is occupied by a 2.0 million gallon (MG) steel reservoir built in 1981 and a 0.42 MG steel reservoir built in 1965. The site for the existing facility appears to have been partially cut down into the ridgelines on the northern and southwestern sides of the existing reservoirs.

The District plans to replace the 0.42 MG reservoir with a new 2.0 to 2.55 MG reservoir and upgrade the inlet/outlet pipe leading up the slope to the site in a northeasterly direction from Live Oak Canyon Road.

1.2 Purpose and Scope of Exploration

The purpose of our preliminary geotechnical exploration was to evaluate the subsurface conditions and general soil/bedrock characteristics at the project site in order to assist Tetra Tech in identifying project constraints and preparation of preliminary layouts of the new reservoir. The scope of this exploration included the following tasks:

- *Background Review* – A background review was performed of readily available, relevant geotechnical and geological literature pertinent to the site. References reviewed in preparation of this report are listed in Section 4.0.

- *Pre-Field Exploration Activities* – Exploration locations were coordinated with Tetra Tech and the District, and marked in the field. Underground Service Alert (USA) was then notified to locate and mark existing underground utilities prior to our subsurface exploration.

- *Field Exploration* – We advanced two hollow-stem auger borings (LB-1 and LB-2) to depths ranging from 33 to 41 feet below existing grade on May 7, 2020. Both borings were terminated due to auger refusal. The approximate boring locations are shown on Figure 2, *Boring Location Map*. The borings were geotechnically logged and sampled using Standard Penetration Test (SPT) and

California Ring samplers at selected intervals. The SPT and Ring samplers were driven with a 140-pound hammer, free falling 30 inches. The number of blows was noted for every 6 inches of sampler penetration. Relatively undisturbed samples were collected from the borings using the Ring sampler. The sampling procedures generally followed ASTM D 1586 for SPT and D 3550 for split-barrel ring sampling. In addition to driven samples, representative bulk soil samples were also collected from the borings. Each sample collected was described in general conformance with the Unified Soil Classification System (USCS). The samples were sealed, packaged, and transported to our laboratory for testing. The soil and bedrock descriptions and depths are noted on the boring logs included in Appendix A, *Boring Logs*.

- *Laboratory Tests* – Laboratory tests were performed on selected soil and bedrock samples obtained during our field investigation. The laboratory testing program was designed to evaluate the physical and engineering characteristics of the onsite soil and bedrock. Tests performed during this exploration include:

  - Moisture Content and Dry Density (ASTM D 2216 and ASTM D 2937);
  - Consolidation (ASTM D 2435);
  - Direct Shear (ASTM D 3080);
  - R-Value (California Test Method 301); and
  - Corrosivity Suite – pH, Sulfate, Chloride, and Resistivity (California Test Methods 417, 422, and 643).

  Results of moisture content and dry density testing are presented on the boring logs in Appendix A. Other laboratory test results are presented in Appendix B, Laboratory Test Results.

- *Engineering Analysis* - The data obtained from our background review, field exploration, and laboratory testing program were evaluated and analyzed to develop the preliminary recommendations presented in this report for the proposed project.

- *Report Preparation* - The results of the exploration are summarized in this report presenting our findings, conclusions and recommendations.

2.0 FINDINGS

2.1 Geologic Setting

Regionally, the subject property lies within the central northwesterly portion of the Peninsular Ranges Geomorphic Province of California, one of eleven distinctly separate areas designated within the general boundaries of California. The provinces are defined on the basis of similarities in their topographic, geomorphic, tectonic and other geologic characteristics. The Peninsular Ranges are composed of an uplifted, westerly-tilted structural block that is manifest in an alternating series of northwest-trending mountain ranges and intervening valleys. Locally, the subject site lies within an area of foothills that flank the southwestern margin of the Santa Ana Mountains.

While the Santa Ana Mountain range is underlain by cretaceous age batholithic and metasedimentary bedrock units, the foothills are underlain by a well-mapped sequence of marine to non-marine sedimentary geologic formations of Cenozoic age through Quaternary age.

Three major northwest-trending blocks are recognized within the province, which are separated by major active paralleling fault systems including the Whittier-Elsinore Fault Zone, Newport-Inglewood Fault Zone, and the San Jacinto and San Andreas Fault systems. While interior areas of the structural blocks contain numerous faults, including the nearby Cristianitos and Mission Viejo faults, they are not classified as active by the California Geologic Survey (Bryant and Hart, 2007).

2.2 Surficial Geology

The site is mapped to be underlain by sedimentary bedrock of the Tertiary age Silverado Formation (Morton and Miller, 2006; Schoellhamer et al., 1981). This formation is mapped as a narrow zone of bedrock at the site in fault contact to the north and south with Cretaceous-age bedrock units and other Tertiary-age bedrock units trending in a northwest-southeast direction consistent with the ridgeline located immediately south of the existing reservoirs. The inclination of the bedrock is steeply dipping (roughly 50 degrees from horizontal) and is reported to have been overturned due to local tectonic movement. An overview of regional geology of the area is presented on Figure 3, *Regional Geology Map.*

2.3 Subsurface Conditions

Geologic units encountered in the borings at this site consist of undocumented artificial fill, Quaternary-aged alluvium/colluvium and Tertiary age Silverado Formation bedrock, as described in the following sections. Variations in subsurface geologic materials should be considered. Care should be exercised in interpolating or extrapolating geologic conditions between or beyond borings as the bedrock and soils generated from weathering of the units can vary widely with respect to geotechnical properties.

Artificial Fill (Af): The fill encountered in our borings varied from approximately 1 to 6 feet in thickness, and consisted generally of grayish brown and olive brown clay and sandy clay. The fill material is assumed to have been placed during grading of the existing reservoir site and associated improvements. Localized deeper accumulations of fill associated with the development of the site should be anticipated.

Quaternary Alluvium/Colluvium (Qa/Qcol): Alluvium/colluvium was encountered in the southern portion of the site in boring LB-2 at approximately 6 feet deep below existing grade, and consisted of brown and olive brown, medium stiff clay and medium dense to dense clayey sand. The alluvium/colluvium extends to a depth of approximately 25 feet below existing grade at the location of boring LB-2.

Silverado Formation (Tsi): Bedrock of the Silverado Formation underlies the site at depths varying from 1 to 25 feet. The Silverado Formation consists of non-marine and marine basal conglomerate overlain by relatively thin sequence of sandstone and siltstone. As encountered in our borings, the Silverado Formation generally consisted of yellow brown, olive reddish brown and blue-gray, fine- to medium-grained sandstone, clayey sandstone, and siltstone. Minor conglomerate lenses and locally hard and cemented zones should be anticipated within the formation.

2.4 Groundwater

Groundwater was not encountered during our field exploration to a maximum depth of 41 feet. Since the project site is located in an area mapped to be underlain by sedimentary bedrock, there is no historic high groundwater level information available for the site (CGS, 2002a). Groundwater may exist at greater depths in more granular layers of bedrock or in fractures within the bedrock. Based on our

field exploration and our experience in the project vicinity, groundwater is not anticipated to adversely impact the proposed project.

Fluctuations of the groundwater level, localized zones of perched water, and an increase in soil moisture should be anticipated during and following the rainy seasons or periods of locally intense rainfall or storm water runoff.

2.5 Expansive Soil Characteristics

Based on our exploration, the near-surface onsite soils are variable and generally consist of sand, clayey sand and sandy clay. Expansion Index (EI) testing conducted on a representative bulk sample of the near-surface onsite soils from boring LB-2 (i.e. upper 5 feet below ground surface) yielded an EI of 32 (see Appendix B). The expansion potential of the near-surface onsite soils is considered to be low; however, variability in the expansion potential of the near-surface onsite soils should be anticipated.

2.6 Soil Corrosivity

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates and/or pH values of less than 5.5. Soils with chloride content greater than 500 ppm per California Test 422 are considered corrosive to steel, either in the form of reinforcement protected by concrete cover or plain steel substructures, such as steel pipes. Additionally, soils with a minimum resistivity of less than 1,000 Ohm-cm are considered corrosive to ferrous metal (Caltrans, 2018). Corrosivity test results are included in Appendix B of this report and summarized in Table 1.

Table 1 – Summary of Corrosivity Test Results

Test Parameter	Test Results	General Classification of Hazard
Water-soluble sulfate content	49 to 53 ppm	Negligible sulfate exposure to buried concrete (per ACI 318-14)
Water-soluble chloride Content	40 to 110 ppm	Non-corrosive to buried concrete (per Caltrans Specifications)
pH	7.2 to 8.0	Neutral to moderately alkaline, relatively passive to buried metals
Minimum resistivity (in saturated condition)	1,260 to 1,498 Ohm-cm	Non-corrosive to buried ferrous pipes (per Caltrans Specifications)

Based on the laboratory test results, the near-surface (upper 5 feet) soils at the site exhibit “negligible” potential for sulfate attack on concrete, and have low corrosion potential to buried ferrous metal in direct contact with the soils.

2.7 Rippability

Bedrock of the Silverado Formation (Tsi) was encountered in borings LB-1 and LB-2 at depths of 1 and 25 feet, respectively. However, refusal of the 8-inch diameter hollow-stem auger was encountered in both borings LB-1 and LB-2 at depths of 41 and 33 feet, respectively.

The near-surface bedrock can generally be excavated using conventional heavy-duty earth moving equipment in good working order. Localized hard and cemented zones may also exist and should be expected. As such, excavation difficulties should be anticipated where deeper excavations are planned into the bedrock. These localized areas may require special ripping techniques such as jackhammers or other percussion device and may produce oversized material that will require processing if the material is to be used as general site fill for structural support.

2.8 Faulting and Seismicity

Our review of available in-house literature indicates that there are no known active or potentially active faults traversing the site and the site is not located within a State of California designated Alquist-Priolo Earthquake Fault Zone (Bryant and Hart, 2007). The principal seismic hazard that could affect the site is ground shaking resulting from an earthquake occurring along any one of several major active faults in the region. Known regional active faults that could produce significant ground shaking at the site include the Whittier-Elsinore, San Joaquin Hills Blind Thrust and Chino faults located approximately 7.1 miles, 8.5 miles and 9.7 miles, respectively, from the site. The San Andreas fault is the largest fault in the region and is located approximately 38 miles from the site. Major regional faults with surface expression in proximity to the site are shown on Figure 4, *Regional Fault Map*.

The intensity of ground shaking at a given location depends primarily upon the earthquake magnitude, the distance from the source, and the site response characteristics. Peak horizontal ground accelerations are generally used to evaluate the intensity of ground motion. Using the SEAOC/OSHPD Seismic

Design Maps Tool (https://seismicmaps.org/) to obtain seismic design parameter values from the United States Geological Survey (USGS), the peak ground acceleration for the Maximum Considered Earthquake (MCE_G) adjusted for the Site Class effects (PGA_M) is 0.61g. Based on the USGS online interactive deaggregation program (USGS, 2020a), the modal seismic event is Moment Magnitude (M_W) 6.5 at a distance of 13 miles.

2.9 Secondary Seismic Hazards

Secondary seismic hazards in the region could include soil liquefaction and associated surface manifestations, earthquake-induced landsliding and flooding, seiches, and tsunamis. The potential for these secondary seismic hazards at the site is discussed below.

Liquefaction Potential - Review of the Seismic Hazard Zone Map for the Santiago Peak 7.5 Minute Quadrangle (CGS, 2002b) indicate the subject site is not located within an area that has been identified by the State of California as being potentially susceptible to the occurrence of liquefaction (see Figure 5, *Seismic Hazard Map*). In addition, the presence of relatively shallow bedrock and lack of groundwater at the site also indicate that the liquefaction potential is very low.

Seismically-Induced Landslides - Review of the Seismic Hazard Zone Map for the Santiago Peak 7.5 Minute Quadrangle (CGS, 2002b) indicate that the western portion of subject site and the northerly ascending slope are located within an area that has been identified by the State of California as being potentially susceptible to the occurrence of seismically-induced landslides (see Figure 5). Therefore, the potential for seismically-induced landslides exists at the site and should be further evaluated once a site plan is developed for the project. Additional subsurface exploration and analysis may be required to evaluate slope stability and the potential for seismically-induced landslides.

Earthquake-Induced Flooding - Earthquake-induced flooding can be caused by failure of water-retaining structures as a result of earthquakes. According to the California Department of Water Resources Division of Safety of Dams (DSOD) Dam Breach Inundation Maps website (https://fmds.water.ca.gov/maps/damim/), the site is not located within an inundation area for dam failure. With regard to the subject site, the potential for earthquake-induced flooding depends on conditions and design of the existing reservoirs. The potential for earthquake-induced flooding

may exist if the existing reservoirs do not meet the current seismic design standards.

Seiches and Tsunamis - Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Under certain seismic conditions, a seiche could form within the newly constructed and existing reservoirs. The new reservoir should be designed to meet the current code for seismic requirements to reduce the potential for a seiche. Tsunamis are waves generated in large bodies of water by fault displacement or major ground movement. Based on the inland hilltop location of the site, tsunami risks at the site are not a consideration.

3.0 PRELIMINARY RECOMMENDATIONS

Based on our study, the proposed project is feasible from a geotechnical standpoint. Presented below are the preliminary geotechnical recommendations for the project. Additional subsurface exploration and analysis may be required once a site plan is developed and the recommendations may need to be revised and/or amended.

3.1 Site Grading

The northern portion of the site by boring LB-1 is underlain by a thin layer of fill and bedrock. If the new reservoir is located in this area and the finish pad elevation is at or close to the existing elevation, minor grading is required for site preparation and the reservoir foundation is expected to be supported entirely on bedrock. Shallow fill or alluvium/colluvium, if exposed within the reservoir footprint, may be removed and replaced with two sack sand/cement slurry or the foundation may be partially deepened to bedrock. Localized hard concretion of the bedrock may be encountered if deep excavations are planned. Depending on the footprint and layout of the new reservoir, a retaining wall may be needed at the toe of the ascending slope to the north and the reservoir may encroach into the landslide susceptibility zone. Moving the reservoir to the east is favorable from a slope stability standpoint but it would require placement of roughly 10 to 20 feet of fill to achieve the pad grade of the existing reservoirs.

Placing the new reservoir on the southern portion of the site would require cuts on the order of 10 to 20 feet into the existing ascending ridgeline that is located to the south. It would also require removal and recompaction of the existing fill and unsuitable alluvium/colluvium. The depth of removal is expected to be 5 to 10 feet below the existing grade.

The onsite soils are suitable for use as compacted structural fill provided that they are free of organic material, construction debris, and oversized materials larger than 6 inches. Imported fill soil, if any, should be noncorrosive with Expansion Index less than 50 and be approved by the geotechnical engineer prior to placement as fill. Fill soils should be placed in loose lifts not exceeding 8 inches, moisture-conditioned to at least 2 to 4 percentage points above optimum moisture content, and compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D 1557.

3.2 Foundation Design Parameters

The proposed reservoir may be supported on a mat foundation system bearing on either undisturbed, competent bedrock or compacted fill. Appurtenant structures such as office/equipment building may be supported on a conventional shallow foundation system such as spread footings bearing on undisturbed, competent bedrock or compacted fill.

Mat Foundation – Mat foundation bearing on undisturbed, competent bedrock or properly compacted structural fill may be designed using a maximum allowable bearing capacity 3,000 psf and a modulus of subgrade reaction of 150 pounds per cubic inch (pci). Total and differential settlements of the mat foundation due to the static loads are expected to be on the order of 1 inch and ½ over a distance of 30 feet, respectively. The bearing capacity may be increased by one-third for wind or seismic loading. The mat foundation should have a thickened edge of at least 12 inches below the lowest adjacent grade.

Conventional Shallow Foundation – Conventional shallow foundations may be used to support the loads of other proposed structures. Footings should have a minimum embedment depth of 12 inches and a minimum width of 12 inches. An allowable bearing pressure of 2,200 psf may be used based on the minimum embedment depth and width. The allowable bearing value may be increased by 300 psf per foot increase in depth or width to a maximum allowable bearing pressure of 3,000 psf. The allowable bearing pressures are for the total dead load and frequently applied live loads and may be increased by one third when considering loads of short duration, such as those imposed by wind and seismic forces. The allowable bearing pressures are net values; the weight of the footing may be neglected for design purposes. All continuous footings should be reinforced with top and bottom steel to provide structural continuity and to permit spanning of local irregularities.

The recommended allowable bearing capacity for shallow footings is generally based on a total allowable static settlement of 1 inch. Since settlement is a function of footing size and contact bearing pressure, differential settlement can be expected between adjacent columns or walls where a large differential loading condition exists. The differential settlement Is expected to be less than approximately ½ inch, assuming no more than 50 percent variation in dead plus sustained live load between adjacent columns.

Lateral Load Resistance – Resistance to lateral loads will be provided by a combination of friction between the soils and foundation interface and passive pressure acting against the vertical portion of the foundation. A friction coefficient of 0.35 may be used at the soil-concrete interface for calculating the sliding resistance. A passive pressure based on an equivalent fluid pressure of 390 pounds per cubic foot (pcf) may be used for calculating the lateral passive resistance. The lateral passive resistance can be taken into account only if it is ensured that the soils against embedded structures will remain intact with time. The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design.

3.3 Slab-On-Grade

Concrete slabs-on-grade subjected to special loads should be designed by the structural engineer. Where conventional light floor loading conditions exist, the following minimum recommendations for conventional slabs-on-grade should be used. More stringent requirements may be required by local agencies, the structural engineer, the architect, or the CBC.

- A minimum slab thickness of 5 inches. Slab reinforcement should be designed by the structural engineer but as a minimum should consist of No. 3 rebar placed at 24 inches on center in each direction and provided with adequate concrete cover.

- A vapor barrier, 10-mil or thicker, should be placed below slabs where moisture-sensitive floor coverings or equipment is planned. The vapor barrier should be properly sealed at all joints and any penetrations.

- To reduce the potential for excessive cracking, concrete slabs-on-grade should be provided with construction or weakened plane joints at frequent intervals. Joints should be laid out to form approximately square panels.

- The subgrade soil should be wetted prior to placing the vapor barrier, steel, or concrete.

Our experience indicates that use of reinforcement in slabs can generally reduce the potential for drying and shrinkage cracking. Some cracking should be expected as the concrete cures. Minor cracking is considered normal; however, it is often aggravated by a high water/cement ratio, high concrete temperature at the

time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low slump concrete can reduce the potential for shrinkage cracking.

3.4 Lateral Earth Pressures

Retaining walls may be backfilled with onsite or imported non-expansive soils. The following lateral earth pressures may be used for the design of retaining walls with a level backfill.

Table 2 – Equivalent Fluid Pressure

Condition	Level Backfill
Active	37 pcf
At-Rest	57 pcf
Passive	390 pcf (Maximum of 3,900 psf)

Walls retaining bedrock may be designed using active lateral earth pressures of 29 pcf and 38 pcf for level and 2:1 (horizontal:vertical) slope, respectively.

Walls retaining more than 6 feet of soil should consider a seismic earth pressure increment with an inverted triangular distribution of 22 psf/foot in addition to the active earth pressure provided above. The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design.

Cantilever walls that are designed to yield at least 0.001H, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure or traffic loading, should be considered in the design of the retaining wall.

Lateral earth pressure design parameters recommended above are based upon drained conditions. Design and construction of the walls will, therefore, require some form of permanent subsurface drainage system behind the wall. If no drainage is provided, hydrostatic pressure should be considered in the wall design.

3.5 Seismic Design Parameters

Design parameters for minimum seismic load based on the 2019 California Building Code are included in Table 3 below.

Table 3 - 2019 CBC Based Seismic Design Parameters (Mapped Values)

Categorization/Coefficient	Design Value
Site Latitude	33.6869°
Site Longitude	-117.6061°
Site Class	C
Mapped Spectral Response Acceleration at Short Period (0.2 sec), S_S	1.424g
Mapped Spectral Response Acceleration at Long Period (1 sec), S_1	0.501g
Short Period (0.2 sec) Site Coefficient, F_a	1.2
Long Period (1 sec) Site Coefficient, F_v	1.499
Adjusted Spectral Response Acceleration at Short Period (0.2 sec), S_{MS}	1.708g
Adjusted Spectral Response Acceleration at Long Period (1 sec), S_{M1}	0.751g
Design Spectral Response Acceleration at Short Period (0.2 sec), S_{DS}	1.139g
Design Spectral Response Acceleration at Long Period (1 sec), S_{D1}	0.501g
Mapped Geometric Mean MCE_G Peak Ground Acceleration, PGA	0.509g
Site Coefficient, F_{PGA}	1.2
PGA adjusted for Site Class, $PGA_M = F_{PGA}$ *PGA	0.611g

3.6 Pavement Design

New pavements for the subject project may be constructed using conventional asphalt concrete (AC) over aggregate base (AB). We have designed the pavement sections using a design R-value of 10 for different Traffic Indices (TI) and the minimum pavement thickness is presented in Table 4 below. The pavement design was performed using the method in the *Caltrans Highway Design Manual*.

Table 4 - Pavement Sections

Traffic Index	Flexible Pavement (inches)	
	AC	AB
5 or less	4	7
6	4½	10½
7	5	12½

Concrete pavement, if used, may consist of 6 inches of Portland Cement Concrete (PCC) over 6 inches of AB. Because concrete will crack, the PCC pavement sections should be provided with crack-control joints spaced no more than 10 feet on-center each way, to control where cracks develop. As a minimum, we suggest concrete pavement be reinforced using No. 3 rebar, 18 inches on center in both directions, placed at mid-thickness. Concrete reinforcement should be designed by the structural engineer for appropriate loading conditions.

3.7 Cement Type and Corrosion

Based on the results of laboratory testing, concrete structures in contact with the onsite soil are expected to have negligible exposure to water-soluble sulfates in the soil. Common Type II cement may be used for concrete construction onsite and the concrete should be designed in accordance with CBC requirements. However, Type V cement should be used for concrete expected to be in contact with recycled water.

Based on our laboratory testing, the onsite soils are not considered corrosive to ferrous metals.

3.8 Surface Drainage

Ponding of water adjacent to structures should be avoided. During and after construction, positive drainage should be provided to direct surface water away from structures towards suitable, non-erosive drainage devices. Drainage of surface water away from the proposed structures should be provided by adequate slopes to all graded and paved surfaces. Where good surface drainage is not possible, subdrains should be provided, such as within planter areas to prevent accumulation of water within the upper soils.

3.9 Future Geotechnical Investigation

Findings and recommendations presented in this report are preliminary based on the information gained from our limited field exploration and review of available documents as well as our understanding of the current project plan. The nature of many sites is such that differing geotechnical or geological conditions can occur within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. A supplemental geotechnical investigation may be necessary during future phase of the project to develop

additional recommendations and update the preliminary recommendations in this report based on the actual soil condition and any modification of the current plans.

Future field exploration may consist of exploratory borings to verify the geotechnical conditions throughout the site are generally consistent with the conditions encountered during our limited field exploration. The borings may include a bucket auger boring downhole logged by a Certified Engineering Geologist to further evaluate slope stability and the potential for seismically-induced landslides. California Ring and Standard Penetration Test (SPT) samples should be obtained at selected depth intervals within the borings. Laboratory testing should be performed on the collected soil samples to determine the in-place moisture and density, consolidation and strength characteristics, corrosion potential, and R-value for pavement design. Site-specific recommendations for design and construction of the proposed project should be developed based on geotechnical analyses of the borings and laboratory test results.

4.0 REFERENCES

American Concrete Institute (ACI), 2014, Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary.

American Society of Civil Engineers (ASCE), 2019, Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7-16, Third Printing, Errata Incorporated through March 15.

Bryant, W.A., and Hart, E.W., 2007, Fault Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Zones Maps, Department of Conservation, California Geological Survey, Special Publication 42, 2007 Interim Revision.

California Building Standards Commission, 2019, 2019 California Building Code, California Code of Regulations, Title 24, Part 2, Volume 2 of 2, Based on 2015 International Building Code, Effective January 1, 2020.

California Department of Transportation (Caltrans) Division of Engineering and Testing Services, Corrosion and Structural Concrete, Field Investigation Branch, 2018, Corrosion Guidelines Version 3.0.

California Geological Survey (CGS; formerly California Division of Mines and Geology, CDMG), 2000a, CD-ROM containing digital images of Official Maps of Alquist-Priolo Earthquake Fault Zones that affect the Southern Region, DMG CD 2000-003 2000.

_____, 2002a, Seismic Hazard Zone Report for the Santiago Peak, California 7.5-Minute Quadrangle, Seismic Hazard Zone Report 065.

_____, 2002b, Seismic Hazard Zones, Santiago Peak Quadrangle, Official Map, Released December 20, 2002, map scale 1:24,000.

_____, 2008, Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California.

_____, 2018, Earthquake Fault Zones, A Guide for Government Agencies, Property Owners / Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Special Publication 42, Revised 2018.

Morton D.M., and Miller, F.K., 2006, Geologic Map of the San Bernardino and Santa Ana, 30’ x 60’ Quadrangles, California, USGS Open File Report 2006-1217.

Public Works Standard, Inc., 2018, The “Greenbook”, Standard Specifications for Public Works Construction: BNI Building News, Anaheim, California.

Schoellhamer, J.E., Vedder, J.G., Yerkes, R.F., and Kinney, D.M., 1981, Geology of the Northern Santa Ana Mountains, California, U.S. Geological Survey Professional Paper 420-D, pp. 109.

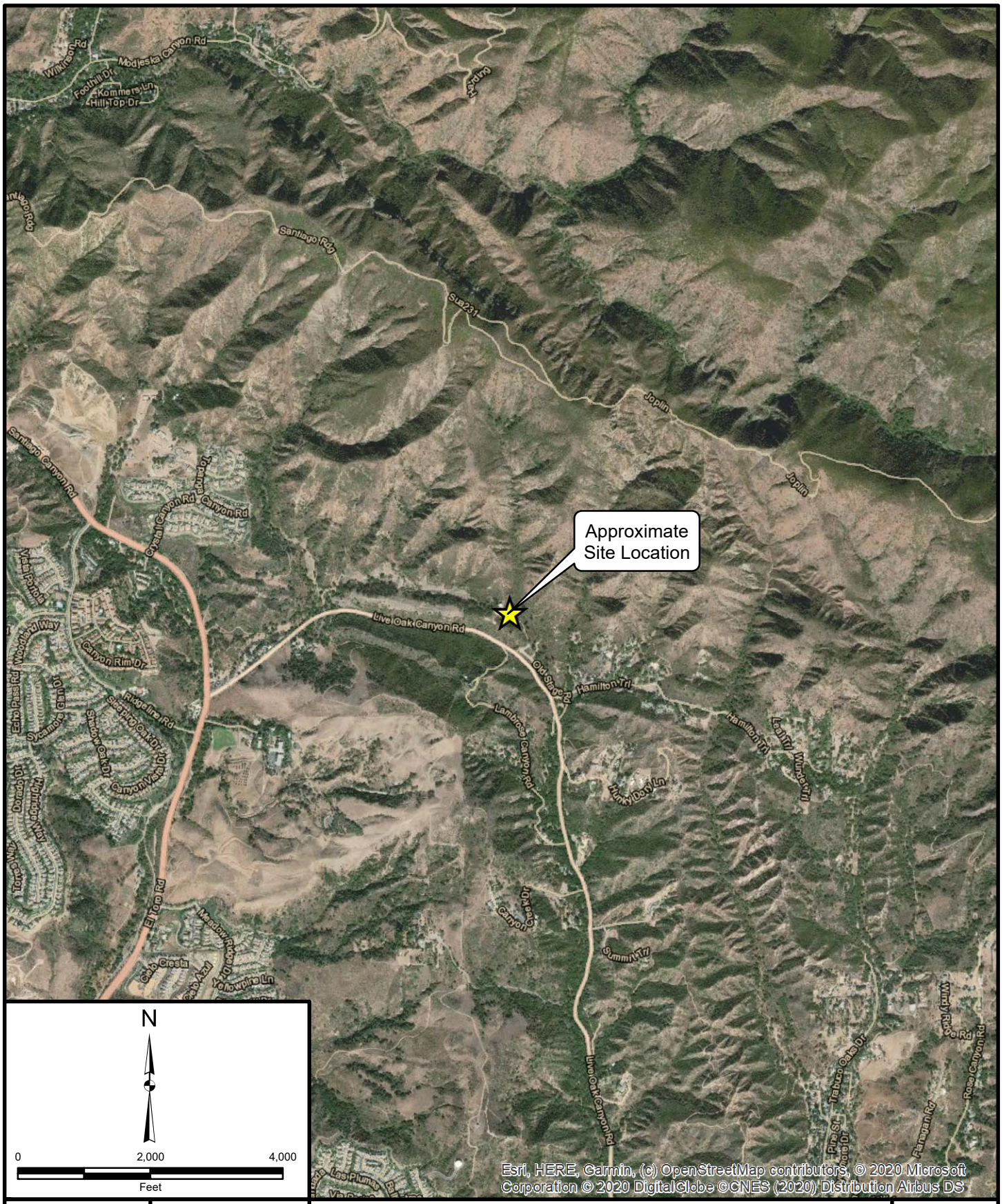
United States Geological Survey (USGS), 2008, National Seismic Hazard Maps - Fault Parameters, https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_main.cfm

_____, 2020a, Earthquake Hazards Program - Unified Hazard Tool, https://earthquake.usgs.gov/hazards/interactive/

_____, 2020b, Interactive Fault Map, http://earthquake.usgs.gov/hazards/qfaults/map/

_____, 2020c, Interactive Geologic Map, http://ngmdb.usgs.gov/maps/MapView/

Yerkes, R.F., McCollouch, T.H., Schoellhamer, J.E., and Vedder, J.G, 1965, Geology of the Los Angeles Basin, California- An Introduction: U.S. Geological Survey Professional Paper 420-A pp. 57.



Project: 12753.001	Eng/Geol: DJC/JMP
Scale:1 " = 2,000 '	Date: June 2020

Base Map: ESRI ArcGIS Online 2020
Thematic Information: Leighton
Author: Leighton Geomatics (btran)

SITE LOCATION MAP

Harris Grade Reservoir Replacement
18975 Live Oak Canyon Road
Trabuco Canyon, California

Figure 1

Leighton

Map Saved as V:\Drafting\12753\001\Maps\2753-001_F01-SLM_2020-06-10.mxd on 6/9/2020 4:45:27 PM

Project: 12753.001	Eng/Geol: DJC/JMP
Scale:1 " = 50 '	Date: June 2020

Base Map: ESRI ArcGIS Online 2020
Thematic Information: Leighton
Author: Leighton Geomatics (btran)

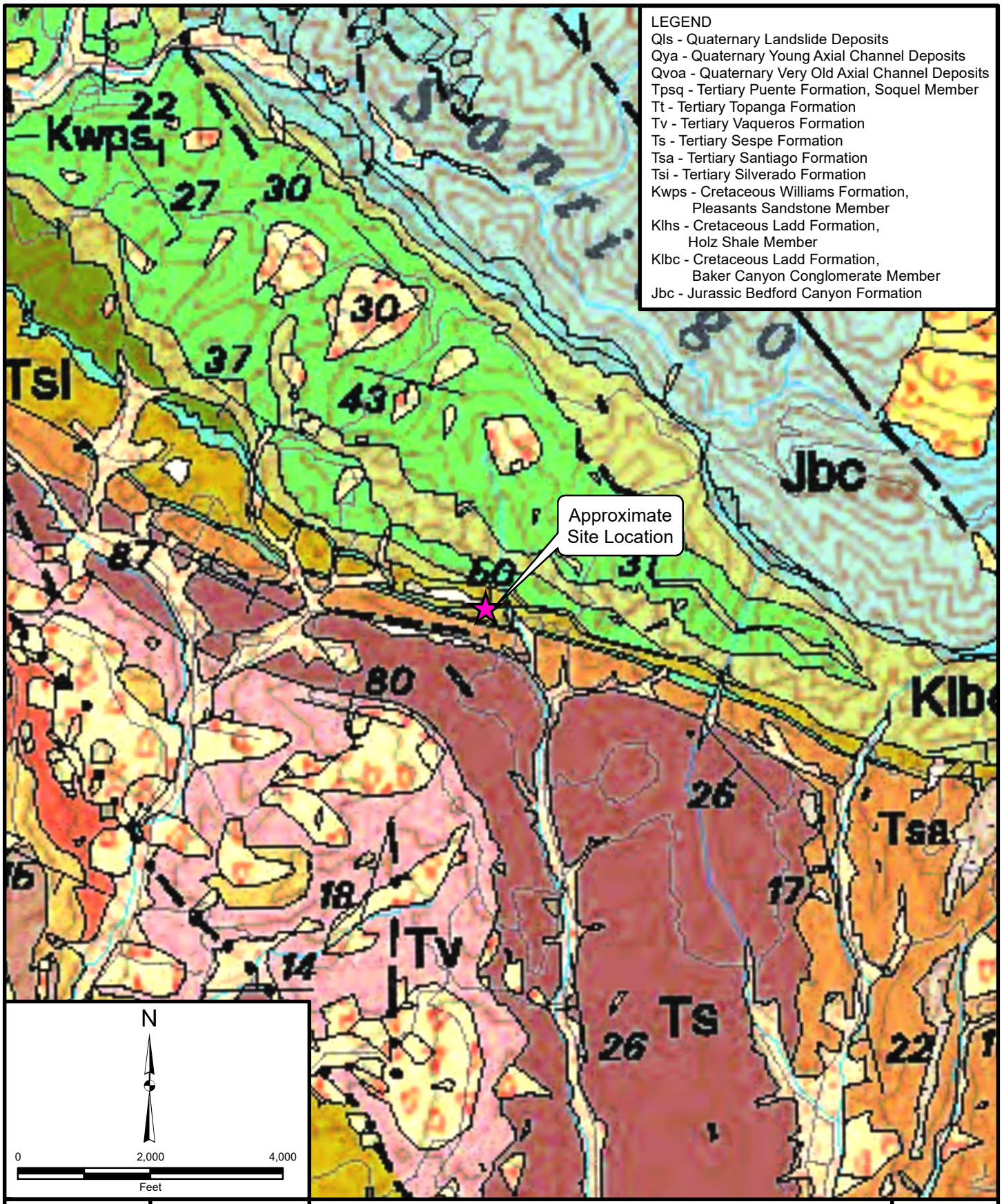
BORING LOCATION MAP

Harris Grade Reservoir Replacement
18975 Live Oak Canyon Road
Trabuco Canyon, California

Figure 2

Leighton

Map Saved as V:\Drafting\12753\001\Maps\12753-001_F02-BLM_2020-06-17.mxd on 6/15/2020 9:02:53 AM



Project: 12753.001	Eng/Geol: DJC/JMP
Scale:1 " = 2,000 '	Date: June 2020

Base Map: Geologic Map of The San Bernardino and Santa Ana Quadrangles, California.
Compiled by Douglas M. Morton and Fred K. Miller
Thematic Information: Leighton, USGS
Author: Leighton Geomatics (btran)

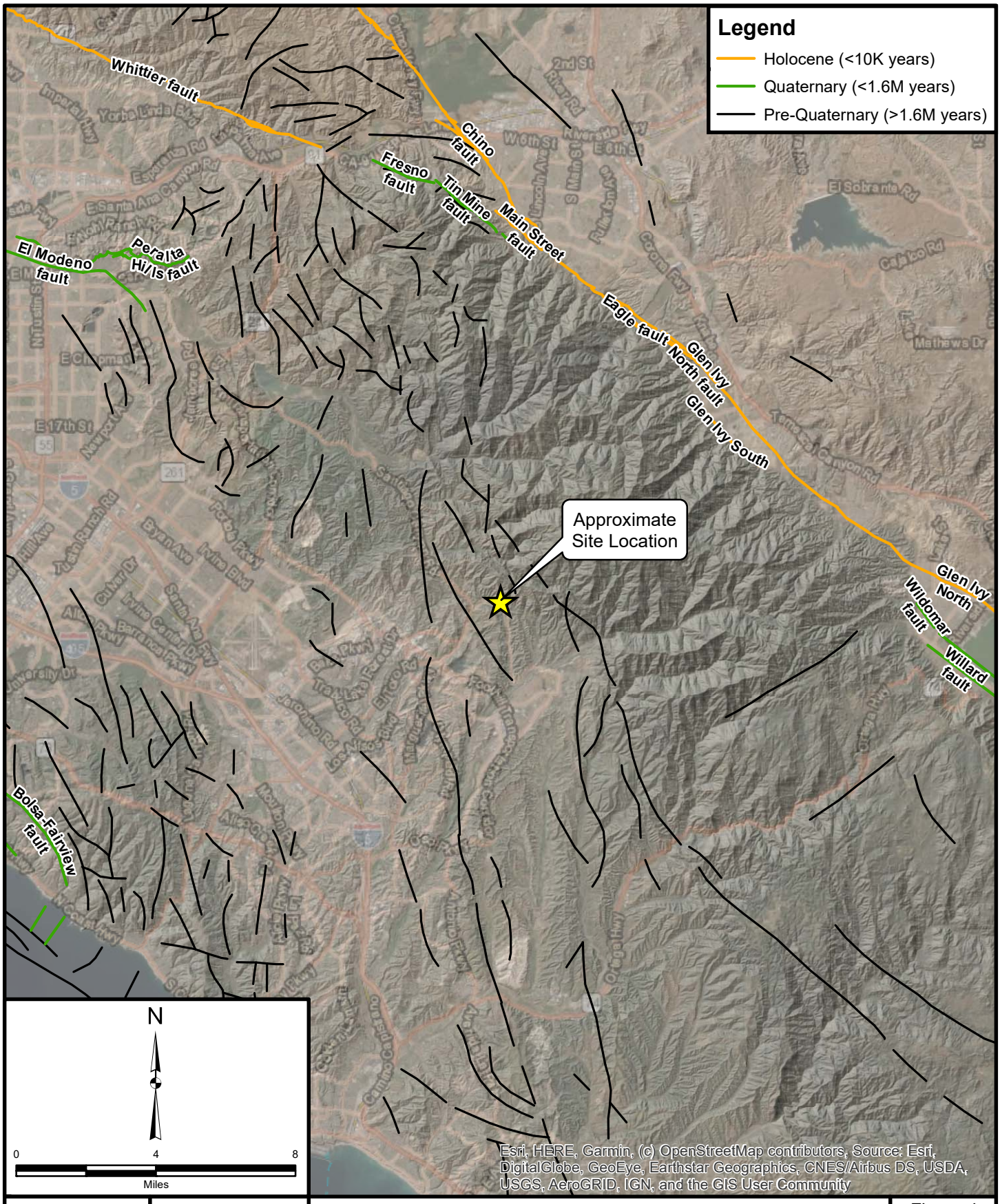
REGIONAL GEOLOGY MAP

Harris Grade Reservoir Replacement
18975 Live Oak Canyon Road
Trabuco Canyon, California

Figure 3

Leighton

Map Saved as V:\Drafting\12753\001\Maps\12753-001_F03-RGM_2020-06-15.mxd on 6/11/2020 3:36:01 PM



Project: 12753.001	Eng/Geol: DJC/JMP
Scale:1 " = 4 miles	Date: June 2020

Base Map: ESRI ArcGIS Online 2020
Thematic Information: Leighton, Bryant, W. A. (compiler), 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0: CGS
Author: Leighton Geomatics (btran)

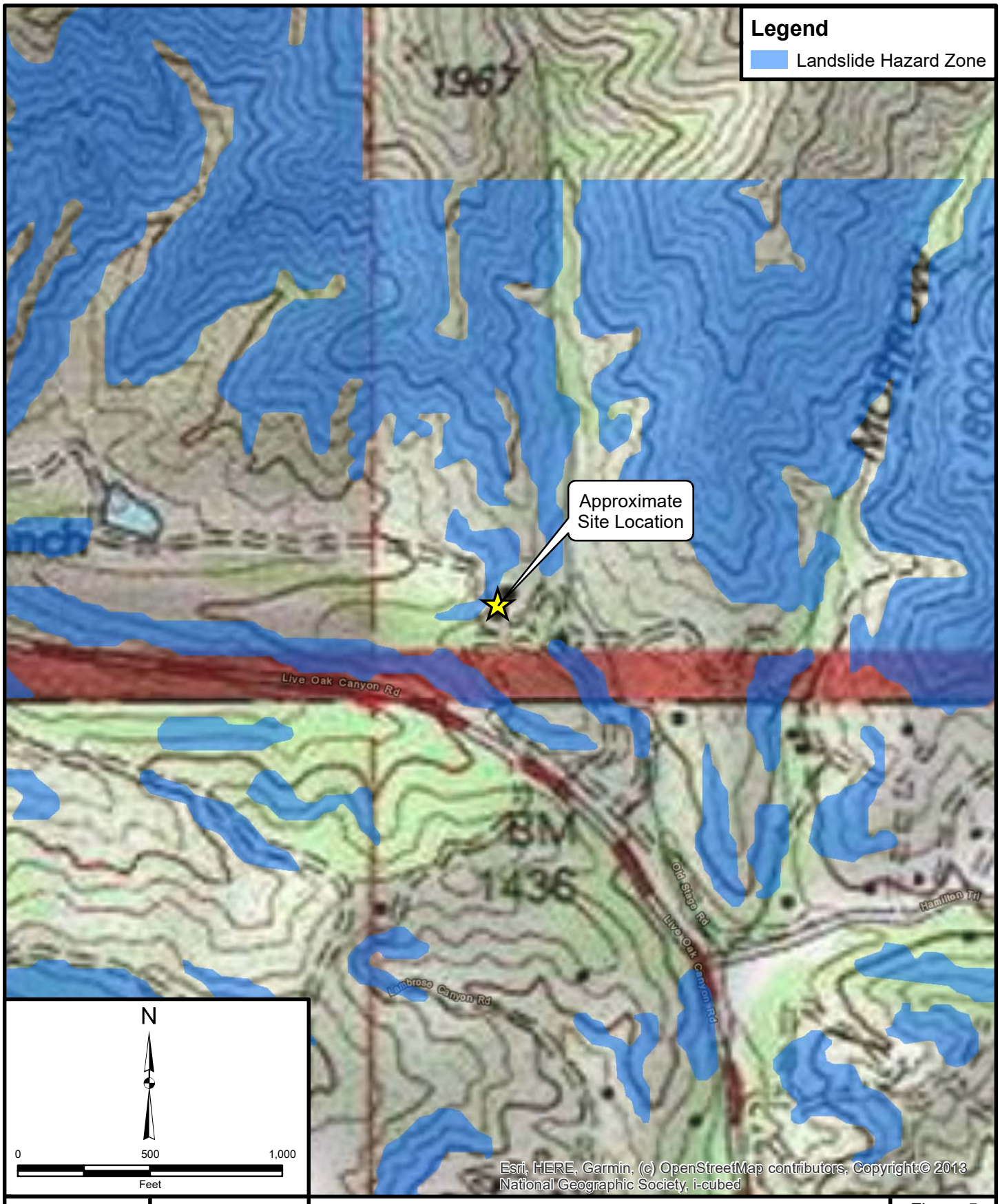
REGIONAL FAULT MAP

Harris Grade Reservoir Replacement
18975 Live Oak Canyon Road
Trabuco Canyon, California

Figure 4

Leighton

Map Saved as V:\Drafting\12753\001\Maps\2753-001_F04-RFM_2020-06-10.mxd on 6/9/2020 4:42:01 PM



Project: 12753.001	Eng/Geol: DJC/JMP
Scale:1 " = 500 '	Date: June 2020

Base Map: ESRI ArcGIS Online 2020
Thematic Information: Leighton, CGS
Author: Leighton Geomatics (btran)

SEISMIC HAZARD MAP

Harris Grade Reservoir Replacement
18975 Live Oak Canyon Road
Trabuco Canyon, California

Figure 5

Leighton

Map Saved as V:\Drafting\12753\001\Maps\2753-001_F05-SHM_2020-06-11.mxd on 6/11/2020 11:27:27 AM

APPENDIX A

BORING LOGS

Leighton

GEOTECHNICAL BORING LOG LB-1

Project No.	12753.001	**Date Drilled**	5-7-20
Project	Harris Grade Reservoir Replacement	**Logged By**	JMP
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Figure 2- Boring Location Map	**Sampled By**	JMP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B1				ML/CL	**Artificial Fill (Af):** @0': Sandy SILT to Lean CLAY; orange brown to gray brown; moist; fine to medium sand. **Tertiary Silverado Formation (Tsi):**	CR
				R1	27 50/5"	122	13		@2.5': Clayey SANDSTONE; hard; yellow brown; moist; fine to medium sand; moderately cemented; micaceous.	
	5			R2	50/6"	121	10		@5': Clayey SANDSTONE; hard; yellow brown; moist; fine to medium sand; micaceous; moderately cemented.	
				R3	18 38 50/5"	127	9		@7.5': Clayey SANDSTONE; hard; yellow brown to olive; moist; fine to medium sand; moderately cemented.	
	10			S1	17 30 42				@10': Clayey SANDSTONE; hard; yellow brown to olive; moist; fine to medium sand; moderately cemented.	
	15			R4	50/4"				@15': SANDSTONE; hard; light yellow brown; slightly moist; fine to medium sand; moderately cemented.	
	20			S2	12 18 40				@20': SILTSTONE; hard; olive brown to blue gray; slightly moist.	
	25			R5	50/6"				@25': SANDSTONE; hard; light yellow brown to orange brown; slightly moist; fine to coarse sand; oxidized; moderately cemented.	
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG LB-1

Project No.	12753.001	**Date Drilled**	5-7-20
Project	Harris Grade Reservoir Replacement	**Logged By**	JMP
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Figure 2- Boring Location Map	**Sampled By**	JMP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S3	24 28 38				@30': SANDSTONE; hard; reddish brown; slightly moist; fine to medium sand.	
	35			S4	20 50/3"				@35': SANDSTONE; hard; reddish brown; slightly moist; fine to medium sand.	
	40			S5	50/6"				@40': SANDSTONE; hard; blue gray; slightly moist; fine to medium sand; unoxidized. @41': Refusal, very difficult drilling.	
	45								**Total Depth: 41 feet** **No groundwater encountered.** **Backfilled with cuttings.**	
	50									
	55									
	60									

The Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

GEOTECHNICAL BORING LOG LB-2

Project No.	12753.001	**Date Drilled**	5-7-20
Project	Harris Grade Reservoir Replacement	**Logged By**	JMP
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Figure 2- Boring Location Map	**Sampled By**	JMP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B1				CL	**Artificial Fill (Af):**	EI, RV, CR
				R1	4 4 5	107	13		@2.5': Sandy CLAY; medium stiff; mottled medium brown and dark brown; very moist; fine to medium sand.	
	5			R2	4 5 6	115	14		@5': Lean CLAY; medium stiff; mottled olive brown and dark brown; very moist; fine to medium sand.	DS
									Colluvium/Alluvium (Qcol//Qal): @6': Lean CLAY; medium stiff; dark brown; very moist; trace sand.	
				R3	3 6 10	115	17		@7.5': Stiff; dark olive brown; very moist; trace sand.	CN
	10			R4	10 18 30	122	12	SC	@10': Clayey SAND; dense; dark brown; moist; fine sand.	
	15			S1	4 5 6				@15': Clayey SAND; medium dense; medium brown; moist; fine to medium sand.	
	20			R5	7 12 12	115	11	SC-SM	@20': Silty Clayey SAND; medium dense; medium brown with pockets of light brown; moist; fine to medium sand.	
	25			S2	8 12 14				**Tertiary Silverado Formation (Tsi):** @25': SILTSTONE; moderately hard; olive yellow brown; moist; moderately weathered.	
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG LB-2

Project No.	12753.001	**Date Drilled**	5-7-20
Project	Harris Grade Reservoir Replacement	**Logged By**	JMP
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Figure 2- Boring Location Map	**Sampled By**	JMP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			R6	50/6"				@30': SANDSTONE; hard; light yellow brown with orange oxidation; slightly moist; fine to medium sand; moderately cemented.	
				S3	24 50/6"				@32': SANDSTONE; hard; light yellow to light olive; slightly moist; fine to medium sand; moderately cemented. Very difficult drilling. Auger refusal. Stopped drilling and drove SPT sampler.	
	35								**Total Depth: 33 feet** **No groundwater encountered.** **Backfilled with cuttings.**	
	40									
	45									
	50									
	55									
	60									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

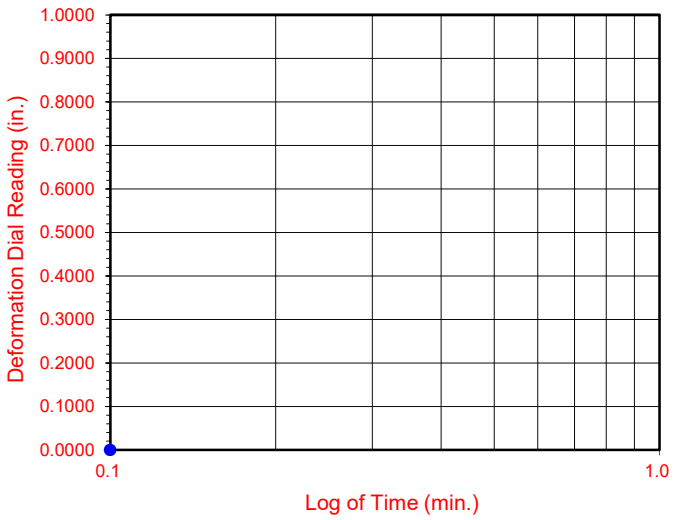
-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

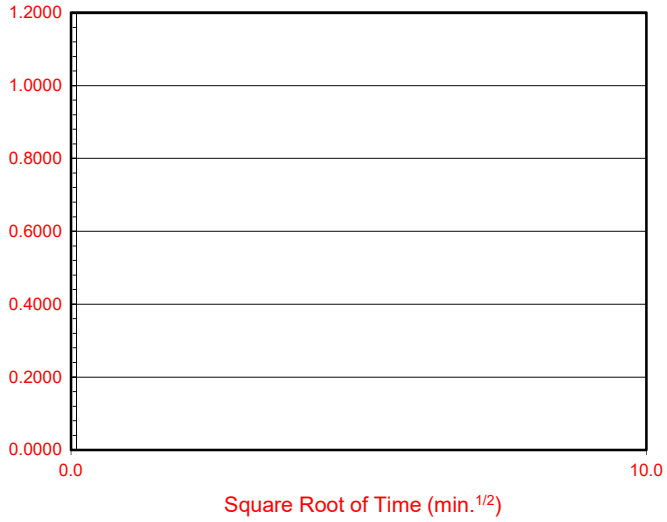
APPENDIX B

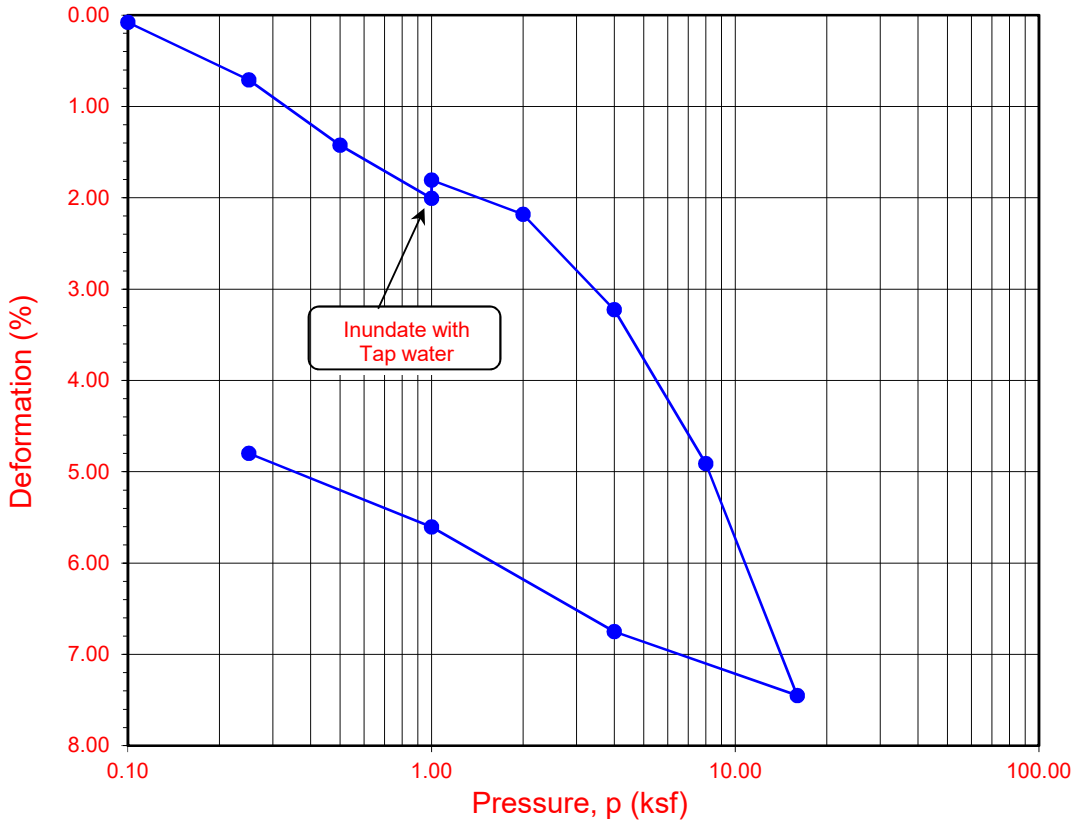
LABORATORY TEST RESULTS

Leighton

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-2	**R3**	**7.5**	**16.9**	**15.5**	**115.0**	**120.8**	**0.465**	**0.395**	**98**	**106**

Soil Identification: Dark olive brown lean clay (CL)

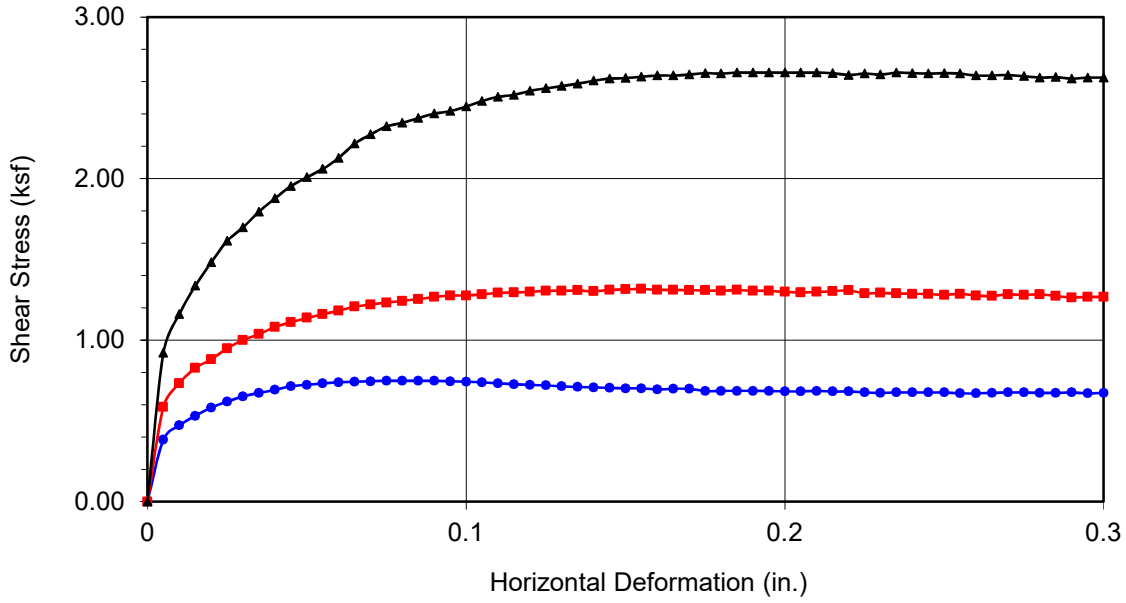
Leighton

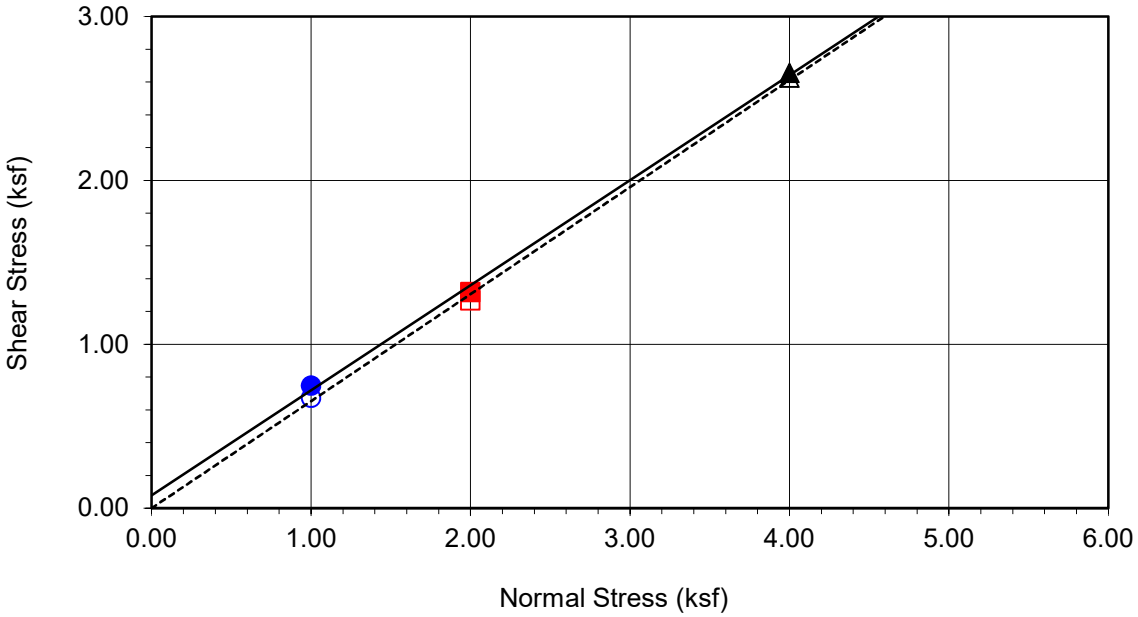
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12753.001

Harris Grade Reservoir Replacement

05-20





Boring No.	**LB-2**
Sample No.	**R2**
Depth (ft)	**5**
Sample Type:	Ring
Soil Identification:	Olive brown lean clay (CL)

Strength Parameters

	C (psf)	ϕ (°)
Peak	78	33
Ultimate	0	33

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.748	■ 1.317	▲ 2.656
Shear Stress @ End of Test (ksf)	○ 0.673	□ 1.267	△ 2.625
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	13.92	13.92	13.92
Dry Density (pcf)	113.9	114.3	116.4
Saturation (%)	78.4	79.2	83.9
Soil Height Before Shearing (in.)	0.9870	0.9735	0.9510
Final Moisture Content (%)	16.0	15.3	14.2

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12753.001

Harris Grade Reservoir Replacement

05-20

Leighton

EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	Harris Grade Reservoir Replacement	Tested By:	S. Felter	Date:	05/12/20
Project No.:	12753.001	Checked By:	A. Santos	Date:	05/26/20
Boring No.:	LB-2	Depth (ft.):	0-5		
Sample No.:	B1				
Soil Identification:	Dark brown lean clay with sand (CL)s				

Dry Wt. of Soil + Cont.	(g)	1000.00
Wt. of Container No.	(g)	0.00
Dry Wt. of Soil	(g)	1000.00
Weight Soil Retained on #4 Sieve		0.00
Percent Passing # 4		100.00

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	1.0310
Wt. Comp. Soil + Mold (g)	600.20	432.70
Wt. of Mold (g)	201.80	0.00
Specific Gravity (Assumed)	2.70	2.70
Container No.	O	O
Wet Wt. of Soil + Cont. (g)	787.90	634.50
Dry Wt. of Soil + Cont. (g)	713.10	562.35
Wt. of Container (g)	0.00	201.80
Moisture Content (%)	10.49	20.01
Wet Density (pcf)	120.2	126.6
Dry Density (pcf)	108.8	105.5
Void Ratio	0.550	0.598
Total Porosity	0.355	0.374
Pore Volume (cc)	73.4	79.9
Degree of Saturation (%) [S_{meas}]	**51.5**	90.3

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
05/12/20	9:50	1.0	0	0.6240
05/12/20	10:00	1.0	10	0.6230
Add Distilled Water to the Specimen				
05/12/20	10:15	1.0	15	0.6380
05/13/20	6:50	1.0	1250	0.6550
05/13/20	8:00	1.0	1320	0.6550

Expansion Index (EI_{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	**32**

Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	Harris Grade Reservoir Replacement		Tested By :	A. Lopez	Date: 05/14/20
Project No. :	12753.001		Checked By:	A. Santos	Date: 05/26/20
Boring No.:	LB-1		Depth (ft.) :	0-5	
Sample No. :	B1				

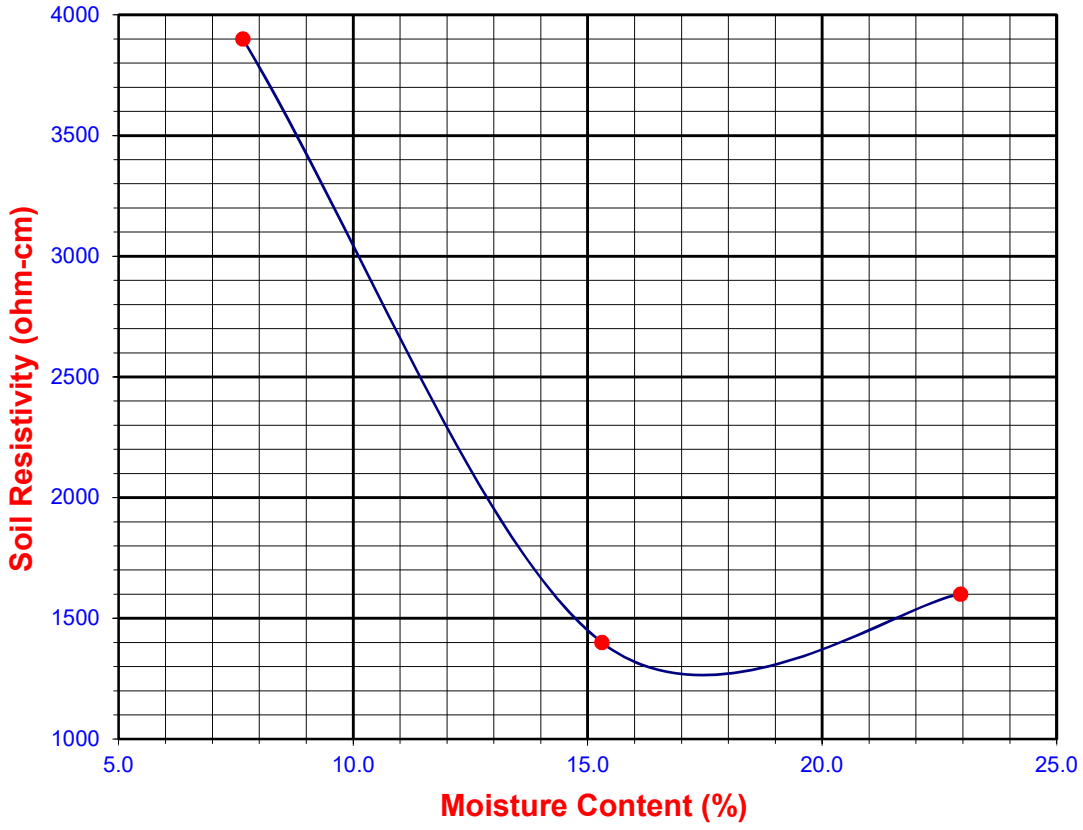
Soil Identification:* Yellowish brown (CL-ML)s

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	10	7.65	3900	3900
2	20	15.30	1400	1400
3	30	22.95	1600	1600
4				
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	0.00
Dry Wt. of Soil + Cont. (g)	0.00
Wt. of Container (g)	1.00
Container No.	
Initial Soil Wt. (g) (Wt)	130.70
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1260	**17.5**	**49**	**40**	**7.98**	**20.6**



Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	Harris Grade Reservoir Replacement		Tested By :	A. Lopez	Date: 05/14/20
Project No. :	12753.001		Checked By:	A. Santos	Date: 05/26/20
Boring No.:	LB-2		Depth (ft.) :	0-5	
Sample No. :	B1				

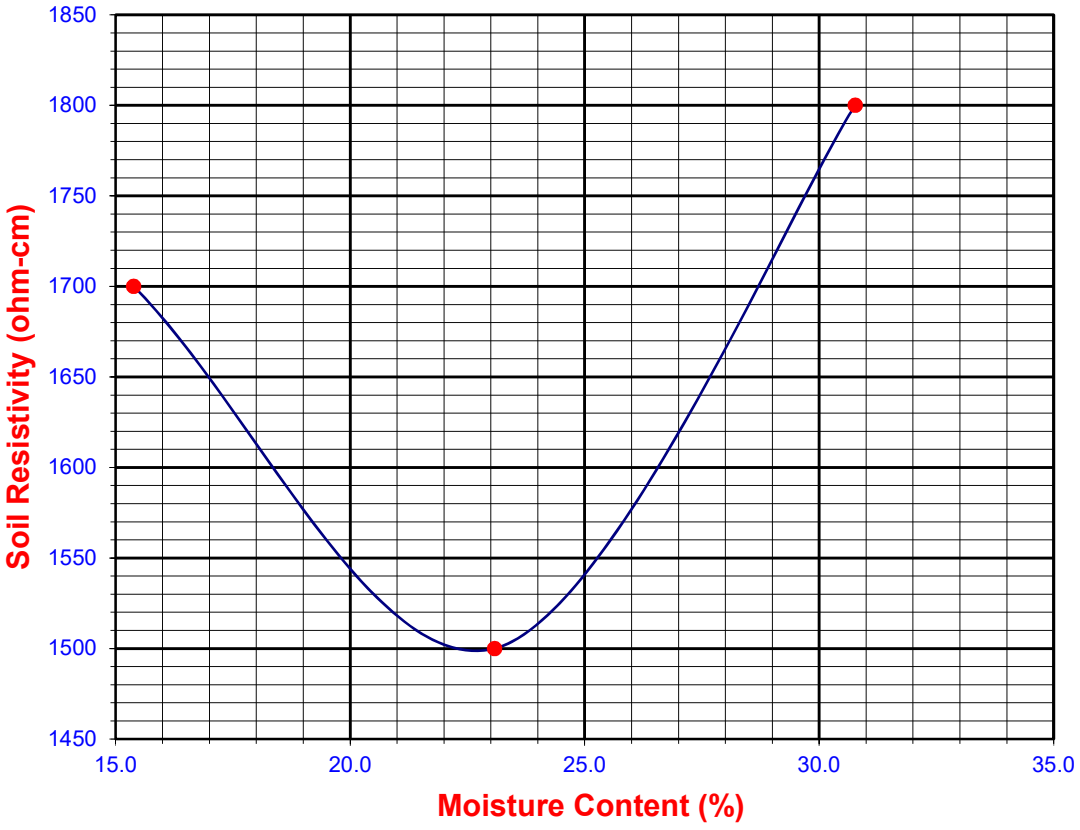
Soil Identification:* Dark brown (CL)s

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	20	15.38	1700	1700
2	30	23.08	1500	1500
3	40	30.77	1800	1800
4				
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	0.00
Dry Wt. of Soil + Cont. (g)	0.00
Wt. of Container (g)	1.00
Container No.	
Initial Soil Wt. (g) (Wt)	130.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1498	**22.7**	**53**	**110**	**7.24**	**21.0**



Leighton

R-VALUE TEST RESULTS

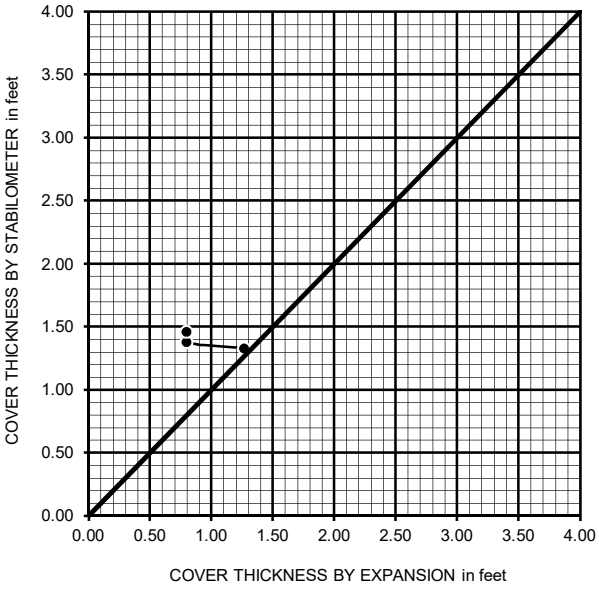
DOT CA Test 301

PROJECT NAME:	Harris Grade Reservoir Replacement	PROJECT NUMBER:	12753.001
LOCATION:	LB-2	DEPTH (FT.):	0-5
SAMPLE NUMBER:	B-1	TECHNICIAN:	O.Figueroa
SAMPLE DESCRIPTION:	Dark brown lean clay with sand (CL)s	DATE COMPLETED:	5/15/2020

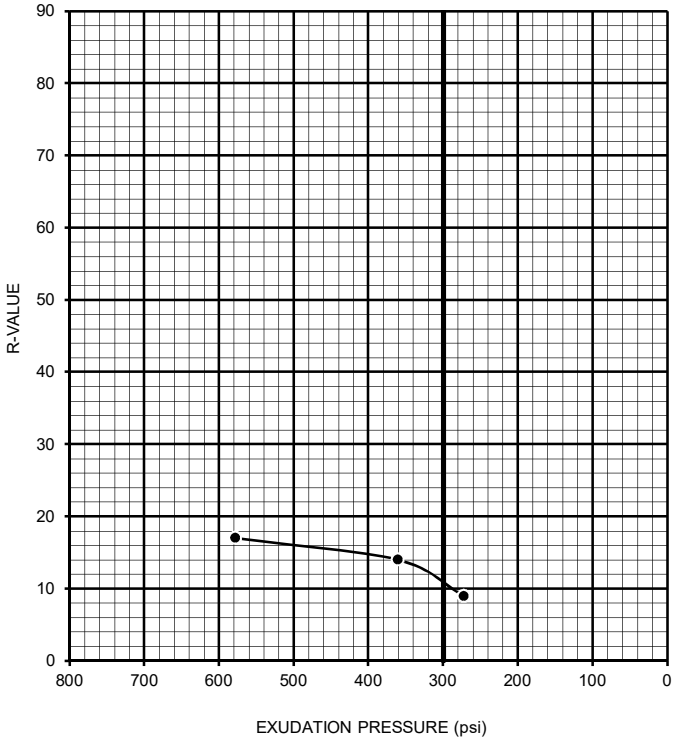
TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	14.5	14.7	15.6
HEIGHT OF SAMPLE, Inches	2.42	2.59	2.57
DRY DENSITY, pcf	117.7	115.3	113.7
COMPACTOR PRESSURE, psi	75	50	50
EXUDATION PRESSURE, psi	579	361	273
EXPANSION, Inches x 10exp-4	38	24	24
STABILITY Ph 2,000 lbs (160 psi)	120	130	137
TURNS DISPLACEMENT	3.76	3.95	4.18
R-VALUE UNCORRECTED	18	13	9
R-VALUE CORRECTED	17	14	9

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	1.33	1.38	1.46
EXPANSION PRESSURE THICKNESS, ft.	1.27	0.80	0.80

EXPANSION PRESSURE CHART

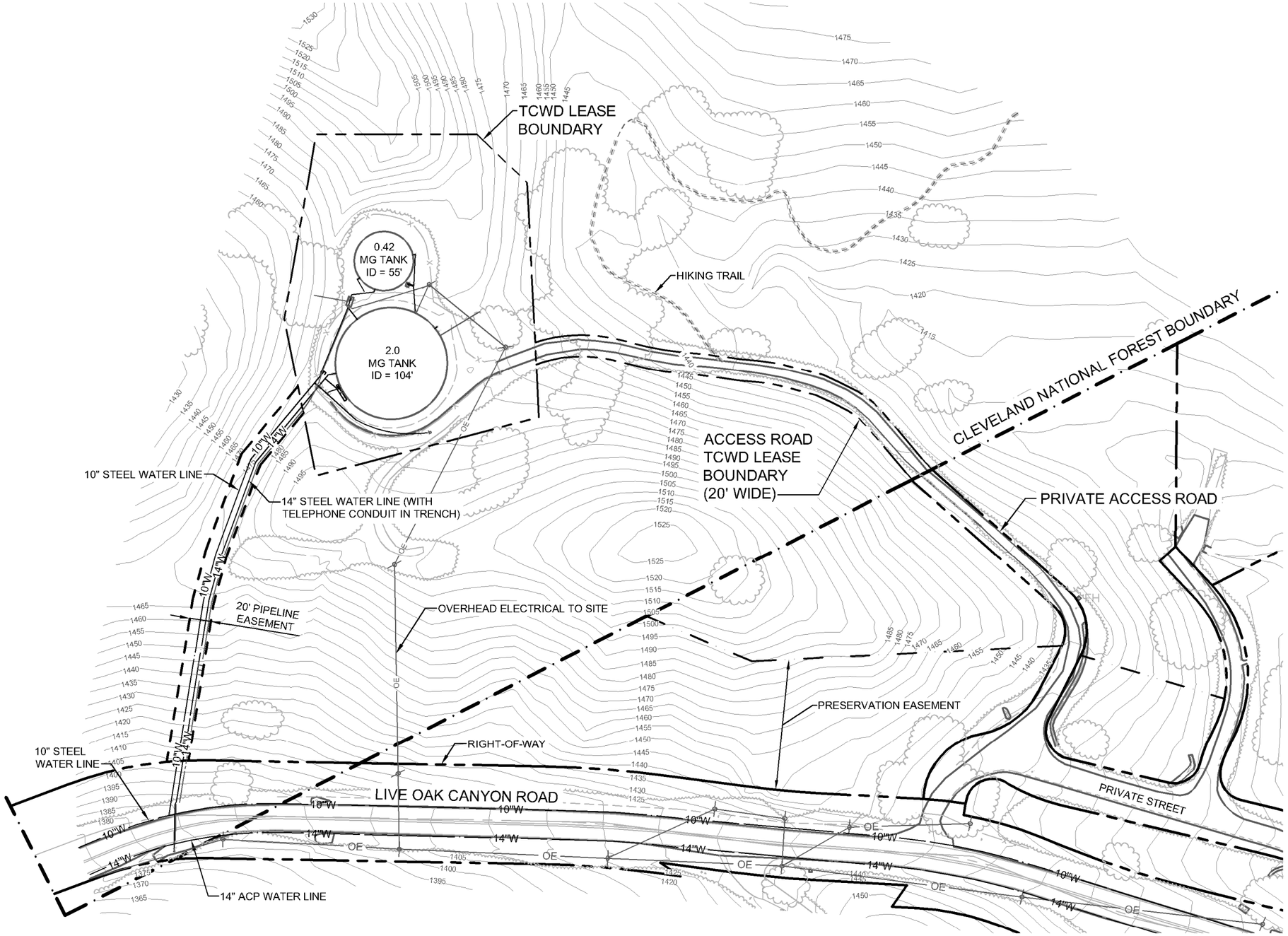


EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	16
R-VALUE BY EXUDATION:	11
EQUILIBRIUM R-VALUE:	11

Appendix B. Figures



8/26/2020 2:08:35 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-702A- (FIG 1-1) EXISTING-SITE.DWG - LERMA, JACKIE

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

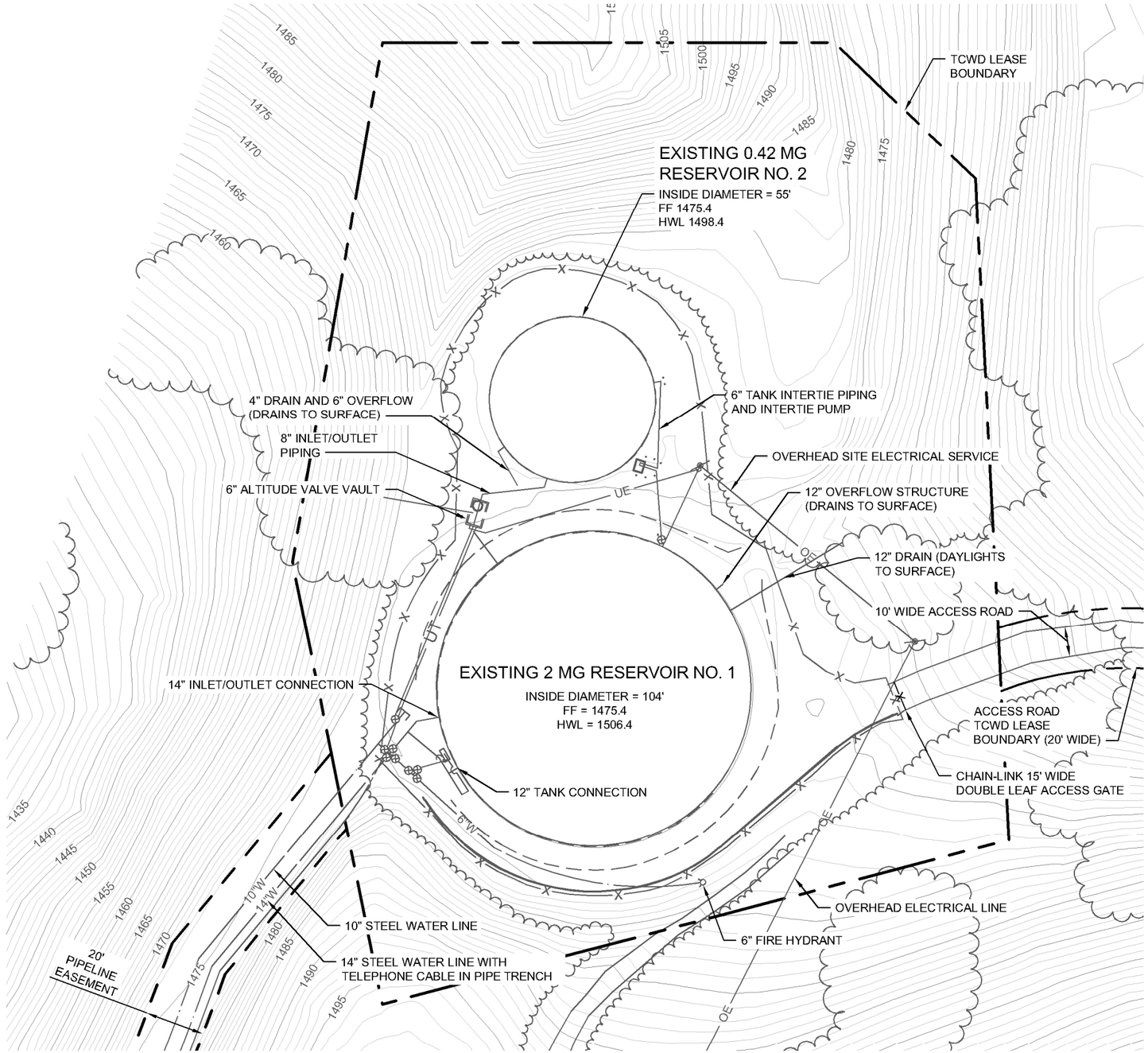
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

HARRIS GRADE EXISTING SITE, PIPING, AND ACCESS TO LIVE OAK CANYON RD.

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
1-1

Bar Measures 1 inch



8/26/2020 2:09:43 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-702B- (FIG 1-2) EXISTING-SITE-ZOOMED-IN.DWG - LERMA, JACKIE

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

HARRIS GRADE EXISTING SITE PLAN

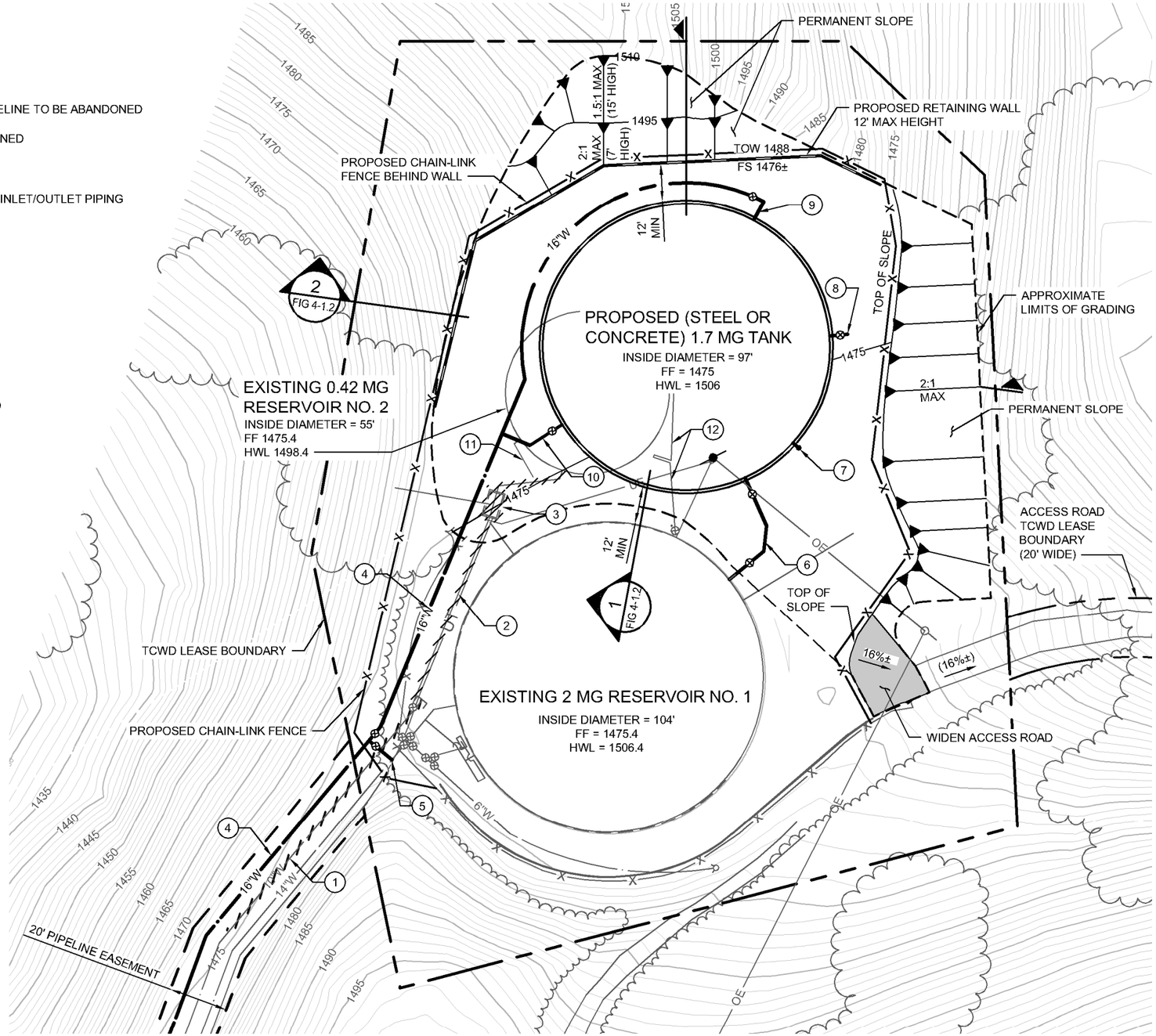
Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
1-2

Bar Measures 1 inch

PIPING NOTES:

1. EXISTING 10"W TO BE ABANDONED
2. EXISTING 8" RESERVOIR NO. 2 INLET/OUTLET PIPELINE TO BE ABANDONED
3. EXISTING ALTITUDE VALVE VAULT TO BE ABANDONED
4. PROPOSED 16" INLET/OUTLET PIPING
5. PROPOSED POINT OF CONNECTION TO EXIST 14" INLET/OUTLET PIPING
6. PROPOSED 16" TANK INTERTIE
7. PROPOSED TANK OVERFLOW
8. PROPOSED TANK DRAIN
9. PROPOSED 16" TANK INLET CONNECTION
10. PROPOSED 16" TANK OUTLET CONNECTION
11. EXISTING RESERVOIR DRAIN TO BE REMOVED
12. EXISTING TANK INTERTIE PIPING TO BE REMOVED



LEGEND:

- PROPOSED VALVE
- EXISTING VALVE
- 16"W — PROPOSED WATERLINE
- X"W — EXISTING WATERLINE
- PROPOSED RETAINING WALL
- EXISTING POWER POLE (RELOCATION REQUIRED)
- EXISTING POWER POLE PROTECT IN PLACE

NOTES:

1. ALL NEW TANK PIPING CONNECTIONS SHALL HAVE FLEXIBLE EXPANSION JOINT COUPLINGS.
2. CONCRETE TANK ALTERNATIVE SHALL HAVE BELOW GRADE FLOOR PENETRATIONS ON THE INLET, OUTLET, TANK INTERTIE, AND DRAIN PIPING CONNECTIONS.
3. STEEL TANK ALTERNATIVE WILL HAVE ABOVE GRADE WALL PENETRATIONS AT ALL PIPING CONNECTIONS.

0 20' 40'
SCALE: 1" = 40'

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

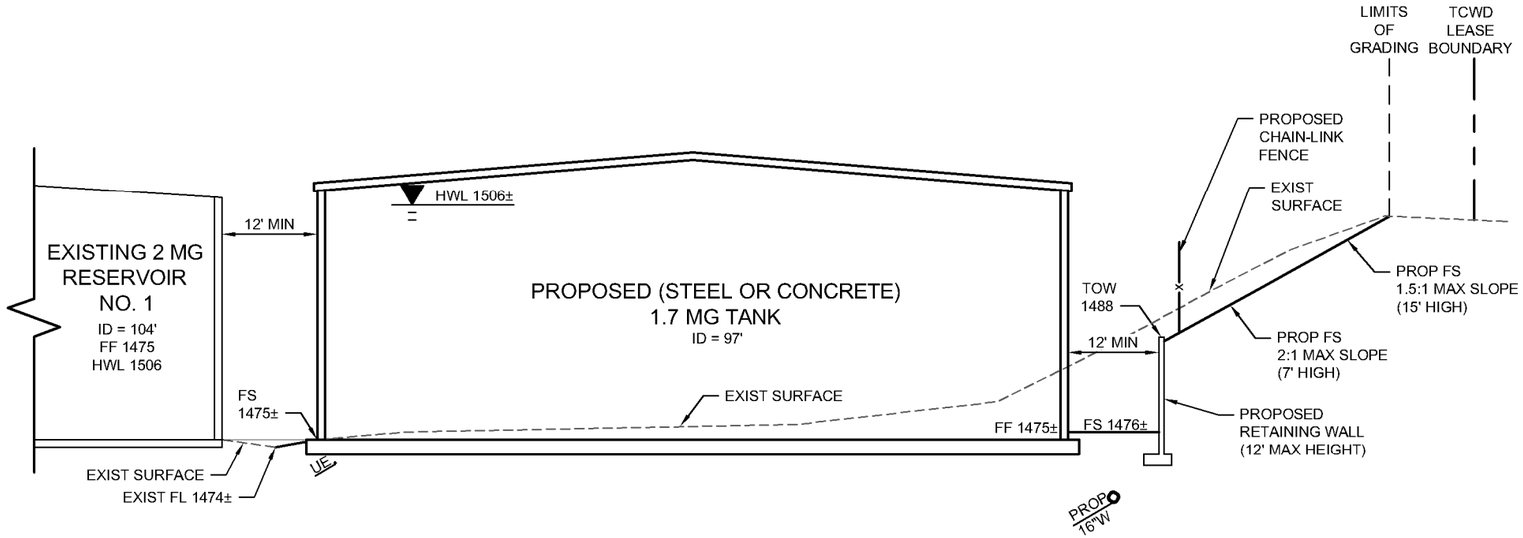
ALTERNATE 1
1.7 MG TANK CONCEPTUAL FINAL GRADING, YARD PIPING, AND SITE PLAN

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

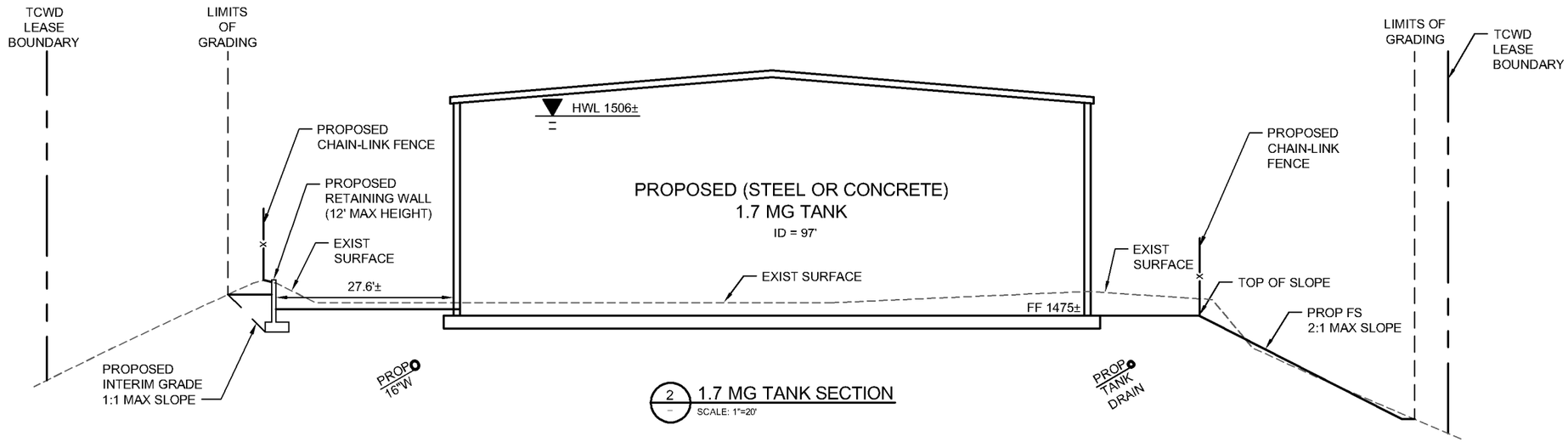
FIGURE
4-1.1

Bar Measures 1 inch

8/26/2020 2:10:55 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-704A- (FIG 4-1.1) 1.7 MG TANK-PERMANENT-SLOPE-AND-RETAINING-WALL.DWG - LERMA, JACKIE



1 — 1.7 MG TANK SECTION
SCALE: 1"=20'



2 — 1.7 MG TANK SECTION
SCALE: 1"=20'

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

ALTERNATIVE 1
1.7 MG TANK CONCEPTUAL GRADING SECTIONS

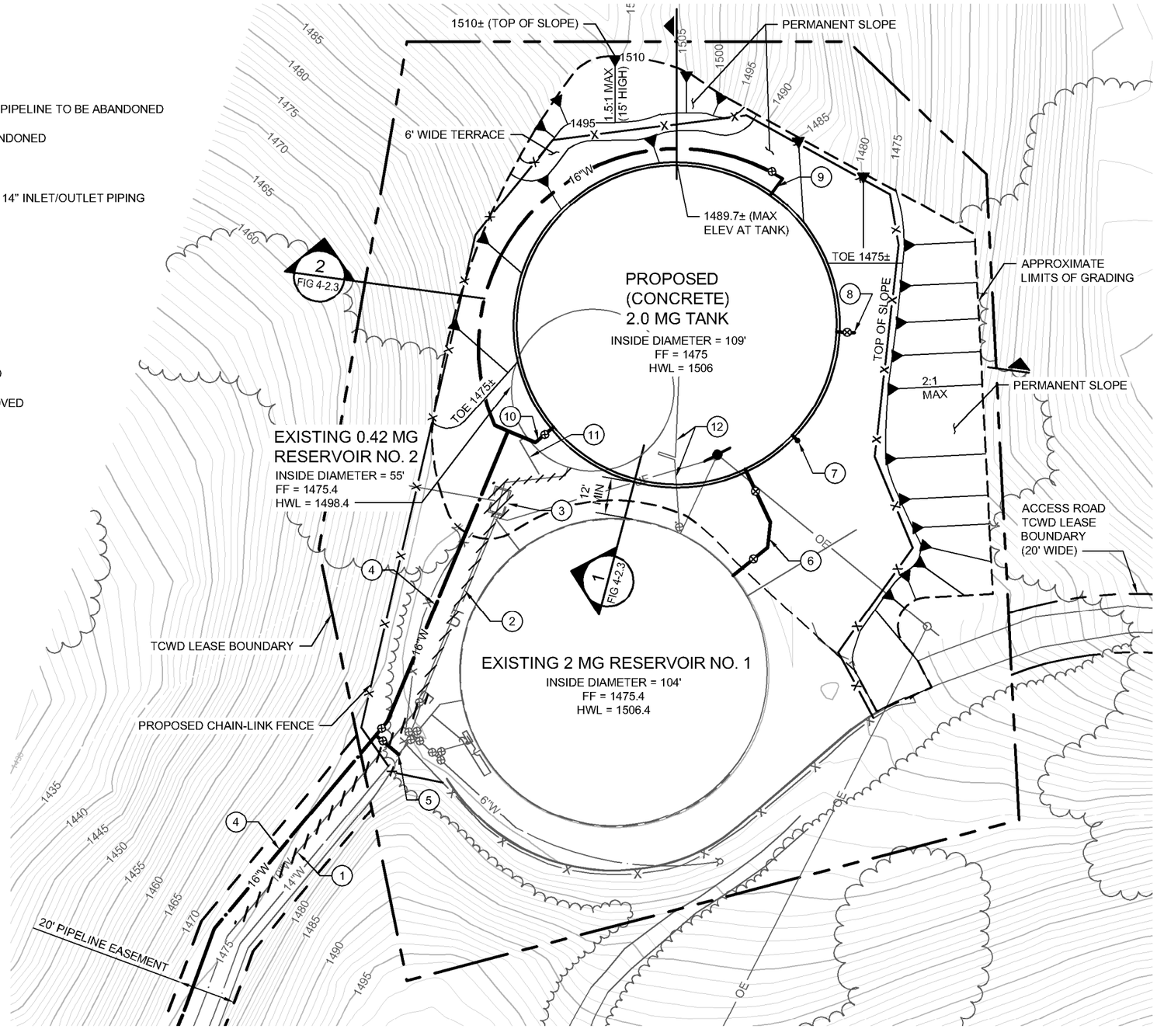
Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
4-1.2

Bar Measures 1 inch

PIPING NOTES:

1. EXISTING 10"W TO BE ABANDONED
2. EXISTING 8" RESERVOIR NO. 2 INLET/OUTLET PIPELINE TO BE ABANDONED
3. EXISTING ALTITUDE VALVE VAULT TO BE ABANDONED
4. PROPOSED 16" INLET/OUTLET PIPING
5. PROPOSED POINT OF CONNECTION TO EXIST 14" INLET/OUTLET PIPING
6. PROPOSED 16" TANK INTERTIE
7. PROPOSED TANK OVERFLOW
8. PROPOSED TANK DRAIN
9. PROPOSED 16" TANK INLET CONNECTION
10. PROPOSED 16" TANK OUTLET CONNECTION
11. EXISTING RESERVOIR DRAIN TO BE REMOVED
12. EXISTING TANK INTERTIE PIPING TO BE REMOVED



LEGEND:

- PROPOSED VALVE
- EXISTING VALVE
- 16"W — PROPOSED WATERLINE
- X"W — EXISTING WATERLINE
- EXISTING POWER POLE (RELOCATION REQUIRED)
- EXISTING POWER POLE PROTECT IN PLACE

NOTES:

1. ALL NEW TANK PIPING CONNECTIONS SHALL HAVE FLEXIBLE EXPANSION JOINT COUPLINGS.

0 20' 40'
SCALE: 1" = 40'

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

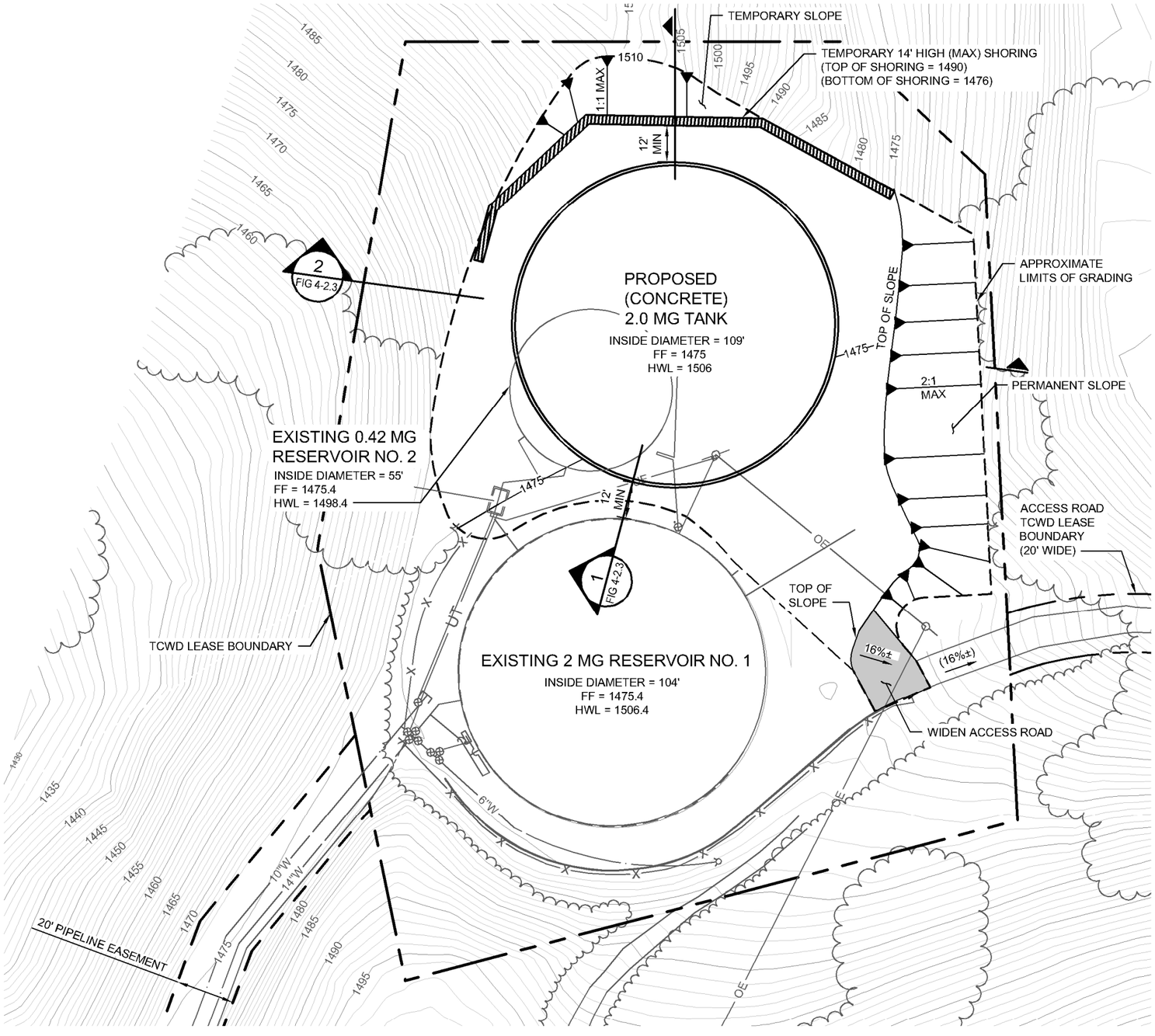
ALTERNATIVE 2
2.0 MG TANK CONCEPTUAL FINAL GRADING, YARD PIPING, AND SITE PLAN

Project No.: 200-09339-20001
Date: AUGUST 2020
Designed By: KMB

FIGURE
4-2.1

Bar Measures 1 inch

8/26/2020 2:16:07 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-704D- (FIG 4-2.1) 2.0 MG TANK (FINAL).DWG - LERMA, JACKIE



8/26/2020 2:17:09 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-704C- (FIG 4-2.2) 2.0 MG TANK (INTERIM).DWG - LERMA, JACKIE

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

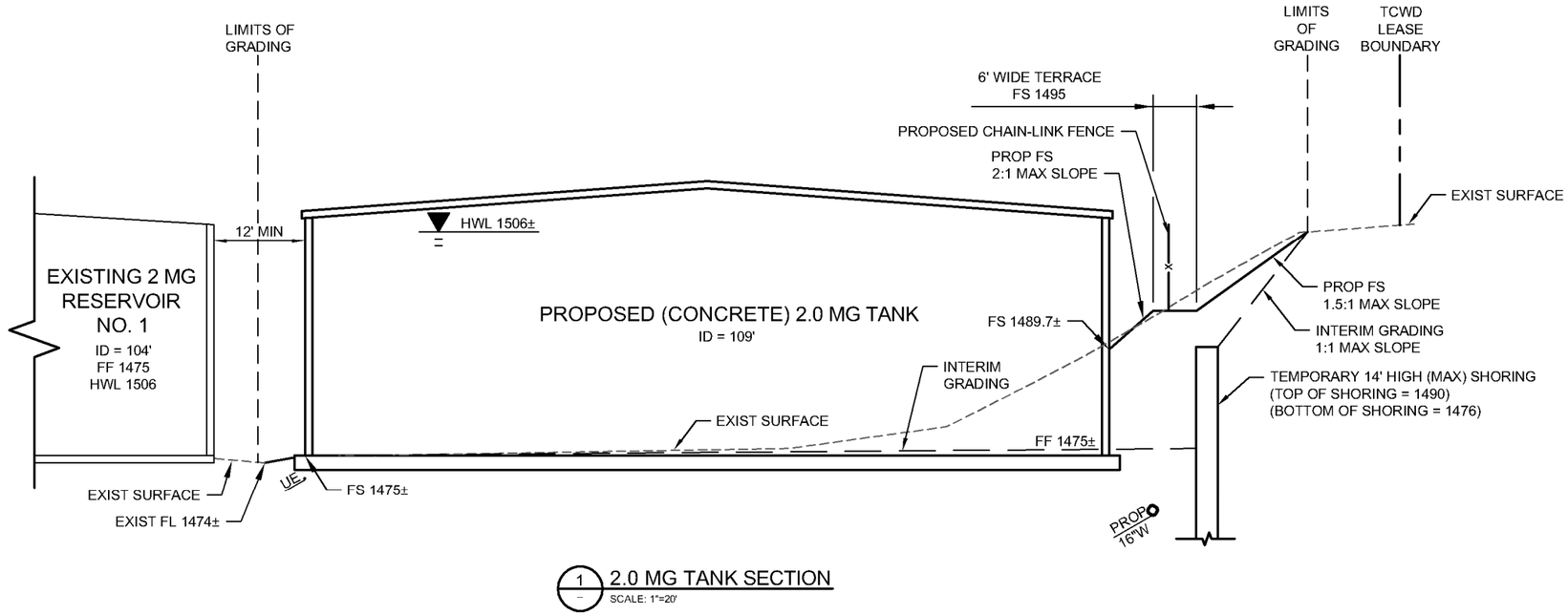
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

ALTERNATIVE 2
2.0 MG TANK CONCEPTUAL INTERIM GRADING

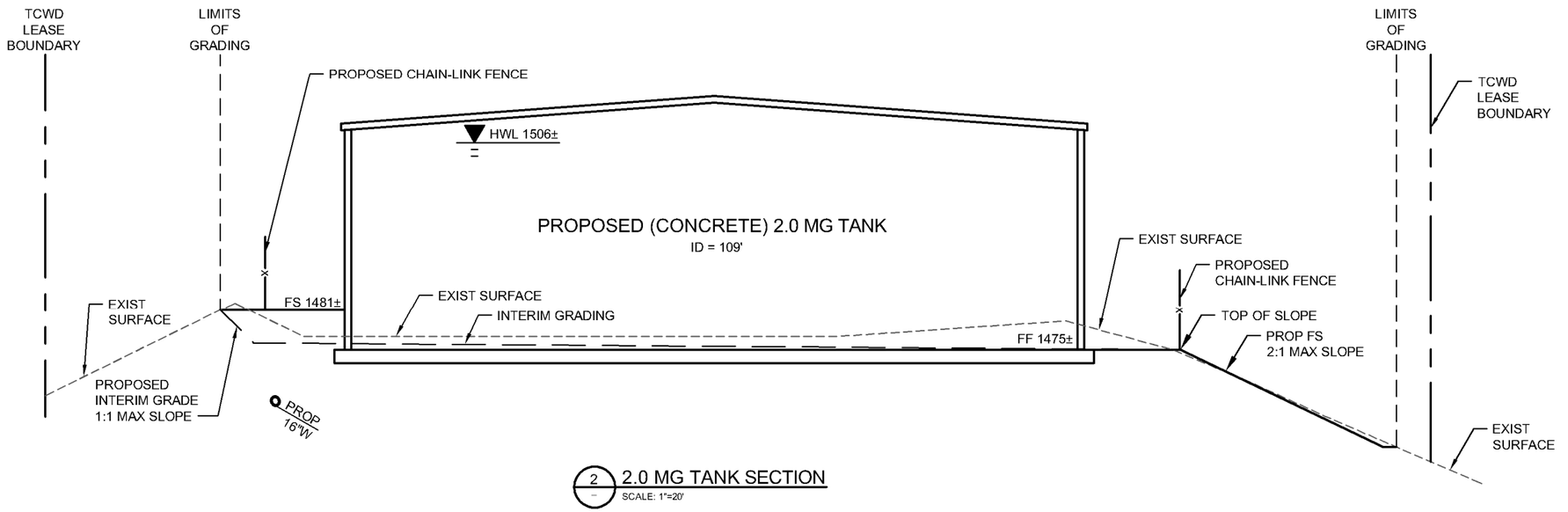
Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
4-2.2

Bar Measures 1 inch



1 — 2.0 MG TANK SECTION
SCALE: 1"=20'



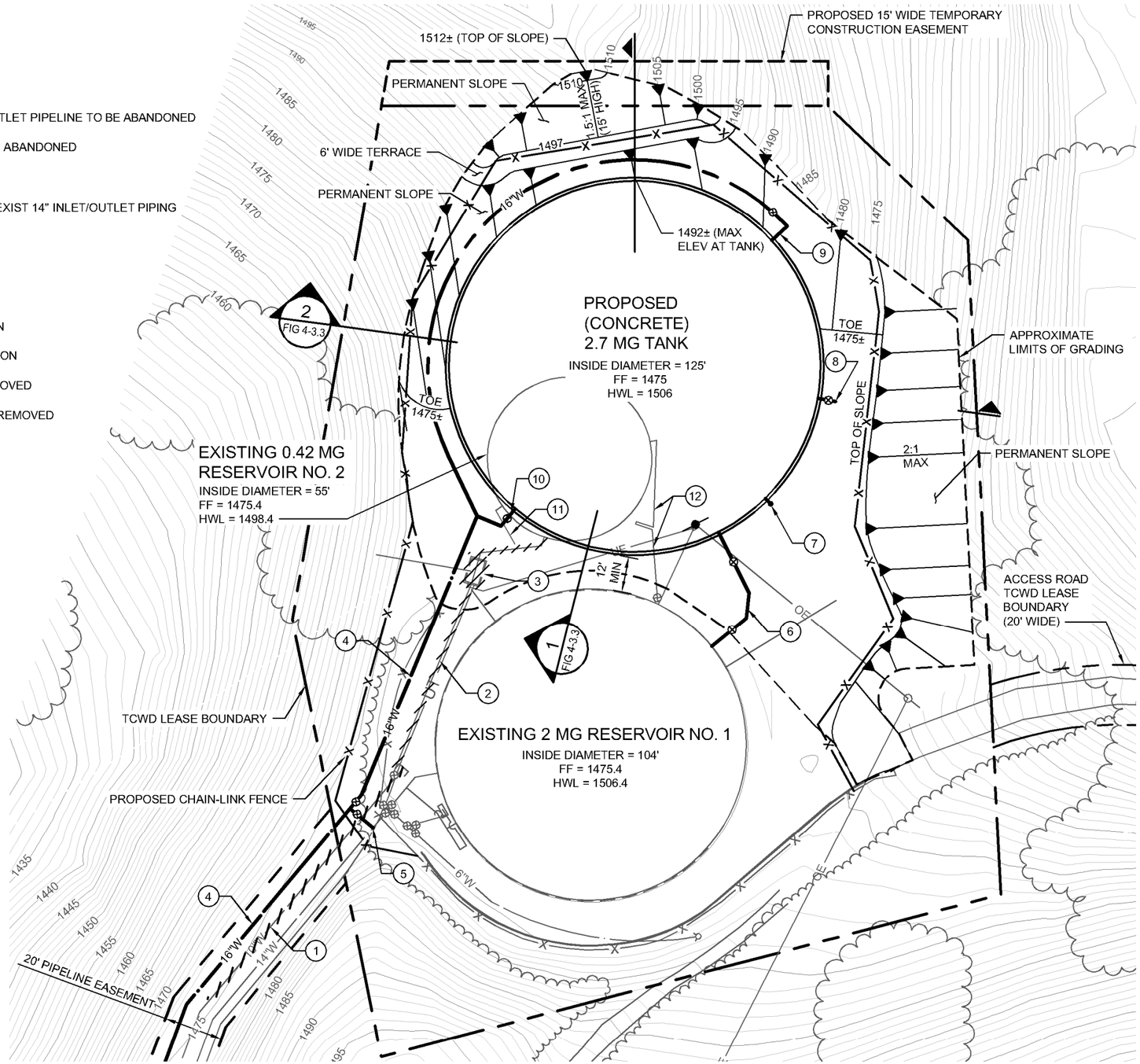
2 — 2.0 MG TANK SECTION
SCALE: 1"=20'

TETRA TECH www.tetratech.com 17885 VON KARMAN AVENUE, SUITE 500 IRVINE, CA 92614 (949) 809-5000	TRABUCO CANYON WATER DISTRICT HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY ALTERNATIVE 2 2.0 MG TANK CONCEPTUAL GRADING SECTIONS	Project No.: 200-09339-20001 Date: AUGUST 2020 Designed By: KMB FIGURE 4-2.3

Bar Measures 1 inch

PIPING NOTES:

1. EXISTING 10"W TO BE ABANDONED
2. EXISTING 8" RESERVOIR NO. 2 INLET/OUTLET PIPELINE TO BE ABANDONED
3. EXISTING ALTITUDE VALVE VAULT TO BE ABANDONED
4. PROPOSED 16" INLET/OUTLET PIPING
5. PROPOSED POINT OF CONNECTION TO EXIST 14" INLET/OUTLET PIPING
6. PROPOSED 16" TANK INTERTIE
7. PROPOSED TANK OVERFLOW
8. PROPOSED TANK DRAIN
9. PROPOSED 16" TANK INLET CONNECTION
10. PROPOSED 16" TANK OUTLET CONNECTION
11. EXISTING RESERVOIR DRAIN TO BE REMOVED
12. EXISTING TANK INTERTIE PIPING TO BE REMOVED



LEGEND:

- PROPOSED VALVE
- EXISTING VALVE
- 16"W — PROPOSED WATERLINE
- X"W — EXISTING WATERLINE
- EXISTING POWER POLE (RELOCATION REQUIRED)
- EXISTING POWER POLE PROTECT IN PLACE

NOTES:

1. ALL NEW TANK PIPING CONNECTIONS SHALL HAVE FLEXIBLE EXPANSION JOINT COUPLINGS.

0 20' 40'
SCALE: 1" = 40'

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

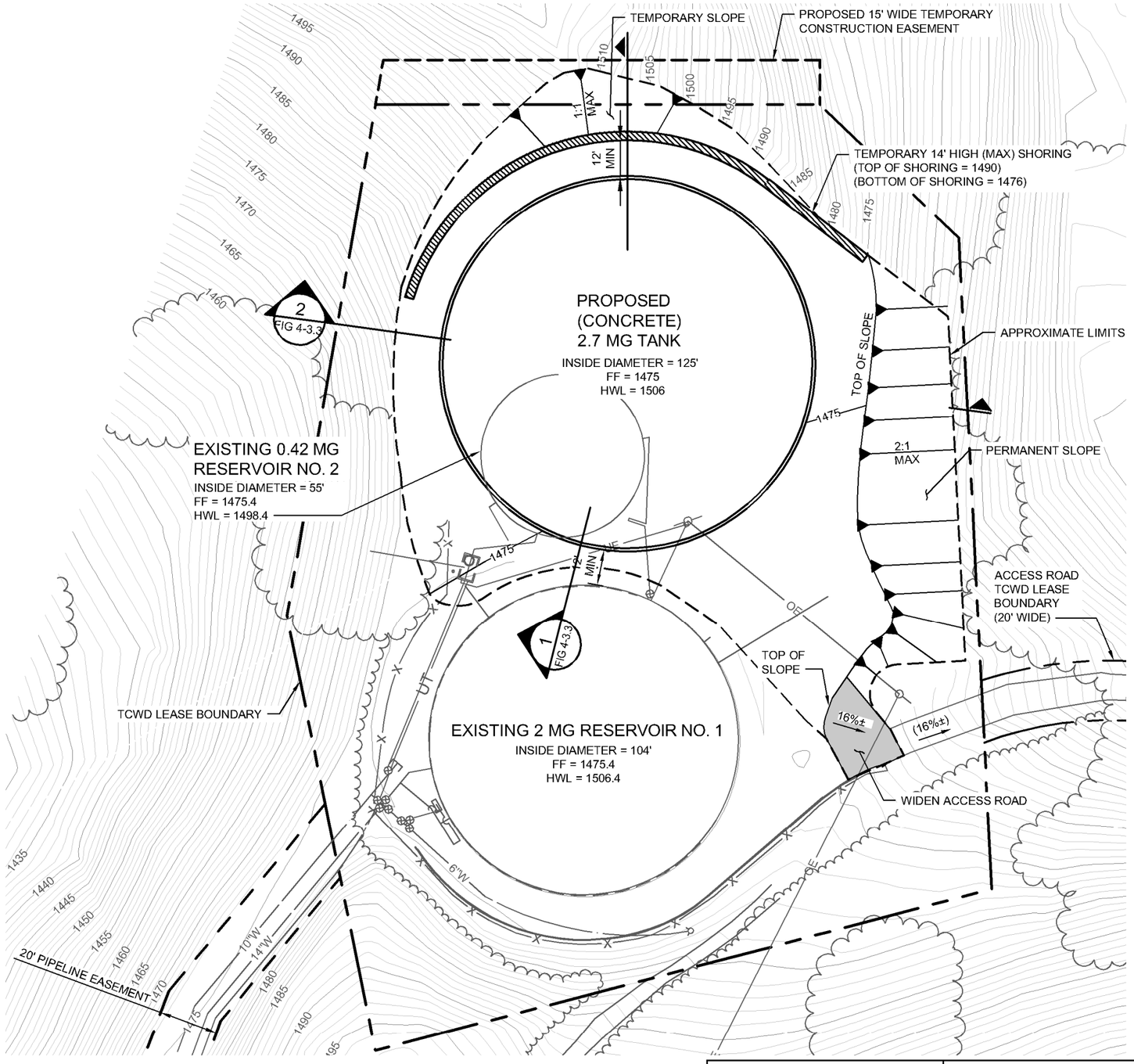
ALTERNATIVE 3
2.7 MG TANK CONCEPTUAL FINAL GRADING, YARD PIPING, AND SITE PLAN

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
4-3.1

Bar Measures 1 inch

8/26/2020 2:18:35 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-704G- (FIG 4-3.1) 2.7 MG TANK (FINAL).DWG - LERMA, JACKIE



8/26/2020 2:25:31 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-704H- (FIG 4-3.2) 2.7 MG TANK (INTERIM).DWG - LERMA, JACKIE

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

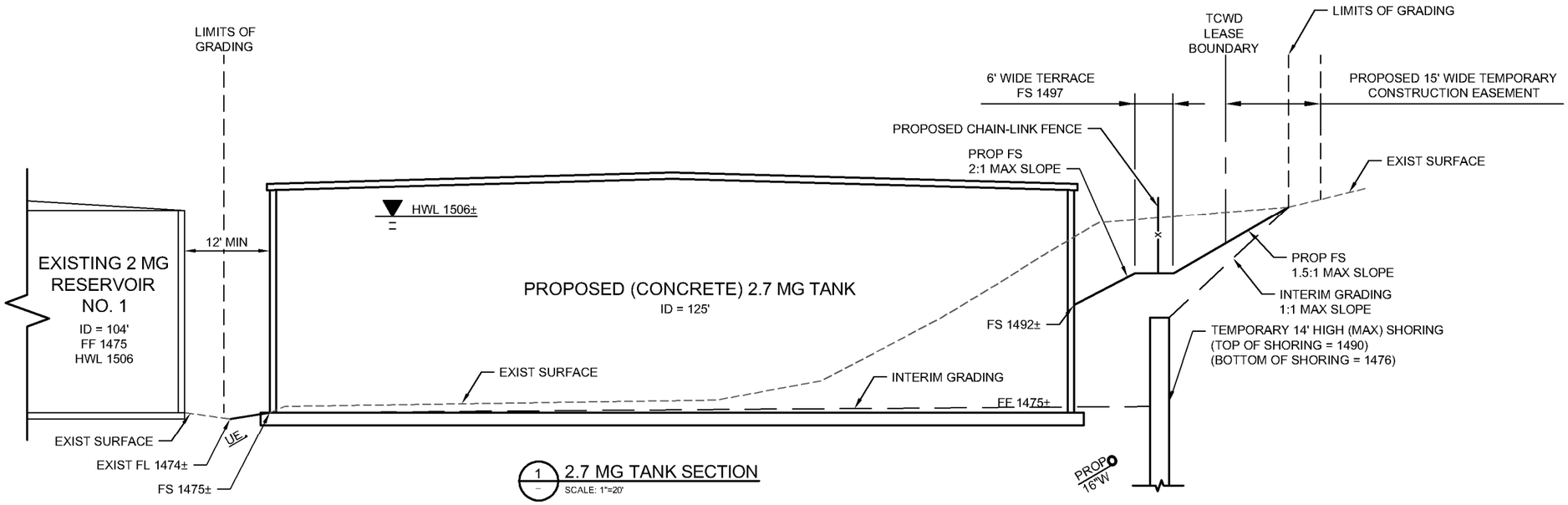
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

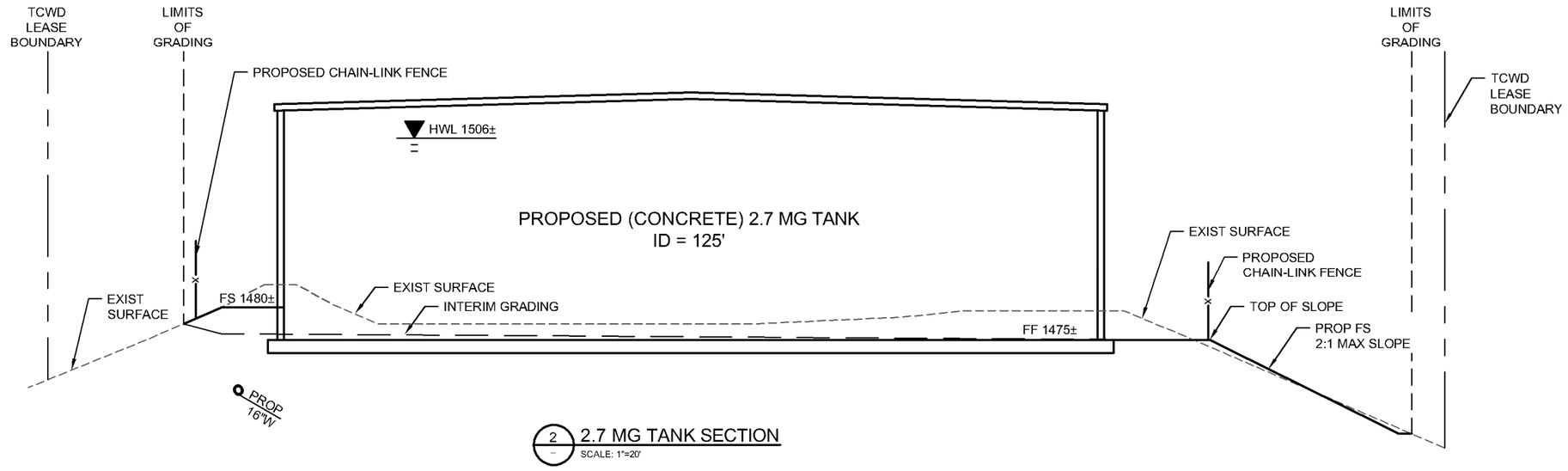
ALTERNATIVE 3
2.7 MG TANK CONCEPTUAL INTERIM GRADING

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
4-3.2

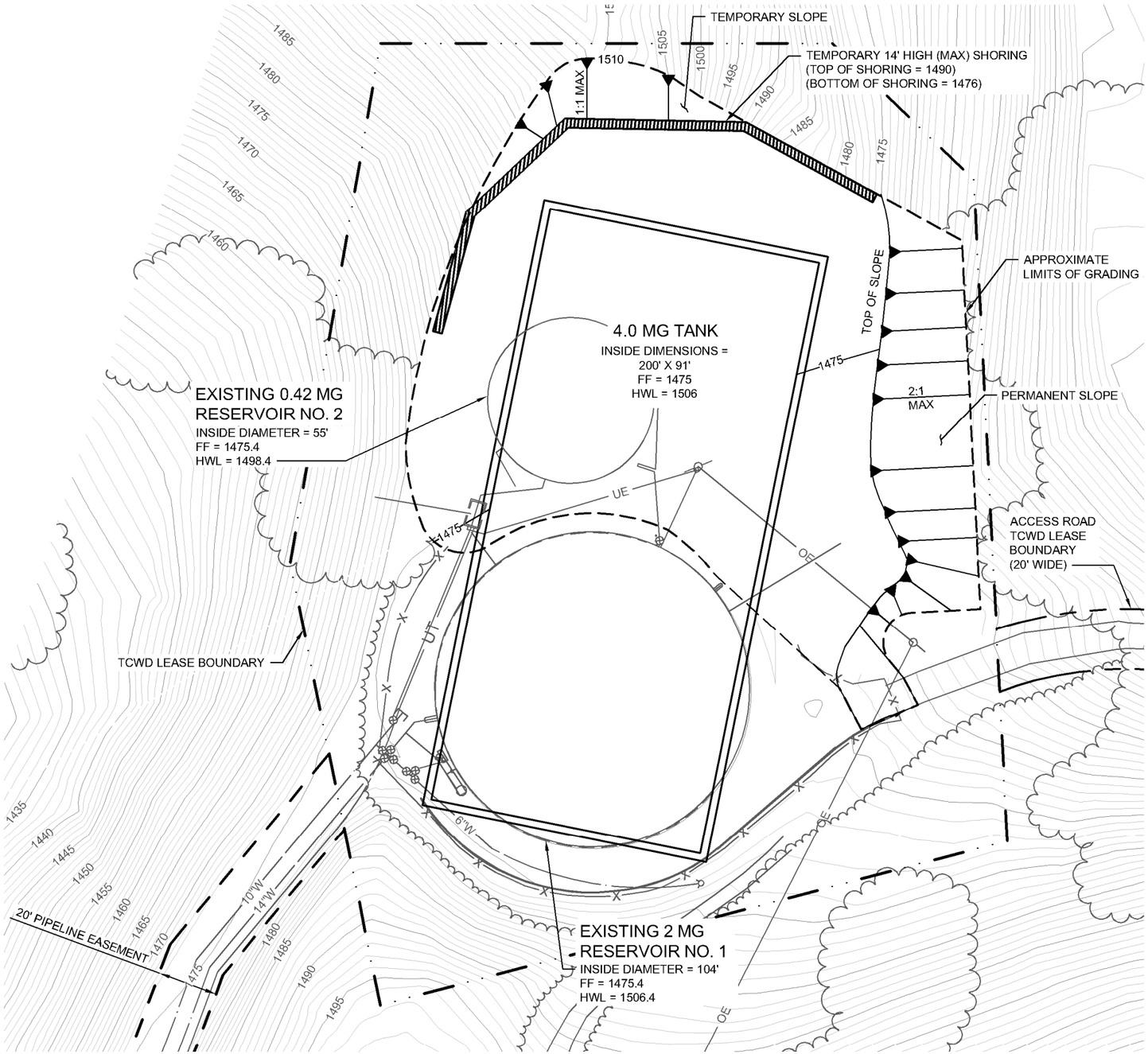
Bar Measures 1 inch





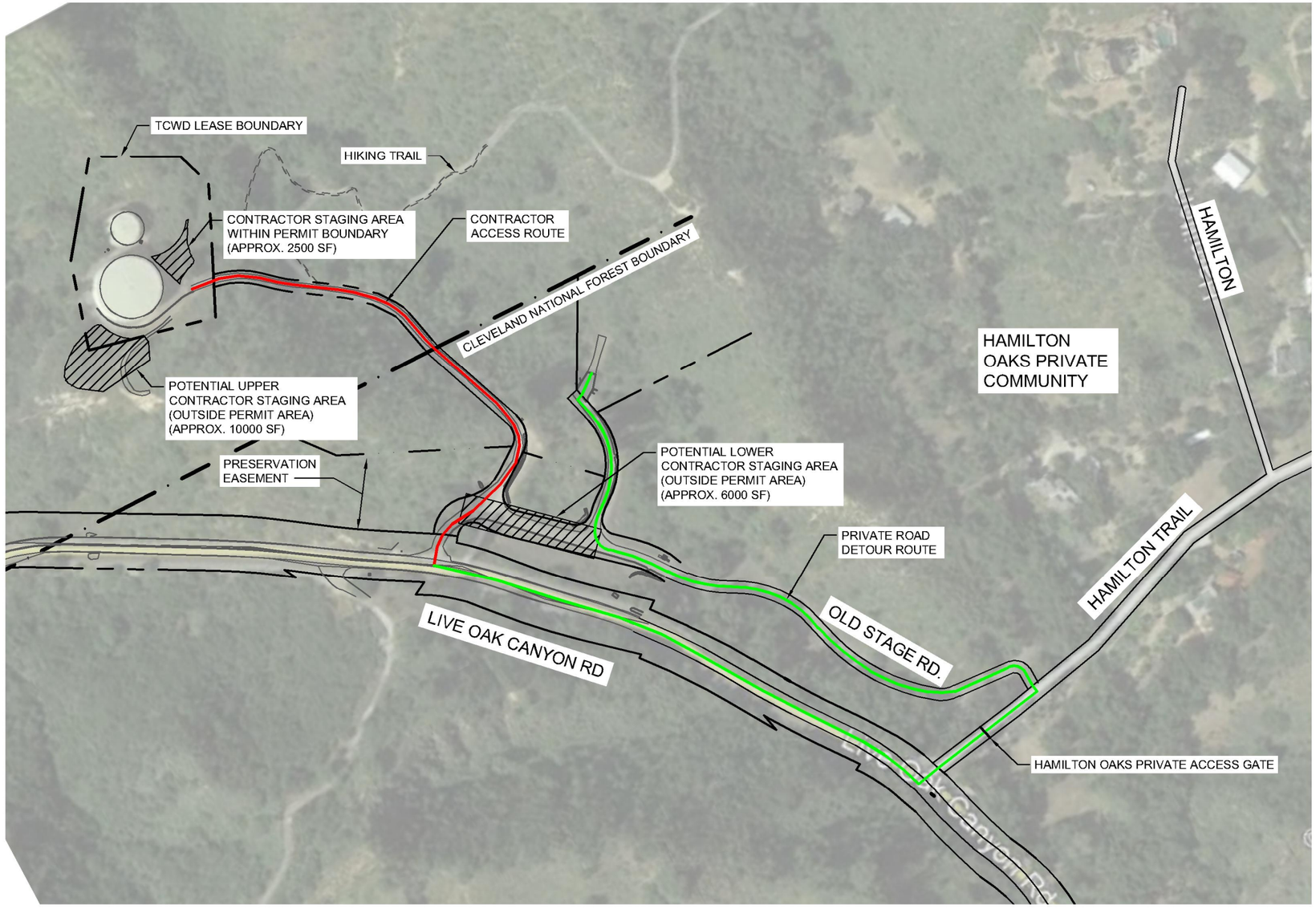
TETRA TECH www.tetratech.com 17885 VON KARMAN AVENUE, SUITE 500 IRVINE, CA 92614 (949) 809-5000	TRABUCO CANYON WATER DISTRICT HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY ALTERNATIVE 3 2.7 MG TANK CONCEPTUAL GRADING SECTIONS	Project No.: 200-09339-20001 Date: AUGUST 2020 Designed By: KMB FIGURE 4-3.3

Bar Measures 1 inch



TETRA TECH www.tetratech.com 17885 VON KARMAN AVENUE, SUITE 500 IRVINE, CA 92614 (949) 809-5000	TRABUCO CANYON WATER DISTRICT HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY ALTERNATIVE 4 4.0 MG RECTANGULAR TANK CONCEPTUAL SITE LAYOUT	Project No.: 200-09339-20001 Date: AUGUST 2020 Designed By: KMB FIGURE 4-4.1

Bar Measures 1 inch



LEGEND:

CONTRACTOR ACCESS

POTENTIAL DETOUR

0 100' 200'

SCALE: 1" = 200'

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

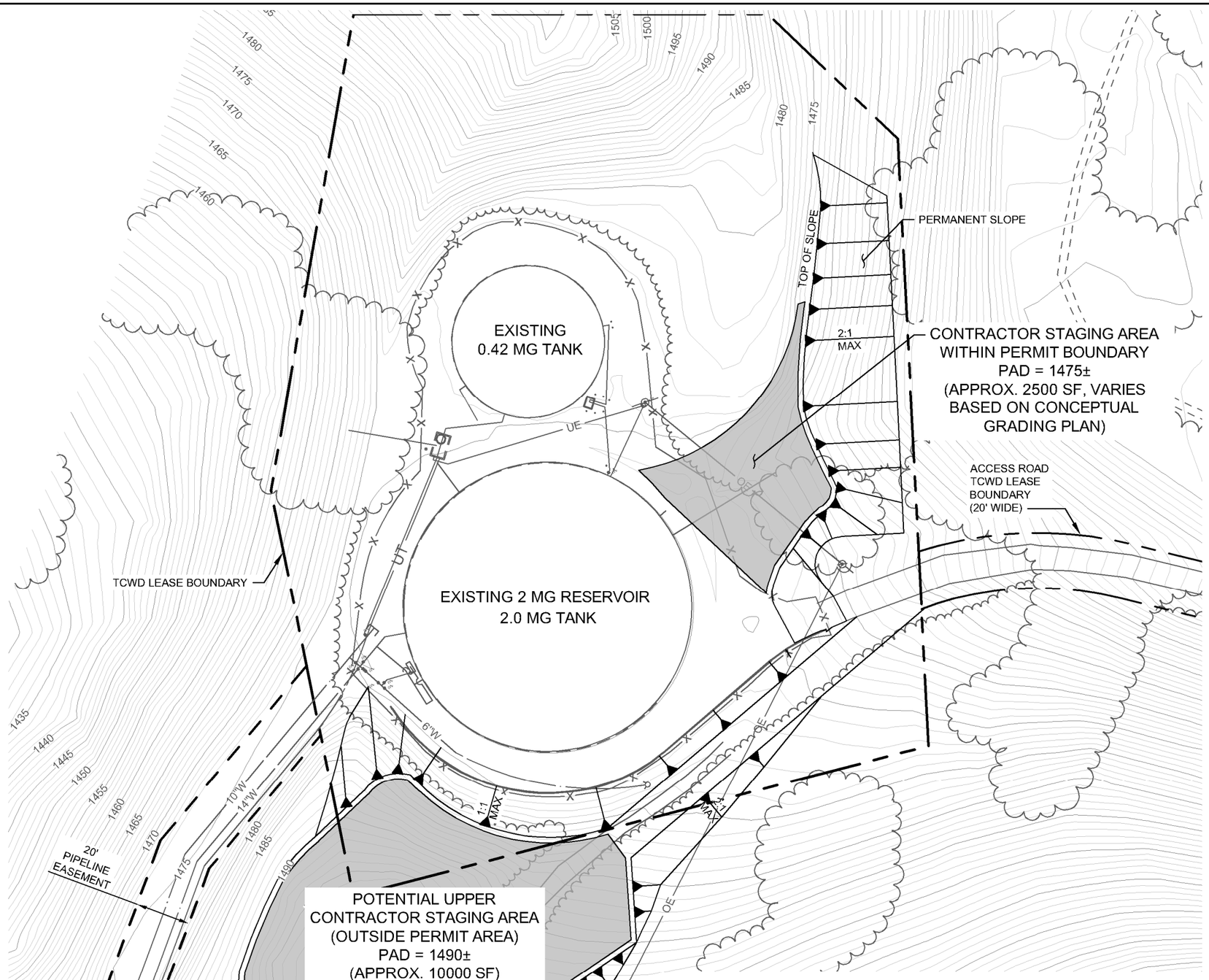
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

CONTRACTOR SITE ACCESS

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE 5-1

Bar Measures 1 inch



TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT

HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

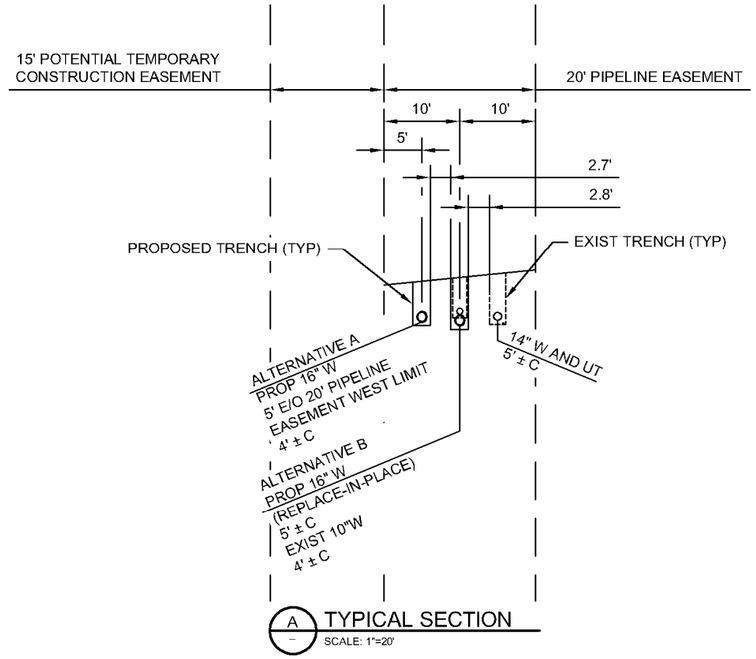
CONTRACTOR STAGING PLAN

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

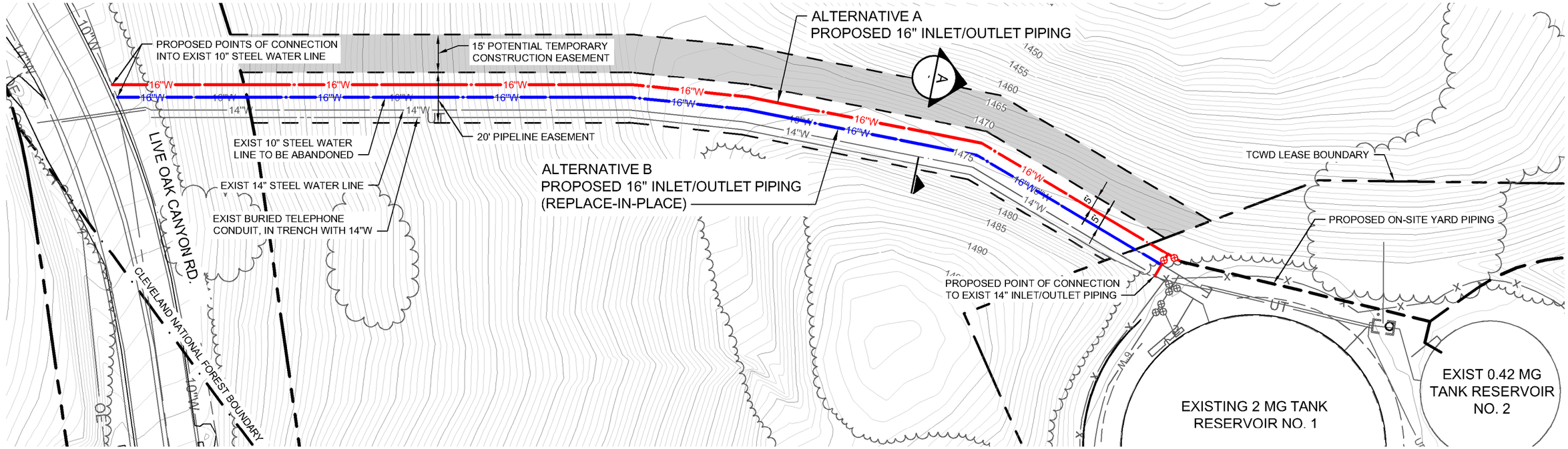
FIGURE
5-2

Bar Measures 1 inch

8/26/2020 2:22:55 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-705B- (FIG 5-2) CONTRACTOR STAGING AREAS.DWG - LERMA, JACKIE



A TYPICAL SECTION
SCALE: 1"=20'



0 20' 40'
SCALE: 1" = 40'

TETRA TECH
www.tetratech.com
17885 VON KARMAN AVENUE, SUITE 500
IRVINE, CA 92614
(949) 809-5000

TRABUCO CANYON WATER DISTRICT
HARRIS GRADE RESERVOIR REPLACEMENT FEASIBILITY STUDY

CONCEPTUAL 16-INCH PIPELINE ALIGNMENTS

Project No.:	200-09339-20001
Date:	AUGUST 2020
Designed By:	KMB

FIGURE
5-3

Bar Measures 1 inch

8/26/2020 2:24:06 PM - O:\PROJECTS\IRVINE\09339\200-09339-20001\CAD\CONCEPTUAL\C-702C- (FIG 5-3) 16-INCH-PIPE-TO-LIVE-OAK.DWG - LERMA, JACKIE

Appendix C. Anticipated Environmental Permits

Requirement	Authority	Explanation
Federal		
Environmental Impacts	National Environmental Policy Act (NEPA)	Projects which require federal action must comply with the NEPA, including disclosure of the potential environmental impacts of the Project through an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and a process of public and agency review and comment. Federal actions which require review under NEPA include federal funding, interconnection to a federal power marketing agency, or issuance of a federal permit such as an ITP under the ESA. *Triggered by project location on federal land; will need to explore potential "categorical exclusions" of the U.S. Forest Service that could apply. Otherwise likely to require preparation of an EA.*
Biological Resources - Endangered Species	Endangered Species Act (ESA)	The ESA and its implementing regulations in Title 50 CFR Section 17 prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA. Species can be listed as endangered, threatened, proposed for listing (proposed for listing in Federal Register), or candidates for listing (where listing is warranted, but precluded by higher priority listing activities). *This project is likely to need a biological assessment of the property and adjacent habitat since there is potential for undisturbed habitat. If threatened or endanger species (or habitat) are found, an Incidental Take Permit (ITP) may be required for each species identified.*
Biological Resources - Migratory Birds	Migratory Bird Treaty Act (MBTA)	The MBTA implements the Unites States' obligations under four treaties for the protection of migratory birds. The MBTA is administered by the USFWS, which maintains a list of all species protected by the MBTA (50 CFR Section 10.13). This list includes over 1,000 species of migratory birds, including eagles and other raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines. *A biological assessment would also address potential for impacts to migratory bird species. If any are found to be present, or if suitable habitat is identified, an Incidental Take Permit (ITP) may be required for each species so identified.*
Biological Resources - Eagle Protection	Bald and Golden Eagle Protection Act (BGEPA)	The BGEPA prohibits the take, sale, purchase, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof, 16 USC Section 668. The BGEPA also defines take to include "pursue, shoot, shoot

Requirement	Authority	Explanation
		at, poison, wound, kill, capture, trap, collect, molest, or disturb," 16 USC Section 668c, and includes criminal and civil penalties for violating the statute. See 16 USC Section 668. The term "disturb" is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 CFR Section 22.3). *A biological assessment also addresses potential for impacts to either bald or golden eagles. If either species is identified in the area, or if suitable habitat is found, an Incidental Take Permit (ITP) could be required (though is not likely).*
Cultural Resources	National Historic Preservation Act (NHPA)	The NHPA requires that federal agencies consider the effects of their proposed actions on historic properties (cultural resources eligible for inclusion in or listed on the NRHP). Generally, any project which requires federal permits, monies, or lands will require review under Section 106. This process involves surveys for archaeological resources, historic built environment resources, and traditional cultural properties, and consultation with state and tribal historic preservation staff. The NRHP recognizes both historical-period and prehistoric properties, including archaeological sites, that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more established criteria *A cultural resources survey will likely be necessary to evaluate the potential for archaeological resources on site, and whether or not any of the structures located on site have historical significance.*
State of California		
Environmental Impacts	California Environmental Quality Act (CEQA)	CEQA) was enacted in 1970 by the California Legislature for decision-makers and the public to be made aware of anticipated significant environmental effects of a proposed project and identify possible ways to avoid or minimize those significant environmental effects by recommending mitigation measures or feasible alternatives to the project. In accordance with CEQA all "projects" within the State of California are required to undergo environmental review to determine potential impacts associated with implementation of the project (see California Public Resources Code, Sections 21000 through 21189). The "Lead Agency" under CEQA is required

Requirement	Authority	Explanation
		to conduct an environmental review to analyze the potential environmental effects associated with proposed projects located within the jurisdiction. *A CEQA review and document preparation will be needed, and the potential impacts defined primarily through the biological and cultural resource assessments will establish the level of assessment; whether an Initial Study/Mitigated Negative Declaration (IS/MND) is possible or a full Environmental Impact Report (EIR) is needed. If possible, a combined federal and state assessment document is preferred.*
Biological Resources - Endangered Species	California Endangered Species Act (CESA)	The CESA establishes state policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the ESA, compliance with the ESA would satisfy the CESA if the CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b). *The biological assessment performed for the site will address species of concern at both the federal and state levels. Results will determine what safeguards, if any, are needed for state-listed species.*
Cultural Resources	California Public Resources Code, Section 5024.19(a)	The California Register of Historical Resources (CRHR) was created in 1992 and implemented in 1998 as "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission

Requirement	Authority	Explanation
		determines that it meets one or more established criteria, which are modeled on NRHP criteria. *The cultural assessment performed for the site will address concern at both the federal and state levels. Results will determine what resources may be present, if any, and what protection measures may be necessary prior to project implementation.*
Construction Stormwater Permit	Federal Clean Water Act (CWA), National Pollutant Discharge Elimination System (NPDES); jointly administered by the California Regional Water Quality Control Board (RWQCB), Santa Ana, and the Orange County Department of Public Works.	If one or more acres of land are proposed to be disturbed and have a point source discharge of storm water to Waters of the State, a National Pollutant Discharge Elimination System (NPDES) Permit must be obtained. State Water Resources Control Board establishes policies and regulations that help protect and restore the water quality in California, coordinates with and supports RWQCB efforts, and reviews their actions. The RWQCBs monitor and enforce state and federal plans, policies, and regulations. Each RWQCB makes critical water quality decisions for its region. *The NPDES program provides for Construction General Permits. Most construction projects that disturb 1 acre of land or more are required to obtain coverage through an NPDES General Permit for Construction Activities (or Construction General Permit), which requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP).*
Orange County		
Water Quality	Local NPDES program and the County of Orange, the Orange County Flood Control District, and cities of Orange County (the Permittees).	A Model Water Quality Management Plan (WQMP) and Technical Guidance Document (TGD) are provided by the County to aid development project proponents in addressing post-construction urban runoff and stormwater pollution from new development and significant redevelopment projects that qualify as Priority Projects. The criteria for defining a "Priority Project" is provided in the Model WQMP and TGD. These documents describe the process that developers should follow in preparing a Project WQMP for individual new development and significant redevelopment projects. A Project WQMP is a plan for minimizing the adverse effects of urbanization on site hydrology, runoff flow rates and pollutant loads. It also includes measures to help reduce the impacts from "hydromodification." *A project specific WQMP and Erosion and Sediment Control Plan (ESCP) will likely be needed for this project.*

Not expected to be necessary for the proposed project at this location are the following:

- Wetland Permit, Section 404 WQA (U.S. Army Corps of Engineers)
- Water Quality Certification, Section 401 WQA (RWQCB),
- Lake and Streambed Alteration Agreement (CDFW),
- Conditional Use Permit, or other Land Use Zoning adjustment (Orange County).

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

ITEM 7: OTHER ENGINEERING AND OPERATIONS PROJECT UPDATES

1. District Asset Management
2. The Oaks at Trabuco Development
3. SWRCB and PFAS Sampling
4. Santiago Canyon Road Improvements
5. Other Projects

RECOMMENDED ACTION:
Committee to receive project status updates at time of the Committee Meeting.

EXHIBIT(S):
1. Santiago Canyon Road Project Overview

CONTACTS (staff responsible): PALUDI/PEREA/LAUSTEN

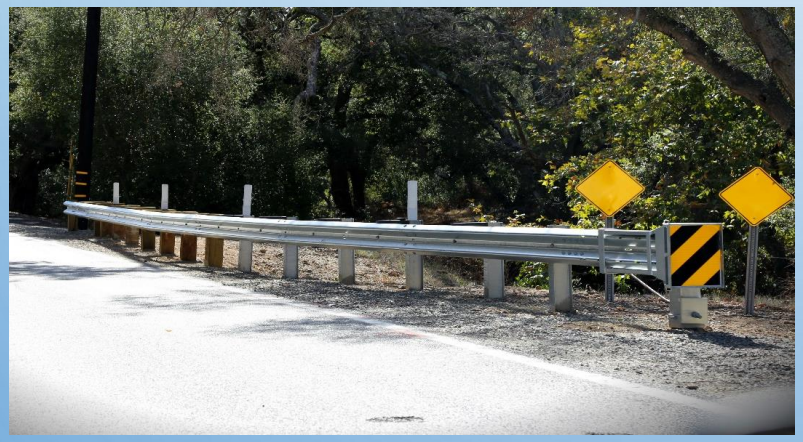
COUNTY OF ORANGE ROAD IMPROVEMENT PROJECT OVERVIEW

SANTIAGO CANYON ROAD FROM SR-241 TO LIVE OAK CANYON ROAD (APPROX. 11 M.)

PROJECT SCOPE

Install High Friction Surface Treatment (HFST)

Enhancements to striping & signage.



Replace Metal Beam Guard Rails (MBGR)

Install rumble strips

CONSTRUCTION SCHEDULE

No.	Action	Start	Finish	Duration (Days)
1	Notice to Proceed	17-Aug-20	14-Apr-21	270*
2	Installing site-specific BMPs	31-Aug-20	15-Jan-21	98
3	Remove Existing Roadway stripe on HFST locations	29-Sep-20	2-Oct-20	4
5	MBGR/SKT Return Caps/End Anchor/Flare (multiple zones)	29-Sep-20	11-Dec-20	98
8	Signage	2-Oct-20	8-Oct-20	5
4	HFST installation across (15 zones)	5-Oct-20	8-Jan-21	69
7	Rumble Strip Installation	18-Jan-20	22-Jan-20	5
6	Project Stripe Removal	25-Jan-20	5-Feb-20	10
9	Striping (1st & 2nd coat)	8-Feb-21	18-Mar-20	20
10	Project Punchlist	25-Mar-21	8-Apr-21	10
11	Project Completion and Acceptance		8-Apr-21	
*	7-day calendar			

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

OPERATIONAL MATTERS
ITEM 8: WATER SYSTEM UPDATES

The following is a brief report of the water system for **August 2020**.

Projects and Repairs

1. Water Operations staff worked with Tesco Controls to put Ridgeline Pump Station into normal operation and restarted Dimension Water Treatment Plant
2. Water Operations staff worked with the Meter Department to replace four, two-inch meters in the Santiago Estates Community.
3. Water Operations staff shut down the Trabuco Creek Ground Water Treatment Facility for 2020.
4. Water Operations staff flushed 66 hydrants in the Robinson Ranch Community.
5. Water Operations staff assisted the Meter Department and repaired a one-inch service on Mountain Laurel in the Dove Canyon Community.

Monthly Water System Operations Summary

The Monthly Water System Operations Summary is attached for the Committee's review. Any anomalies will be presented at the time of the Engineering/Operational Committee Meeting.

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

EXHIBITS

1. Monthly Water System Operations Summary

CONTACTS (staff responsible): PALUDI/KESSLER

TRABUCO CANYON WATER DISTRICT
MONTHLY WATER SYSTEM OPERATIONS SUMMARY

2020													
DIMENSION WTP													
	JAN	**FEB**	**MARCH**	**APRIL**	**MAY**	**JUNE**	**JULY**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	***TOTAL***
SAC METER AC/FT	152	166	128	68	147	13	Offline						674
BACKWASH AC/FT	5	4	4.0	3	5	1	0						22
FLUSHWATER AC/FT	9	9	9.0	5	9	2	0						43
WTP EFFLUENT AC/FT	153	168	128	68	151	10	0						678
81													
TRABUCO CREEK GWTF	0	0	0	68	81	58	59						266
US WELL AC/FT	0	0	0	0	0	0	0						0
AMP WATER													
SMWD AC/FT	0	0	0	0	0	36	10						46
IRWD AC/FT	0	0	0	0	0	111	122						233
TOTAL SUPPLY													
AC/FT	153	168	128	136	232	197	191						1,205
CFS DAILY AVERAGE	2.4	2.9	2.1	2.3	3.8	3.3	3.1						2.8
AC/FT PER DAY	4.9	5.8	4.1	4.5	7.5	6.6	6.2						5.7
OPERATIONS in GAL.													
WTP DOMESTIC	28,424	26,778	32,688	18,700	37,176	3,740	75						147,581
WWTP DOM	6,000	20,570	14,630	11,110	27,170	22,800	23,430						125,710
OPERATIONS (AF)													
SUPPLEMENT TO RW	0	0	0	0	0	0	0						0
LOSSES in GAL.													
FLUSHING (gal.)	144,000	468,000	0	0	0	0	384,000						996,000
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000	5,000	5,000						35,000
LINE BREAKS (gal.)	1,000	350,000	350,000	30,000	5,000	1,000	0						737,000
SYSTEM DEMAND **													
CFS DAILY AVERAGE	2.4	2.9	2.0	2.2	3.7	3.3	3.1						2.8
AC/FT PER DAY	4.9	5.7	4.1	4.5	7.4	6.6	6.2						5.6
RESERVOIR STORAGE													
MONTHLY AVG (MG)	8.8	8.6	8.8	8.9	8.6	8.8	8.5						9
DAYS OF STORAGE	4	3	4	4	3	4	3						4
ZONES (AF)													
RIDGELINE PS	Offline	Offline	Offline	Offline	20	10	122						152
EL TORO P.S.	153	168	128	68	131	111	122						881
TOPANGA	3	2	2	1	3	3	4						18
FALCON	0.5	0.6	0.2	0.2	0.7	0.7	0.8						4
ROSE PRV/ OAKS	3	3	3	5	6	6	7						33
CANYON CREEK	0.2	0.3	0.2	0.2	0.3	0.4	0.4						2
ROSE P.S.	0.2	0.1	1.5	0.3	1.5	0.8	0.8						5
ROBINSON RANCH	26	30	19	24	49	47	56						251
DOVE CANYON	60	63	51	39	87	91	97						488
PORTOLA HILLS	8	11	9	8	11	13	16						76
* Usage estimated new meter installed					** Excludes Operational use, losses, and supplement to Recycled Water Reservoir (RW)								

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

OPERATIONAL MATTERS
ITEM 9: WASTEWATER SYSTEM UPDATES

The following is a brief report of the wastewater system for **August 2020.**

Projects and Repairs

1. Wastewater Operations staff worked with TESCO Controls on the Dove Recycled Water Pump Station start up, including meeting virtually to review the equipment programming and controls.
2. Wastewater Operations staff work Southern California Edison (SCE) to provide temporary power at the Robinson Ranch Wastewater Treatment Plant (WWTP) during an unplanned emergency power outage due to SCE infrastructure failure.
3. Wastewater Operations standby staff responded to an unnoticed SCE Rolling Blackout event on Friday, August 14th.
4. Wastewater Operations staff worked with Solar Bee to perform the annual maintenance of the Dove Lake mixers.
5. Wastewater Operations staff worked with Maintenance Department staff to clean up Dove Lake after a minor turnover event.

Sewer System Management Plan (SSMP) Report

1. *SSMP Communication Program*: The purpose of the program is to communicate on a regular basis with the public on the development, implementation, and performance of TCWD's SSMP. Status updates on the work and type of work performed on the sewer system will be provided, including sewer line and manhole cleaning, system repairs, lift station cleaning, and updates from satellite facilities:

- Sewer System – Cleaned **16,662** feet of gravity sewer line
- Satellite and Contract Facilities:
  - The Oaks at Trabuco Wet Well was pumped out **8** times.
  - O'Neill Park Sewer System (Gravity Sewer, Lift Station, and Force Main)
    - Status: Ok | Repairs: None
- Sewer System Quarterly Report:
  - Next Scheduled Report – **October 2020**

2. *SSMP Program Audits*: Periodic internal audits shall be conducted, at a minimum every two years, with reports kept on file. The audit shall focus on evaluating the effectiveness of the SSMP and TCWD's compliance with the mandatory elements of TCWD's SSMP:

- Next scheduled Report Due: **January 2021**

Monthly Recycled Water System Operations Summary

The Monthly Recycled Water System Operations Summary is attached for the Committee's review. Any anomalies will be presented at the time of the Engineering/Operational Committee Meeting.

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

EXHIBITS

1. Monthly Recycled Water System Operations Summary

CONTACTS (staff responsible): PALUDI/PEREA

TRABUCO CANYON WATER DISTRICT | NON-DOMESTIC WATER SYSTEM SUMMARY - 2020

		JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
RECYCLED WATER SUPPLY														
WWTP Reclaimed Water Production		50.4	45.4	38.4	35.7	58.6	50.7	0.5						279.7
Reclaimed Resevoir Free Board, Ft		4.0	2.5	0.4	3.7	8.0	5.0	7.5						N/A
Reclaimed Resevoir Storage		88.8	106.3	137.5	92.0	62.0	83.0	58.3						N/A
Supplemental Domestic Water Added		0.0	0.0	0.0	0.0	0.0	0.0	0.0						0.0
RECYCLED WATER SYSTEM DEMAND | RECYCLED WATER SALES														
NON DOMESTIC WATER USER	**ALLOC. AF**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTAL**
Dahlia Court	8.2	0.3	0.3	0.1	0.3	0.6	0.3	0.3						2.1
Dove Canyon Golf Course	106.7	3.8	10.4	2.5	9.4	40.5	36.7	55.6						158.9
Dove Canyon Master Association	279.3	3.6	7.2	2.5	4.7	23.3	21.1	27.4						89.9
Robinson Ranch	80.2	0.4	1.5	0.4	0.7	3.1	3.0	4.5						13.6
Trabuco Highlands	159.7	1.7	4.0	1.5	1.8	10.0	8.6	11.6						39.2
City of RSM	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0						0.0
Construction Water	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0						0.0
Sakaida Nursery	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0						0.0
SMWD	N/A	18.3	3.2	16.4	0.0	0.0	0.0	0.0						37.9
TY Nursery	17.9	0.0	0.0	0.0	0.0	0.0	5.3	12.0						17.3
TOTAL	**653.2**	**28.1**	**26.7**	**23.4**	**16.9**	**77.5**	**75.0**	**111.5**						**359.0**
TOTAL ANNUAL AVG. NDW AVAILABLE**	**774.36**													
URBAN RUNOFF CAPTURE AND REUSE		**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTAL**
Shadow Rock Detention Basin Production		0.0	0.0	0.0	0.0	0.0	1.56	1.2						2.8
Dove | Tick Creek Production*		0.0	0.0	0.0	0.0	0.0	1.89	5.1						6.9
TCWD Portion		0.0	0.0	0.0	0.0	0.0	0.95	2.5						3.5
SMWD Portion		0.0	0.0	0.0	0.0	0.0	0.95	2.5						3.5
Dove Lake Water Pumped		0.0	0.0	0.0	0.0	0.0	49.7	33.6						83.3
Dove Lake Free Board, Ft		0.0	0.0	0.0	0.0	0.0	3.0	5.0						N/A
Dove Lake Storage		180.0	180.0	180.0	180.0	180.0	160.0	147.0						N/A
Total Rainfall, In.		0.2	0.4	3.4	4.9	0.0	0.0	0.0						8.8

**** SMWD share of Dove/Tick Pump Station Dry Season Water is 50% of production.***

***** Based on 5-Year Average Reclaimed Water Reservoir Base Supply & Recycled Water Production***

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

OPERATIONAL MATTERS
ITEM 10: MAINTENANCE DEPARTMENT UPDATES

The following is a brief report of the wastewater system for **August 2020.**

Projects and Repairs

1. Maintenance Department staff conducted Belt press repairs; piping leaks, polymere system repairs, wash water pump coupling repair, along with the flow control valve upgrade.
2. Maintenance Department staff assisted with the blower room WAS pump rehab project, which is half-way complete, and installed new isolation valves
3. Maintenance Department staff worked with Hydrotech Electric to clean and repair damaged electrical lines, general vault repair, and prepping to remove the old Wastewater Operations electrical control panel.
4. Maintenance Department staff assisted Hydrotech Electrical on prepping to RNR old MCC panel for the Belt Press.
5. Maintenance Department staff procured and was able to test drive the new Ford F-650 dump truck to replace the current Kenworth dump truck.
6. Maintenance Department staff prepared vehicles and equipment for auction.
7. Maintenance Department staff prepared for the scheduled power outage at Robinson Ranch Wastewater Treatment Plant and SCE completed the required underground repair on the Wastewater Treatment Plant access road.
8. Maintenance Department staff continued to work and conduct testing at Dove Reclaim Booster Pump Station.
9. Maintenance Department staff assisted the Domestic Water Department at Topanga Booster Pump Station with hydro-tank operations

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

EXHIBITS

None

CONTACTS (staff responsible): PALUDI/STROUD

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | SEPTEMBER 2, 2020

REGULATORY AND OTHER MATTERS
ITEM 11: OTHER MATTERS/REPORTS

Other Matters/Reports from the General Manager and/or District staff may be provided at the time of the Engineering/Operational Committee Meeting.

RECOMMENDED ACTION:
Hear Other Matters/Reports that may have arisen after the posting of the agenda.

EXHIBITS
None

CONTACTS (staff responsible): PALUDI