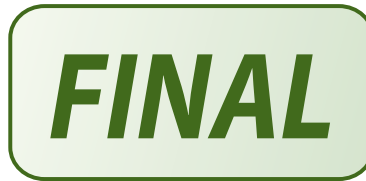


City of San Diego

CONTRACTOR'S NAME: James W. Fowler, Co. _____
ADDRESS: 12775 Westview Drive, Dallas, OR 97338 _____
TELEPHONE NO.: 503-623-5373 _____ FAX NO.: _____
CITY CONTACT: Antoinette Sanfilippo, Contract Specialist, EMAIL: ASanfilippo@sandiego.gov _____
Phone No. (619) 533-3439, Fax No. (619) 533-3633 _____
C.Crown / J. Borja / egz

BIDDING DOCUMENTS



FOR

WATER GROUP 939

BID NO.: _____ K-18-1528-DBB-3 _____
SAP NO. (WBS/IO/CC): _____ B-11035 _____
CLIENT DEPARTMENT: _____ 2000 _____
COUNCIL DISTRICT: _____ 1 _____
PROJECT TYPE: _____ KB _____

THIS CONTRACT WILL BE SUBJECT TO THE FOLLOWING:

- PHASED-FUNDING
- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- PREVAILING WAGE RATES: STATE FEDERAL
- APPRENTICESHIP

BID DUE DATE:

2:00 PM

DECEMBER 5, 2017

CITY OF SAN DIEGO


PUBLIC WORKS CONTRACTS

1010 SECOND AVENUE, 14th FLOOR, MS 614C

SAN DIEGO, CA 92101

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:




1) Registered Engineer
(Responsible for Section 308)

10-24-2017
Date

Seal:





2) For City Engineer

10/24/17
Date

Seal



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NOTICE INVITING BIDS

1. **SUMMARY OF WORK:** This is the City of San Diego's (City) solicitation process to acquire Construction services for **Water Group 939**. For additional information refer to Attachment A.
2. **FULL AND OPEN COMPETITION:** This contract is open to full competition and may be bid on by Contractors who are on the City's current Prequalified Contractors' List. For information regarding the Contractors Prequalified list visit the City's web site: <http://www.sandiego.gov>.
3. **ESTIMATED CONSTRUCTION COST:** The City's estimated construction cost for this project is **\$3,200,000**.
4. **BID DUE DATE AND TIME ARE: DECEMBER 5, 2017, at 2:00 PM.**
5. **PREVAILING WAGE RATES APPLY TO THIS CONTRACT:** Refer to Attachment D.
6. **LICENSE REQUIREMENT:** The City has determined that the following licensing classifications are required for this contract: **A or C34**
7. **SUBCONTRACTING PARTICIPATION PERCENTAGES:** Subcontracting participation percentages apply to this contract.
 - 7.1. The City has incorporated **mandatory** SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

1.	SLBE participation	8.2%
2.	ELBE participation	14.1%
3.	Total mandatory participation	22.3%
 - 7.2. The Bid may be declared non-responsive if the Bidder fails to meet the following requirements:
 - 7.2.1. Include SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; **OR**
 - 7.2.2. Submit Good Faith Effort documentation, saved in searchable Portable Document Format (PDF) and stored on Compact Disc (CD) or Digital Video Disc (DVD), demonstrating the Bidder made a good faith effort to outreach to and include SLBE-ELBE Subcontractors required in this document within 3 Working Days of the Bid opening if the overall mandatory participation percentage is not met.

8. PRE-BID MEETING:

- 8.1.** Prospective Bidders are **encouraged** to attend the Pre-Bid Meeting. The purpose of the meeting is to discuss the scope of the Project, submittal requirements, the pre-qualification process and any Equal Opportunity Contracting Program requirements and reporting procedures. To request a sign language or oral interpreter for this visit, call the Public Works Contracts Division at (619) 533-3450 at least 5 Working Days prior to the meeting to ensure availability. The Pre-Bid Meeting is scheduled as follows:

Date: NOVEMBER 14, 2017
Time: 10:00 AM
Location: 1010 Second Avenue, Suite 1400
San Diego, CA 92101

Attendance at the Pre-Bid Meeting will be evidenced by the Bidder's representative's signature on the attendance roster. It is the responsibility of the Bidder's representative to complete and sign the attendance roster.

9. AWARD PROCESS:

- 9.1.** The Award of this contract is contingent upon the Contractor's compliance with all conditions of Award as stated within these documents and within the Notice of Intent to Award.
- 9.2.** Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening. The City will then award the Contract within approximately 14 days of receipt of properly signed Contract, bonds, and insurance documents.
- 9.3.** This contract will be deemed executed and effective only upon the signing of the Contract by the Mayor or his designee and approval as to form the City Attorney's Office.
- 9.4.** The low Bid will be determined by Base Bid plus all Alternates.
- 9.5.** Once the low bid has been determined, the City may, at its sole discretion, award the contract for the Base bid alone, or for the Base bid plus one or more alternates.

10. SUBMISSION OF QUESTIONS:

- 10.1.** The Director (or Designee) of Public Works Department is the officer responsible for opening, examining, and evaluating the competitive Bids submitted to the City for the acquisition, construction and completion of any public improvement except when otherwise set forth in these documents. Any questions related to this solicitation shall be submitted to:

Public Works Contracts
1010 Second Avenue, 14th Floor
San Diego, California, 92101
Attention: Antoinette Sanfilippo

OR:

ASanfilippo@sandiego.gov

- 10.2.** Questions received less than 14 days prior to the date for opening of Bids may not be considered.
- 10.3.** Questions or clarifications deemed by the City to be material shall be answered via issuance of an addendum and posted to the City's online bidding service.
- 10.4.** Only questions answered by formal written addenda shall be binding. Oral and other interpretations or clarifications shall be without legal effect. It is the Bidder's responsibility to be informed of any addenda that have been issued and to include all such information in its Bid.
- 11. PHASED FUNDING:** For Phased Funding Conditions, see Attachment B.
- 12. ADDITIVE/DEDUCTIVE ALTERNATES:**

 - 12.1.** The additive/deductive alternates have been established to allow the City to compare the cost of specific portions of the Work with the Project's budget and enable the City to make a decision whether to incorporate these portions prior to award. The award will be established as described in the Bid. The City reserves the right to award the Contract for the Base Bid only or for the Base Bid plus one or more Alternates.
 - 12.2.** For water pipeline projects, the Plans typically show all cut and plug and connection work to be performed by City Forces. However, Bidders shall refer to Bidding Documents to see if all or part of this work will be performed by the Contractor.

INSTRUCTIONS TO BIDDERS

1. PREQUALIFICATION OF CONTRACTORS:

- 1.1. Contractors submitting a Bid must be pre-qualified for the total amount proposed, including all alternate items, prior to the date of submittal. Bids from contractors who have not been pre-qualified as applicable and Bids that exceed the maximum dollar amount at which contractors are pre-qualified may be deemed **non-responsive** and ineligible for award. Complete information and links to the on-line prequalification application are available at:

<http://www.sandiego.gov/cip/bidopps/prequalification.shtml>

- 1.2. The completed application must be submitted online no later than 2 weeks prior to the bid opening. For additional information or the answer to questions about the prequalification program, contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.
- 1.3. Due to the City's responsibility to protect the confidentiality of the contractors' information, City staff will not be able to provide information regarding contractors' prequalification status over the telephone. Contractors may access real-time information about their prequalification status via their vendor profile on [PlanetBids™](#).

2. **ELECTRONIC FORMAT RECEIPT AND OPENING OF BIDS:** Bids will be received in electronic format (eBids) EXCLUSIVELY at the City of San Diego's electronic bidding (eBidding) site, at: <http://www.sandiego.gov/cip/bidopps/index.shtml> and are due by the date, and time shown on the cover of this solicitation.

- 2.1. **BIDDERS MUST BE PRE-REGISTERED** with the City's bidding system and possess a system-assigned Digital ID in order to submit an electronic bid.
- 2.2. The City's bidding system will automatically track information submitted to the site including IP addresses, browsers being used and the URLs from which information was submitted. In addition, the City's bidding system will keep a history of every login instance including the time of login, and other information about the user's computer configuration such as the operating system, browser type, version, and more. Because of these security features, Contractors who disable their browsers' cookies will not be able to log in and use the City's bidding system.
- 2.3. The City's electronic bidding system is responsible for bid tabulations. Upon the bidder's or proposer's entry of their bid, the system will ensure that all required fields are entered. **The system will not accept a bid for which any required information is missing.** This includes all necessary pricing, subcontractor listing(s) and any other essential documentation and supporting materials and forms requested or contained in these solicitation documents.

- 2.4. BIDS REMAIN SEALED UNTIL BID DEADLINE.** eBids are transmitted into the City's bidding system via hypertext transfer protocol secure (https) mechanism using SSL 128-256 bit security certificates issued from Verisign/Thawte which encrypts data being transferred from client to server. Bids submitted prior to the "Bid Due Date and Time" are not available for review by anyone other than the submitter which has until the "Bid Due Date and Time" to change, rescind or retrieve its proposal should it desire to do so.
- 2.5. BIDS MUST BE SUBMITTED BY BID DUE DATE AND TIME.** Once the bid deadline is reached, no further submissions are accepted into the system. Once the Bid Due Date and Time has lapsed, bidders, proposers, the general public, and City staff are able to immediately see the results on line. City staff may then begin reviewing the submissions for responsiveness, EOCB compliance and other issues. The City may require any Bidder to furnish statement of experience, financial responsibility, technical ability, equipment, and references.
- 2.6. RECAPITULATION OF THE WORK.** Bids shall not contain any recapitulation of the Work. Conditional Bids may be rejected as being non-responsive. Alternative proposals will not be considered unless called for.
- 2.7. BIDS MAY BE WITHDRAWN** by the Bidder only up to the bid due date and time.
- 2.7.1. Important Note:** Submission of the electronic bid into the system may not be instantaneous. Due to the speed and capabilities of the user's internet service provider (ISP), bandwidth, computer hardware and other variables, it may take time for the bidder's submission to upload and be received by the City's eBidding system. It is the bidder's sole responsibility to ensure their bids are received on time by the City's eBidding system. The City of San Diego is not responsible for bids that do not arrive by the required date and time.
- 2.8. ACCESSIBILITY AND AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE:** To request a copy of this solicitation in an alternative format, contact the Public Works Contract Specialist listed on the cover of this solicitation at least five (5) working days prior to the Bid/Proposal due date to ensure availability.

3. ELECTRONIC BID SUBMISSIONS CARRY FULL FORCE AND EFFECT

- 3.1.** The bidder, by submitting its electronic bid, acknowledges that doing so carries the same force and full legal effect as a paper submission with a longhand (wet) signature.

- 6. JOINT VENTURE CONTRACTORS:** Provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receiving the Contract forms. See 7-6, “The Contractors Representative” in The GREENBOOK and 7-6.1 in The WHITEBOOK.
- 7. PREVAILING WAGE RATES WILL APPLY:** Refer to Attachment D.
- 8. SUBCONTRACTING PARTICIPATION PERCENTAGES:** Subcontracting participation percentages apply to this contract. Refer to Attachment E.
- 9. INSURANCE REQUIREMENTS:**
- 9.1.** All certificates of insurance and endorsements required by the contract are to be provided upon issuance of the City’s Notice of Intent to Award letter.
- 9.2.** Refer to sections 7-3, “LIABILITY INSURANCE”, and 7-4, “WORKERS’ COMPENSATION INSURANCE” of the Supplementary Special Provisions (SSP) for the insurance requirements which must be met.
- 10. REFERENCE STANDARDS:** Except as otherwise noted or specified, the Work shall be completed in accordance with the following standards:

Title	Edition	Document Number
Standard Specifications for Public Works Construction (“The GREENBOOK”) http://www.greenbookspecs.org/	2015	PWPI070116-01
City of San Diego Standard Specifications for Public Works Construction (“The WHITEBOOK”)* https://www.sandiego.gov/publicworks/edocref/greenbook	2015	PWPI070116-02
City of San Diego Standard Drawings* https://www.sandiego.gov/publicworks/edocref/standarddraw	2016	PWPI070116-03
Citywide Computer Aided Design and Drafting (CADD) Standards https://www.sandiego.gov/publicworks/edocref/drawings	2016	PWPI092816-04
California Department of Transportation (CALTRANS) Standard Specifications – http://www.dot.ca.gov/des/oe/construction-contract-standards.html	2015	PWPI092816-05
CALTRANS Standard Plans http://www.dot.ca.gov/des/oe/construction-contract-standards.html	2015	PWPI092816-06

Title	Edition	Document Number
California Manual on Uniform Traffic Control Devices Revision 1 (CA MUTCD Rev 1) - http://www.dot.ca.gov/trafficops/camutcd/	2014	PWPIO92816-07
<p>NOTE: *Available online under Engineering Documents and References at: http://www.sandiego.gov/publicworks/edocref/index.shtml</p>		

- 11. CITY'S RESPONSES AND ADDENDA:** The City, at its discretion, may respond to any or all questions submitted in writing via the City's eBidding web site in the **form of an addendum**. No other responses to questions, oral or written shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addenda are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda at the time of bid submission.
- 12. CITY'S RIGHTS RESERVED:** The City reserves the right to cancel the Notice Inviting Bids at any time, and further reserves the right to reject submitted Bids, without giving any reason for such action, at its sole discretion and without liability. Costs incurred by the Bidder(s) as a result of preparing Bids under the Notice Inviting Bids shall be the sole responsibility of each bidder. The Notice Inviting Bids creates or imposes no obligation upon the City to enter a contract.
- 13. CONTRACT PRICING:** This solicitation is for a Lump Sum contract with Unit Price provisions as set forth herein. The Bidder agrees to perform construction services for the City of San Diego in accordance with these contract documents for the prices listed below. The Bidder further agrees to guarantee the Contract Price for a period of 120 days from the date of Bid opening. The duration of the Contract Price guarantee may be extended, by mutual consent of the parties, by the number of days required for the City to obtain all items necessary to fulfill all contractual conditions.
- 14. SUBCONTRACTOR INFORMATION:**
- 14.1. LISTING OF SUBCONTRACTORS.** In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act" of the California Public Contract Code, the Bidder shall provide the **NAME** and **ADDRESS** of each Subcontractor who will perform work, labor, render services or who specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Contractor's total Bid. The Bidder shall also state within the description, whether the subcontractor is a **CONSTRUCTOR, CONSULTANT** or **SUPPLIER**. The Bidder shall state the **DIR REGISTRATION NUMBER** for all subcontractors and shall further state within the description, the **PORTION** of the work which will be performed by each subcontractor under this Contract. The Contractor shall list only one Subcontractor for each portion of the Work. The **DOLLAR VALUE** of the total Bid to be performed shall be stated for all

subcontractors listed. Failure to comply with this requirement may result in the Bid being rejected as **non-responsive** and ineligible for award. The Bidder's attention is directed to the Special Provisions - General; Paragraph 2-3, "Subcontracts", which stipulates the percent of the Work to be performed with the Bidders' own forces. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors for which Bidders are seeking recognition towards achieving any mandatory, voluntary (or both) subcontracting participation goals.

14.2. LISTING OF SUPPLIERS. Any Bidder seeking the recognition of Suppliers of equipment, materials, or supplies obtained from third party Suppliers towards achieving any mandatory or voluntary (or both) subcontracting participation goals shall provide, at a minimum, the **NAME, LOCATION (CITY), DIR REGISTRATION NUMBER** and the **DOLLAR VALUE** of each supplier. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for materials and supplies unless vendor manufactures or substantially alters materials and supplies, in which case, 100% will be credited. The Bidder is to indicate within the description whether the listed firm is a supplier or manufacturer. If no indication is provided, the listed firm will be credited at 60% of the listed dollar value for purposes of calculating the Subcontractor Participation Percentage.

14.3. LISTING OF SUBCONTRACTORS OR SUPPLIERS FOR ALTERNATES. For subcontractors or suppliers to be used on additive or deductive alternate items, in addition to the above requirements, bidder shall further note "ALTERNATE" and alternate item number within the description.

15. SUBMITTAL OF "OR EQUAL" ITEMS: See Section 4-1.6, "Trade Names or Equals" in The WHITEBOOK and as amended in the SSP.

16. AWARD:

16.1. The Award of this contract is contingent upon the Contractor's compliance with all conditions precedent to Award.

16.2. Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening and award the Contract approximately within 7 days of receipt of properly executed Contract, bonds, and insurance documents.

16.3. This contract will be deemed executed and effective only upon the signing of the Contract by the Mayor or his designee and approval as to form the City Attorney's Office.

- 17. SUBCONTRACT LIMITATIONS:** The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" in The GREENBOOK and as amended in the SSP which requires the Contractor to self-perform not less than the specified amount. Failure to comply with this requirement shall render the bid **non-responsive** and ineligible for award.
- 18. AVAILABILITY OF PLANS AND SPECIFICATIONS:** Contract Documents may be obtained by visiting the City's website: <http://www.sandiego.gov/cip/>. Plans and Specifications for this contract are also available for review in the office of the City Clerk or Public Works Contracts.
- 19. ONLY ONE BID PER CONTRACTOR SHALL BE ACCEPTED:** No person, firm, or corporation shall be allowed to make, file, or be interested in more than one (1) Bid for the same work unless alternate Bids are called for. A person, firm or corporation who has submitted a sub-proposal to a Bidder, or who has quoted prices on materials to a Bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or from submitting a Bid in its own behalf. Any Bidder who submits more than one bid will result in the rejection of all bids submitted.
- 20. SAN DIEGO BUSINESS TAX CERTIFICATE:** The Contractor and Subcontractors, not already having a City of San Diego Business Tax Certificate for the work contemplated shall secure the appropriate certificate from the City Treasurer, Civic Center Plaza, First floor and submit to the Contract Specialist upon request or as specified in the Contract Documents. Tax Identification numbers for both the Bidder and the listed Subcontractors must be submitted on the City provided forms within these documents.
- 21. BIDDER'S GUARANTEE OF GOOD FAITH (BID SECURITY) FOR DESIGN-BID-BUILD CONTRACTS:**
- 21.1.** For bids \$250,000 and above, bidders shall submit Bid Security at bid time. Bid Security shall be in one of the following forms: a cashier's check, or a properly certified check upon some responsible bank; or an approved corporate surety bond payable to the City of San Diego for an amount of not less than 10% of the total bid amount.
- 21.2.** This check or bond, and the monies represented thereby, will be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into the contract and furnish the required final performance and payment bonds.
- 21.3.** The Bidder agrees that in the event of the Bidder's failure to execute this contract and provide the required final bonds, the money represented by the cashier's or certified check will remain the property of the City; and the Surety agrees that it will pay to the City the damages, not exceeding the sum of 10% of the amount of the Bid, that the City may suffer as a result of such failure.

- 21.4.** At the time of bid submission, bidders must upload and submit an electronic PDF copy of the aforementioned bid security. Whether in the form of a cashier's check, a properly certified check or an approved corporate surety bond payable to the City of San Diego, the bid security must be uploaded to the City's eBidding system. Within twenty-four (24) hours after the bid due date and time, the first five (5) apparent low bidders must provide the City with the original bid security.
- 21.5.** Failure to submit the electronic version of the bid security at the time of bid submission AND failure to provide the original within twenty-four (24) hours may cause the bid to be rejected and deemed **non-responsive**.

22. AWARD OF CONTRACT OR REJECTION OF BIDS:

- 22.1.** This contract may be awarded to the lowest responsible and reliable Bidder.
- 22.2.** Bidders shall complete ALL eBid forms as required by this solicitation. Incomplete eBids will not be accepted.
- 22.3.** The City reserves the right to reject any or all Bids, to waive any informality or technicality in Bids received, and to waive any requirements of these specifications as to bidding procedure.
- 22.4.** Bidders will not be released on account of their errors of judgment. Bidders may be released only upon receipt by the City within 3 Working Days of the bid opening, written notice from the Bidder which shows proof of honest, credible, clerical error of a material nature, free from fraud or fraudulent intent; and of evidence that reasonable care was observed in the preparation of the Bid.
- 22.5.** A bidder who is not selected for contract award may protest the award of a contract to another bidder by submitting a written protest in accordance with the San Diego Municipal Code.
- 22.6.** The City of San Diego will not discriminate in the award of contracts with regard to race, religion creed, color, national origin, ancestry, physical handicap, marital status, sex or age.
- 22.7.** Each Bid package properly signed as required by these specifications shall constitute a firm offer which may be accepted by the City within the time specified herein.
- 22.8.** The City reserves the right to evaluate all Bids and determine the lowest Bidder on the basis of the base bid and any proposed alternates or options as detailed herein.

23. BID RESULTS:

- 23.1.** The availability of the bids on the City's eBidding system shall constitute the public announcement of the apparent low bidder. In the event that the apparent low bidder is subsequently deemed non-responsive or non-responsible, a notation of such will be made on the eBidding system. The new ranking and apparent low bidder will be adjusted accordingly.
- 23.2.** To obtain the bid results, view the results on the City's web site, or request the results by U.S. mail and provide a self-addressed, stamped envelope. If requesting by mail, be sure to reference the bid name and number. The bid tabulations will be mailed to you upon their completion. The results will not be given over the telephone.

24. THE CONTRACT:

- 24.1.** The Bidder to whom award is made shall execute a written contract with the City of San Diego and furnish good and approved bonds and insurance certificates specified by the City within 14 days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.
- 24.2.** If the Bidder takes longer than 14 days to fulfill these requirements, then the additional time taken shall be added to the Bid guarantee. The Contract shall be made in the form adopted by the City, which includes the provision that no claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
- 24.3.** If the Bidder to whom the award is made fails to enter into the contract as herein provided, the award may be annulled and the Bidder's Guarantee of Good Faith will be subject to forfeiture. An award may be made to the next lowest responsible and reliable Bidder who shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made.
- 24.4.** Pursuant to the San Diego City Charter section 94, the City may only award a public works contract to the lowest responsible and reliable Bidder. The City will require the Apparent Low Bidder to (i) submit information to determine the Bidder's responsibility and reliability, (ii) execute the Contract in form provided by the City, and (iii) furnish good and approved bonds and insurance certificates specified by the City within 14 Days, unless otherwise approved by the City, in writing after the Bidder receives notification from the City, designating the Bidder as the Apparent Low Bidder and formally requesting the above mentioned items.

- 24.5.** The award of the Contract is contingent upon the satisfactory completion of the above-mentioned items and becomes effective upon the signing of the Contract by the Mayor or designee and approval as to form the City Attorney's Office. If the Apparent Low Bidder does not execute the Contract or submit required documents and information, the City may award the Contract to the next lowest responsible and reliable Bidder who shall fulfill every condition precedent to award. A corporation designated as the Apparent Low Bidder shall furnish evidence of its corporate existence and evidence that the officer signing the Contract and bond for the corporation is duly authorized to do so.
- 25. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK:** The Bidder shall examine carefully the Project Site, the Plans and Specifications, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents). The submission of a Bid shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of Work, the quantities of materials to be furnished, and as to the requirements of the Bidding Documents Proposal, Plans, and Specifications.
- 26. CITY STANDARD PROVISIONS:** This contract is subject to the following standard provisions. See The WHITEBOOK for details.
- 26.1.** The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.
- 26.2.** The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.
- 26.3.** The City of San Diego Municipal Code §22.3004 for Contractor Standards.
- 26.4.** The City of San Diego's Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.
- 26.5.** Sections 1777.5, 1777.6, and 1777.7 of the State of California Labor Code concerning the employment of apprentices by contractors and subcontractors performing public works contracts.
- 26.6.** The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).
- 26.7.** The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.

27. PRE-AWARD ACTIVITIES:

- 27.1.** The contractor selected by the City to execute a contract for this Work shall submit the required documentation as specified in the herein and in the Notice of Award. Failure to provide the information as specified may result in the Bid being rejected as **non-responsive**.
- 27.2.** The decision that bid is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

James W. Fowler, Co., a corporation, as principal, and
Liberty Mutual Insurance Company, a corporation authorized to do
business in the State of California, as Surety, hereby obligate themselves, their successors and
assigns, jointly and severally, to The City of San Diego a municipal corporation in the sum of **Five
Million One Hundred Seventy-Three Thousand Nine Hundred Eighty-One Dollars and Nine
Cents (\$5,173,981.09)** for the faithful performance of the annexed contract, and in the sum of
**Five Million One Hundred Seventy-Three Thousand Nine Hundred Eighty-One Dollars and
Nine Cents (\$5,173,981.09)** for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract with the City of San Diego, California, then the obligation herein with respect to a faithful performance shall be void; otherwise it shall remain in full force.

If the Principal shall promptly pay all persons, firms and corporations furnishing materials for or performing labor in the execution of this contract, and shall pay all amounts due under the California Unemployment Insurance Act then the obligation herein with respect to laborers and materialmen shall be void; otherwise it shall remain in full force.

The obligation herein with respect to laborers and materialmen shall inure to the benefit of all persons, firms and corporations entitled to file claims under the provisions of Article 2. Claimants, (iii) public works of improvement commencing with Civil Code Section 9100 of the Civil Code of the State of California.

Changes in the terms of the annexed contract or specifications accompanying same or referred to therein shall not affect the Surety's obligation on this bond, and the Surety hereby waives notice of same.

The Surety shall pay reasonable attorney's fees should suit be brought to enforce the provisions of this bond.

PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND (continued)

Dated 1-31-18

Approved as to Form

James W. Fowler Co

Principal

By 

James Fowler

Printed Name of Person Signing for
Principal


Mara W. Elliott, City Attorney

By 

Deputy City Attorney

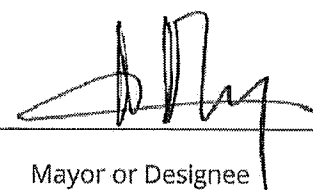
Liberty Mutual Insurance Company

Surety

By 

Jill A. Wallace CA Lic. No. 0155652
Attorney-in-fact

Approved:

By 

Mayor or Designee

2233 112th Avenue N.E.

Local Address of Surety

Bellevue, WA 98004

Local Address (City, State) of Surety

(425) 709-3600

Local Telephone No. of Surety

Premium \$ 36,528.00

Bond No. 023205958

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7919097

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Guy Armfield; John Claeys; Scott Fisher; Deanna M. French; Elizabeth R. Hahn; Roger Kaltenbach; Ronald J. Lange; Andrew P. Larsen; Susan B. Larson; Scott McGilvray; Mindee L. Rankin; Jana M. Roy; Jill A. Wallace

all of the city of Bellevue, state of WA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 20th day of October, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 20th day of October, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 26 day of January, 2018.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

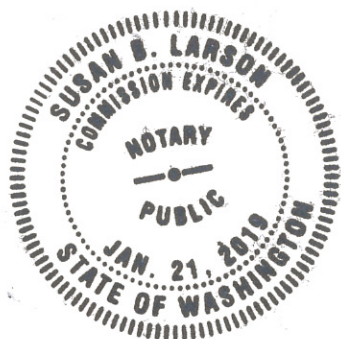
To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

ACKNOWLEDGMENT BY SURETY

State of Washington)
County of King)

On this 26th day of January, 2018, before me, Susan B. Larson notary public in and for the State of Washington, with principal office in the County of King, residing therein, duly commissioned and sworn, personally appeared Jill A. Wallace, known to me to be the person whose name is subscribed to the within instrument as the attorney-in-fact of Liberty Mutual Insurance Company as surety in said instrument, and acknowledged to me that she subscribed the name of said corporation thereto as surety, and her own name as attorney-in-fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.



NOTARY PUBLIC

Susan B Larson
Commission Expires: 01/21/2019

ATTACHMENTS

ATTACHMENT A
SCOPE OF WORK

SCOPE OF WORK

- 1. SCOPE OF WORK:** The project would include approximately 7,045 linear feet (1.33 miles) of water mains to include replacement-in-place of approximately 3,036 linear feet (0.57 miles) of existing 4-inch and 12-inch with 8- and 16-inch water mains and approximately 3,729 linear feet (0.71 miles) of new 8-inch and approximately 279 linear feet (0.05 miles) of new 16-inch water main installed via trenchless method. In addition, approximately 5,335 linear feet (1.01 miles) of existing water mains would be abandoned in place. Related work would also include curb ramp installation, potholing, replacement of water service in place at same depth if needed, fire hydrants, street resurfacing, traffic control, and best management practices (BMPs).

 - 1.1.** The Work shall be performed in accordance with:

 - 1.1.1.** The Notice Inviting Bids and Plans numbered **38808-1-D** through **38808-21-D**, inclusive.
- 2. ESTIMATED CONSTRUCTION COST:** The City's estimated construction cost for this project is **\$3,200,000**.
- 3. LOCATION OF WORK: The location of the Work is as follows;**

See **Appendix E** for Location Map.
- 4. CONTRACT TIME:** The Contract Time for completion of the Work, shall be **230 Working Days**.

ATTACHMENT B
PHASED FUNDING PROVISIONS

PHASED FUNDING PROVISIONS

1. PRE-AWARD

1.1. Within 10 Working Days after the Bid Opening date, the Apparent Low Bidder must contact the Project Manager to discuss fund availability for each phase and shall also submit the following:

1.1.1. Construction Cost Loaded Schedule in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK" and 9-3, "PAYMENT.

1.2. Your failure to perform any of the following may result cancelling your award of the Contract:

1.2.1. Meeting with the City's Project Manager to discuss the Phased Funding Schedule.

1.2.2. Agreeing to a Phased Funding Schedule within thirty Working Days after meeting with the City's Project Manager.

2. POST-AWARD

2.1. Do not start any construction activities for the next phase until the NTP has been issued by the Engineer. The City will issue separate Notice to Proceed (NTP) documents for each phase.

2.2. If requested, the Engineer may issue the NTP for the next phase before the end of the current approved phase.

PHASED FUNDING SCHEDULE AGREEMENT

The particulars left blank in this sample such as the total number of phases, and the amounts assigned to each phase will be completed with funding specific information from the Pre-Award Schedule and subsequent Schedules submitted to and approved by the City.

BID NUMBER: K-18-1528-DBB-3

CONTRACT OR TASK TITLE: Water Group 939

CONTRACTOR: James W. Fowler Co. Fowler Co

Funding Phase	Phase Description	Phase Start	Phase Finish	Not-to-Exceed Amount
1	Work to be completed in Phase 1 shall include Bonds, Mobilization, Video taping of conditions, Installation of trenchless water main.	Notice to Proceed	8/31/2018	\$2,500,000.00
2	Work to be completed in Phase 2 shall include the remaining of the construction activities associated with the contract and specifications.	9/1/2018	Notice of Completion	\$2,673,981.09
Total				\$5,173,981.09

Notes:

- (1) WHITEBOOK section 9-3.6, "PHASED FUNDING COMPENSATION" applies.
- (2) The total of all funding phases shall be equal to the TOTAL BID PRICE as shown on BID SCHEDULE 1 PRICES.
- (3) This PHASED FUNDING SCHEDULE AGREEMENT will be incorporated into the CONTRACT and shall only be revised by a written modification to the CONTRACT.

CITY OF SAN DIEGO

CONTRACTOR

PRINT NAME: Riyadh Makani
Construction Manager

PRINT NAME: James Fowler

Signature: [Signature]

Title: President

Date: 2/11/2018

Signature: [Signature]

PRINT NAME: CASEY CROWN
Project Manager

Date: 1-25-18

Signature: [Signature]

Date: 1/29/2018

ATTACHMENT C
INTENTIONALLY LEFT BLANK

ATTACHMENT D
PREVAILING WAGES

ATTACHMENT D

PREVAILING WAGES

1. **PREVAILING WAGE RATES:** Pursuant to San Diego Municipal Code section 22.3019, construction, alteration, demolition, repair and maintenance work performed under this Contract is subject to State prevailing wage laws. For construction work performed under this Contract cumulatively exceeding \$25,000 and for alteration, demolition, repair and maintenance work performed under this Contract cumulatively exceeding \$15,000, the Contractor and its subcontractors shall comply with State prevailing wage laws including, but not limited to, the requirements listed below.
 - 1.1. **Compliance with Prevailing Wage Requirements.** Pursuant to sections 1720 through 1861 of the California Labor Code, the Contractor and its subcontractors shall ensure that all workers who perform work under this Contract are paid not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). This includes work performed during the design and preconstruction phases of construction including, but not limited to, inspection and land surveying work.
 - 1.1.1. Copies of such prevailing rate of per diem wages are on file at the City and are available for inspection to any interested party on request. Copies of the prevailing rate of per diem wages also may be found at <http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>. Contractor and its subcontractors shall post a copy of the prevailing rate of per diem wages determination at each job site and shall make them available to any interested party upon request.
 - 1.1.2. The wage rates determined by the DIR refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, then the published rate of wage shall be in effect for the life of this Contract. If the published wage rate refers to a predetermined wage rate to become effective upon expiration of the published wage rate and the predetermined wage rate is on file with the DIR, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to this Contract in the same manner as if it had been published in said publication. If the predetermined wage rate refers to one or more additional expiration dates with additional predetermined wage rates, which expiration dates occur during the life of this Contract, each successive predetermined wage rate shall apply to this Contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this Contract, such wage rate shall apply to the balance of the Contract.
 - 1.2. **Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed.

- 1.3. Payroll Records.** Contractor and its subcontractors shall comply with California Labor Code section 1776, which generally requires keeping accurate payroll records, verifying and certifying payroll records, and making them available for inspection. Contractor shall require its subcontractors to also comply with section 1776. Contractor and its subcontractors shall submit weekly certified payroll records online via the City's web-based Labor Compliance Program. Contractor is responsible for ensuring its subcontractors submit certified payroll records to the City.
- 1.3.1.** For contracts entered into on or after April 1, 2015, Contractor and their subcontractors shall furnish records specified in Labor Code section 1776 directly to the Labor Commissioner in the manner required by Labor Code section 1771.4.
- 1.4. Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor is held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.
- 1.5. Working Hours.** Contractor and their subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on design professionals and subcontractors of \$25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections 1810 through 1815.
- 1.6. Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.
- 1.7. Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that "I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract."
- 1.8. Labor Compliance Program.** The City has its own Labor Compliance Program authorized in August 2011 by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred. For questions or assistance, please contact the City of San Diego's Equal Opportunity Contracting Department at 619-236-6000.

1.9. Contractor and Subcontractor Registration Requirements. This project is subject to compliance monitoring and enforcement by the DIR. As of March 1, 2015, no contractor or subcontractor may be listed on a bid or proposal for a public works project unless registered with the DIR pursuant to Labor Code section 1725.5. As of April 1, 2015, a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, or enter into any contract for public work, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5. By submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the DIR in compliance with Labor Code sections 1771.1 and 1725.5, and Contractor shall provide proof of registration to the City upon request.

1.9.1. A Contractor's inadvertent error in listing a subcontractor who is not registered pursuant to Labor Code section 1725.5 in response to a solicitation shall not be grounds for filing a bid protest or grounds for considering the bid non-responsive provided that any of the following apply: (1) the subcontractor is registered prior to bid opening; (2) within twenty-four hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5; or (3) the subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

ATTACHMENT E
SUPPLEMENTARY SPECIAL PROVISIONS

SUPPLEMENTARY SPECIAL PROVISIONS

The following Supplementary Special Provisions (SSP) modifies the following documents:

1. The **2015 Edition** of the Standard Specifications for Public Works Construction (The "GREENBOOK").
2. The **2015 Edition** of the City of San Diego Standard Specifications for Public Works Construction (The "WHITEBOOK"), including the following:
 - a) General Provisions (A) for all Contracts.

SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

- 1-2 TERMS AND DEFINITIONS.** To the "WHITEBOOK", item 54, "Normal Working Hours", ADD the following:

The **Normal Working Hours** are 8:30 AM to 3:30 PM.

SECTION 2 - SCOPE AND CONTROL OF WORK

- 2-3.2 Self Performance.** To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. You shall perform, with your own organization, Contract Work amounting to at least **50%** of the base Bid **AND 50%** of any alternates awarded.

- 2-7 SUBSURFACE DATA.** To the "WHITEBOOK", ADD the following:

4. In preparation of the Contract Documents, the designer has relied upon the following reports of explorations and tests of subsurface conditions at the Work Site:
 - a) Report of Geotechnical Investigation Water Group 939 City of San Diego, dated March 29, 2016 by Allied Geotechnical Engineers, Inc.
 - b) Report of Geologic Logging and Laboratory Testing for Water Group 939 City of San Diego dated March 7, 2017 by Allied Geotechnical Engineers, Inc.
5. The reports listed above is available for review by contacting the Contract Specialist or in **Appendix H**.

- 2-14.3 Coordination.** To the "WHITEBOOK", ADD the following:

2. Other adjacent City projects are scheduled for construction for the same time period in the vicinity of Sorrento Valley Road south of Carmel

Mountain Road and west of Estuary Way. See **Appendix F** for the approximate location. Coordinate the Work with the adjacent projects as listed below:

- a) Water and Sewer Group 965, Santiago Crespo, Project Manager, (619) 533-3627

2-16 **CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM.** To the "WHITEBOOK", item 1, DELETE in its entirety.

SECTION 3 - CHANGES IN WORK

3-5.1 **Claims.** To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

ADD:

3-5.1 **Claims.**

1. A Claim is a written demand by you that seeks an adjustment in the Contract Price, Contract Time, or other relief associated with a dispute arising under or relating to the Contract, including a breach of any provision thereof. A voucher, invoice, or other routine request for payment is not a Claim.
2. A Claim shall conform to these specifications and may be considered after the City has previously denied a request by you for a Change Order seeking the demanded relief.
3. You shall submit a Claim to the Engineer if a dispute occurs that arises from or relates to the Contract. The Claim shall seek all relief to which you assert you are entitled as a result of the event(s) giving rise to the dispute. Your failure to process a Claim in accordance with these specifications shall constitute a waiver of all relief associated with the dispute. Claims are subject to 6-11, "Right to Audit".
4. You shall continue to perform the Services and Work and shall maintain the Schedule during any dispute proceedings. The Engineer will continue to make payments for undisputed Services and Work.
5. The City's Claims process specified herein shall not relieve you of your statutory obligations to present claims prior to any action under the California Government Code.

3-5.1.1 **Initiation of Claim.**

1. You shall promptly, but no later than 30 Days after the event(s) giving rise to the Claim, deliver the Claim to the Engineer.

2. You shall not process a Claim unless the Engineer has previously denied a request by you for a Change Order that sought the relief to be pursued in the claim.

3-5.1.1.1 Claim Certification Submittal.

1. If your Claim seeks an increase in the Contract Price, the Contract Time, or both, submit with the Claim an affidavit certifying the following:
 - a) The Claim is made in good faith and covers all costs and delays to which you are entitled as a result of the event(s) giving rise to the Claim.
 - b) The amount claimed accurately reflects the adjustments in the Contract Price, the Contract Time, or both to which you believe you are entitled.
 - c) All supporting costs and pricing data are current, accurate, and complete to the best of your knowledge. The cost breakdown per item of Work shall be supplied.
 - d) You shall ensure that the affidavit is executed by an official who has the authority to legally bind you.

3-5.1.2 Initial Determination.

1. The Engineer will respond in writing to your Claim within 30 Days of receipt of the Claim.

3-5.1.3 Settlement Meeting.

1. If you disagree with the Initial Determination, you shall request a Settlement Meeting within 30 Days. Upon receipt of this request, the Engineer will schedule the Settlement Meeting within 15 Working Days.

3-5.1.7 City's Final Determination.

1. If a settle agreement is not reached, the City shall make a written Final Determination within 10 Working Days after the Settlement Meeting.
2. If you disagree with the City's Final Determination, notify the Engineer in writing of your objection within 15 Working Days after receipt of the written determination and file a "Request for Mediation" in accordance with 3-5.2, "Dispute Resolution Process".
3. Failure to give notice of objection within the 15 Working Days period shall waive your right to pursue the Claim.

3-5.1.8 Mandatory Assistance.

1. If a third party dispute, litigation, or both arises out of or relates in any way to the Services provided under the Contract, upon the City's request, you shall agree to assist in resolving the dispute or litigation. Your assistance includes, but is not limited to the following:
 - a) Providing professional consultations.
 - b) Attending mediations, arbitrations, depositions, trials, or any event related to the dispute resolution and litigation.

3-5.1.8.1 Compensation for Mandatory Assistance.

1. The City will reimburse you for reasonable fees and expenses incurred by you for any required assistance rendered in accordance with 3-5.1.8, "Mandatory Assistance" as Extra Work.
2. The Engineer will determine whether these fees and expenses were necessary due to your conduct or failure to act.
3. If the Engineer determines that the basis of the dispute or litigation in which these fees and expenses were incurred were the result of your conduct or your failure to act in part or in whole, you shall reimburse the City for any payments made for these fees and expenses.
4. Reimbursement may be through any legal means necessary, including the City's withholding of your payment.

3-5.2.3 Selection of Mediator. To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. A single mediator, knowledgeable in construction aspects and acceptable to both parties, shall be used to mediate the dispute.
2. To initiate mediation, the initiating party shall serve a Request for Mediation at the American Arbitration Association (AAA) on the opposing party.
3. If AAA is used, the initiating party shall concurrently file with AAA a "Request for Mediation" along with the appropriate fees, a copy of requested mediators marked in preference order, and a preference for available dates.
4. If AAA is selected to coordinate the mediation (Administrator), within 10 Working Days from the receipt of the initiating party's Request for Mediation, the opposing party shall file the following:
 - a) A copy of the list of the preferred mediators listed in preference order after striking any mediators to which they have any objection.
 - b) A preference for available dates.
 - c) Appropriate fees.

5. If the parties cannot agree on a mediator, then each party shall select a mediator and those mediators shall select the neutral third party to mediate the matter.

3-5.3 Forum of Litigation. To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. It is the express intention that all legal actions and proceedings related to the Contract or Agreement with the City or to any rights or any relationship between the parties arising therefrom shall be solely and exclusively initiated and maintained in courts of the State of California for the County of San Diego.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.2 Inspection by the Agency. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

- 1, The City will provide inspection and testing laboratory services within the continental United States within a 200-mile radius of the geographical limits of the City.

4-1.3.3 Inspection of Items Not Locally Produced. To the "WHITEBOOK", DELETE in its entirety.

ADD:

4-1.3.3 Inspection of Items Not Locally Produced. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. When you intend to purchase materials, fabricated products, or equipment from sources located more than 200 miles (321.9 km) outside the geographical limits of the City, City Lab staff or a qualified inspection agency approved by the Engineer, shall be engaged at your expense to inspect the materials, equipment, or process.
2. This approval shall be obtained before producing any material or equipment. City Lab staff or inspector shall evaluate the materials for conformance with the requirements of the Plans and Specifications. You shall forward reports required by the Engineer. No materials or equipment shall be shipped nor shall any processing, fabrication or treatment of such materials be done without proper inspection by City Lab staff or the approved agent. Approval by said agent shall not relieve you of responsibility for complying with the requirements of the Contract Documents.
3. The Engineer may elect City Lab staff to perform inspection of an out-of-town manufacturer. You shall incur additional inspection costs of the Engineer including lodging, meals, and incidental expenses based on

Federal Per Diem Rates, along with travel and car rental expenses. If the manufacturing plant operates a double shift, a double shift shall be figured in the inspection costs.

- a) At the option of the Engineer, full time inspection shall continue for the length of the manufacturing period. If the manufacturing period will exceed 3 consecutive weeks, you shall incur additional inspection expenses of the Engineer's supervisor for a trip of 2 Days to the site per month.
- b) When the Engineer elects City Lab staff to perform out-of-town inspections, the wages of staff employed by the City shall not be part of the additional inspection expenses paid by you.
- c) Federal Per Diem Rates can be determined at the location below:
<https://www.gsa.gov/portal/content/104877>

ADD:

4-1.3.5 Special Inspection. To the "WHITEBOOK", ADD the following:

5. The payment for special inspection Work specified under this section shall be paid in accordance with 4-1.3.4.1, "Payment".

4-1.3.6 Preapproved Materials. To the "WHITEBOOK", ADD the following:

3. You shall submit in writing a list of all products to be incorporated in the Work that are on the AML.

4-1.6 Trade Names or Equals. To the "WHITEBOOK", ADD the following:

11. You shall submit your list of proposed substitutions for an "equal" item **no later than 5 Working Days after the determination of the Apparent Low Bidder** and on the City's Product Submittal Form available at:

<http://www.sandiego.gov/publicworks/edocref/index.shtml>

SECTION 5 - UTILITIES

5-2 PROTECTION. To the "WHITEBOOK", item 2, ADD the following:

- g) Refer to **Appendix N** for more information on the protection of AMI devices.

5-6 COOPERATION. To the "GREENBOOK", ADD the following:

1. Notify SDG&E at least 10 Working Days prior to excavating within 10 feet of SDG&E Underground High Voltage Transmission Power Lines (69 KV and higher).

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-1.1 **Construction Schedule.** To the "WHITEBOOK", item 20, ADD the following:

The 90 Calendar Day for the Plant Establishment Period is included in the stipulated Contract Time.

To the "WHITEBOOK", item 22, subsection b, DELETE in its entirety and SUBSTITUTE with the following:

- b) A curve value percentage comparison between the Contract Price and the updated cash flow forecast for each Project ID included in the Contract Documents. Curve values shall be set on a scale from 0% to 100% in intervals of 5% of the Contract Time. Refer to the Sample City Invoice materials in the Contract Documents and use the format shown. Your invoice amounts shall be supported by this curve value percentage. For previous periods, use the actual values and percentages and update the curve value percentages accordingly.

6-2.1 **Moratoriums.** To the "WHITEBOOK", ADD the following:

3. Do not Work in the areas where there is currently an environmental moratorium issued by the City. The areas subject to moratorium are listed here:
 - a) Work within the breeding seasons of the Coastal California Gnatcatcher (March 1 to August 15), Least Bell's Vireo (March 15 to September 15) and Southwestern Willow Flycatcher (May 1 to September 1) is subject to approval by the Qualified Biologist as outlined in the Addendum to Mitigated Negative Declaration (AMND).
 - b) Noise- Subject to the review and approval by the Qualified Biologist, all construction related noise activities during the avian breeding season (February 1 – September 15) shall meet the maximum noise level as outlined by the AMND.

ADD:

6-3.2.1.1 **Environmental Document.**

1. The City of San Diego has prepared an **Addendum To A Mitigated Negative Declaration (AMND)** for Water Group 939, as referenced in the Contract Appendix A. You shall comply with all requirements of the **AMND** as set forth in **Appendix A**.
2. Compliance with the City's environmental document shall be included in the Contract Price.

6-3.2.2 Archeological and Native American Monitoring Program. To the "WHITEBOOK", ADD the following:

4. The City will retain a qualified archaeologist for this Contract. You shall coordinate your activities and Schedule with the activities and schedules of the archaeologist monitor. Notify the Engineer before noon of the Working Day before monitoring is required. See 2-11, "INSPECTION" for details.

6-7.1 General. To the "WHITEBOOK", item 3, ADD the following:

- d) 30 Days for full depth asphalt final mill and resurfacing work required per SDG-107.
- e) Where shutdowns of 16 inch and larger pipes are required, there is a shutdown moratorium from May until October. Plan and schedule Work accordingly. No additional payment or Working Days will be granted for delays due to the moratorium.

To the "WHITEBOOK", ADD the following:

4. Microtunneling operations shall be the first order of work.

6-8.3 Warranty. To the "WHITEBOOK", item 1, DELETE in its entirety and SUBSTITUTE with the following:

1. Warranty and repair all defective materials and workmanship for a period of 1 year. This call back warranty period shall start on the date that the Work was accepted by the City. Additionally, you shall warranty the Work against all latent and patent defects for a period of 10 years.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-3 INSURANCE. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

7-3 INSURANCE.

1. The insurance provisions herein shall not be construed to limit your indemnity obligations contained in the Contract.

7-3.1 Policies and Procedures.

1. You shall procure the insurance described below, at its sole cost and expense, to provide coverage against claims for loss including injuries to persons or damage to property, which may arise out of or in connection with the performance of the Work by you, your agents, representatives, officers, employees or Subcontractors.

2. Insurance coverage for property damage resulting from your operations is on a replacement cost valuation. The market value will not be accepted.
3. You shall maintain this insurance for the duration of this Contract and at all times thereafter when you are correcting, removing, or replacing Work in accordance with this Contract. Your liabilities under the Contract, e.g., your indemnity obligations, is not deemed limited to the insurance coverage required by this Contract.
4. The payment for insurance shall be included in the Contract Price as bid by you. Except as specifically agreed to by the City in writing, you are not entitled to any additional payment. Do not begin any Work under this Contract until you have provided and the City has approved all required insurance.
5. Policies of insurance shall provide that the City is entitled to 30 Days (10 Days for cancellation due to non-payment of premium) prior written notice of cancellation or non-renewal of the policy. Maintenance of specified insurance coverage is a material element of the Contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

7-3.2 Types of Insurance.

7-3.2.1 Commercial General Liability Insurance.

1. Commercial General Liability Insurance shall be written on the current version of the ISO Occurrence form CG 00 01 07 98 or an equivalent form providing coverage at least as broad.
2. The policy shall cover liability arising from premises and operations, XCU (explosions, underground, and collapse), independent contractors, products/completed operations, personal injury and advertising injury, bodily injury, property damage, and liability assumed under an insured's contract (including the tort liability of another assumed in a business contract).
3. There shall be no endorsement or modification limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. You shall maintain the same or equivalent insurance for at least 10 years following completion of the Work.
4. All costs of defense shall be outside the policy limits. Policy coverage shall be in liability limits of not less than the following:

<u>General Annual Aggregate Limit</u>	<u>Limits of Liability</u>
Other than Products/Completed Operations	\$2,000,000
Products/Completed Operations Aggregate Limit	\$2,000,000
Personal Injury Limit	\$1,000,000
Each Occurrence	\$1,000,000

7-3.2.2 Commercial Automobile Liability Insurance.

1. You shall provide a policy or policies of Commercial Automobile Liability Insurance written on the current version of the ISO form CA 00 01 12 90 or later version or equivalent form providing coverage at least as broad in the amount of \$1,000,000 combined single limit per accident, covering bodily injury and property damage for owned, non-owned, and hired automobiles ("Any Auto").
2. All costs of defense shall be outside the limits of the policy.

7-3.2.4 Contractors Hazardous Transporters Pollution Liability Insurance.

1. You shall provide at your expense or require your Subcontractor to provide, as described below, Contractors Hazardous Transporters Pollution Liability Insurance including contractual liability coverage to cover liability arising out of transportation of hazardous or toxic, materials, substances, or any other pollutants by you or any Subcontractor in an amount not less than \$2,000,000 limit per occurrence/aggregate for bodily injury and property damage.
2. All costs of defense shall be outside the limits of the policy. The deductible shall not exceed \$25,000 per claim. Any such insurance provided by a subcontractor instead of you shall be approved separately in writing by the City.
3. For approval of the substitution of Subcontractor's insurance the Contractor shall certify that all activities for which Contractors Hazardous Transporters Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance.
4. Contractual liability shall include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There shall be no endorsement or modification of the coverage limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. Occurrence based policies shall be procured before the Work commences and shall be maintained for the duration of this Contract. Claims Made policies shall be procured before the Work commences, shall be maintained for the duration of this contract, and shall include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work under this Contract without advancing the retroactive date.
5. Except as provided for under California law, the policy or policies shall provide that the City is entitled to 30 Days prior written notice (10 Days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

7-3.2.6 Railroad Protective Liability Insurance. Exclusions relating to performance of operations within the vicinity of any railroad, bridge, trestle, roadbed, tunnel, underpass, or cross shall be deleted from all policies to which they may apply. Alternatively, you may provide separate Railroad Protective Liability insurance providing coverage, including endorsements, equivalent to that required for the CGL described herein.

7-3.3 Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this Contract as described herein shall be carried only by responsible insurance companies with a rating of, or equivalent to, at least "A-, VI" by A.M. Best Company, that are authorized by the California Insurance Commissioner to do business in the State, and that have been approved by the City.

7-3.3.1 Non-Admitted Carriers. The City will accept insurance provided by non-admitted, "surplus lines" carriers only if the carrier is authorized to do business in the State and is included on the List of Approved Surplus Lines Insurers (LASLI list).

All policies of insurance carried by non-admitted carriers shall be subject to all of the requirements for policies of insurance provided by admitted carriers described herein.

7-3.4 Evidence of Insurance. Furnish to the City documents e.g., certificates of insurance and endorsements evidencing the insurance required herein, and furnish renewal documentation prior to expiration of this insurance. Each required document shall be signed by the insurer or a person authorized by the insurer to bind coverage on its behalf. We reserve the right to require complete, certified copies of all insurance policies required herein.

7-3.5 Policy Endorsements.

7-3.5.1 Commercial General Liability Insurance.

7-3.5.1.1 Additional Insured.

1. You shall provide at your expense policy endorsement written on the current version of the ISO Occurrence form CG 20 10 11 85 or an equivalent form providing coverage at least as broad.
2. To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy shall be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured.
3. The additional insured coverage for projects for which the Engineer's Estimate is \$1,000,000 or more shall include liability arising out of:
 - a) Ongoing operations performed by you or on your behalf,
 - b) your products,

- c) your Work, e.g., your completed operations performed by you or on your behalf, or
 - d) premises owned, leased, controlled, or used by you.
4. The additional insured coverage for projects for which the Engineer's Estimate is less than \$1,000,000 shall include liability arising out of:
- a) Ongoing operations performed by you or on your behalf,
 - b) your products, or
 - c) premises owned, leased, controlled, or used by you.

7-3.5.1.2 Primary and Non-Contributory Coverage. The policy shall be endorsed to provide that the coverage with respect to operations, including the completed operations, if appropriate, of the Named Insured is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives. Further, it shall provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

7-3.5.1.3 Project General Aggregate Limit. The policy or policies shall be endorsed to provide a Designated Construction Project General Aggregate Limit that will apply only to the Work. Only claims payments which arise from the Work shall reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit shall be in addition to the aggregate limit provided for the products-completed operations hazard.

7-3.5.2 Commercial Automobile Liability Insurance.

7-3.5.2.1 Additional Insured. Unless the policy or policies of Commercial Auto Liability Insurance are written on an ISO form CA 00 01 12 90 or a later version of this form or equivalent form providing coverage at least as broad, the policy shall be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured, with respect to liability arising out of automobiles owned, leased, hired or borrowed by you or on your behalf. This endorsement is limited to the obligations permitted by California Insurance Code §11580.04.

7-3.5.4 Contractors Hazardous Transporters Pollution Liability Insurance Endorsements.

7-3.5.4.1 Additional Insured.

- 1. The policy or policies shall be endorsed to include as an Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:

- a) Ongoing operations performed by you or on your behalf,
- b) your products,
- c) your work, e.g., your completed operations performed by you or on your behalf, or
- d) premises owned, leased, controlled, or used by you.

Except that in connection with, collateral to, or affecting any construction contract to which the provisions of subdivision (b) of §2782 of the California Civil Code apply, this endorsement shall not provide any duty of indemnity coverage for the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives would be invalid under subdivision (b) of §2782 of the California Civil Code.

- 2. In any case where a claim or loss encompasses the negligence of the Insured and the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives that are not covered because of California Insurance Code §11580.04, the insurer's obligation to the City and its respective elected officials, officers, employees, agents, and representatives shall be limited to obligations permitted by California Insurance Code §11580.04.

7-3.5.4.2 Primary and Non-Contributory Coverage. The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

7-3.5.4.3 Severability of Interest. For Contractors Hazardous Transporters Pollution Liability Insurance, the policy or policies shall provide that your insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability and shall provide cross-liability coverage.

7-3.6 Deductibles and Self-Insured Retentions. You shall pay for all deductibles and self-insured retentions. You shall disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

7-3.7 Reservation of Rights. The City reserves the right, from time to time, to review your insurance coverage, limits, deductibles and self-insured retentions to determine if they are acceptable to the City. The City will reimburse you, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the Engineer but not required by this Contract.

7-3.8 Notice of Changes to Insurance. You shall notify the City 30 Days prior to any material change to the policies of insurance provided under this Contract.

7-3.9 Excess Insurance. Policies providing excess coverage shall follow the form of the primary policy or policies e.g., all endorsements.

7-3.10 Architects and Engineers Professional Insurance (Errors and Omissions Insurance).

1. For Contracts with required engineering services (e.g., Design-Build, preparation of engineered Traffic Control Plans (TCP), and etc.) by you, you shall keep or require all of your employees or Subcontractors, who provide professional engineering services under this contract, Professional Liability coverage with a limit of **\$1,000,000** per claim and **\$2,000,000** annual aggregate in full force and effect.
2. You shall ensure the following:
 - a) The policy retroactive date is on or before the date of commencement of the Project.
 - b) The policy will be maintained in force for a period of 3 years after completion of the Project or termination of this Contract, whichever occurs last. You agree that for the time period specified above, there will be no changes or endorsements to the policy that affect the specified coverage.
3. If professional engineering services are to be provided solely by the Subcontractor, you shall:
 - a) Certify this to the City in writing and
 - b) Agree in writing to require the Subcontractor to procure Professional Liability coverage in accordance with the requirements set forth above.

7-4 NOT USED. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

7-4 WORKERS' COMPENSATION INSURANCE AND EMPLOYERS LIABILITY INSURANCE.

1. In accordance with the provisions of §3700 of the California Labor Code, you shall provide at your expense Workers' Compensation Insurance and Employers Liability Insurance to protect you against all claims under applicable state workers compensation laws. The City, its elected officials, and employees will not be responsible for any claims in law or equity occasioned by your failure to comply with the requirements of this section.
2. Limits for this insurance shall be not less than the following:

<u>Workers' Compensation</u>	<u>Statutory Employers Liability</u>
Bodily Injury by Accident	\$1,000,000 each accident
Bodily Injury by Disease	\$1,000,000 each employee
Bodily Injury by Disease	\$1,000,000 policy limit

3. By signing and returning the Contract you certify that you are aware of the provisions of §3700 of the Labor Code which requires every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code and you shall comply with such provisions before commencing the Work as required by §1861 of the California Labor Code.

7-4.1. Waiver of Subrogation. The policy or policies shall be endorsed to provide that the insurer will waive all rights of subrogation against the City and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from Work performed by the Named Insured for the City.

7-5 PERMITS, FEES, AND NOTICES. To the "WHITEBOOK", ADD the following:

2. The City will obtain, at no cost to you, the following permits:
 - a) Temporary Construction Area for Microtunneling for a duration of 4 months.

7-8.6.5.1 Payment. To the "WHITEBOOK", DELETE in its entirety.

ADD:

7-8.6.5.1 Chlorination Discharge Requirements.

1. If prior approval is obtained to discharge to the sewer system, you shall discharge the chlorinated water used for testing and acceptance of new water mains to the sewer system in accordance with the Contract Documents after de-chlorination as shown on the "Chlorination Discharge Locations" Plans. You shall submit to the Engineer a "Request for Batch Discharge Authorization to Discharge Potable Pipe Flushing Water to Sewer" form. The request form is found on the City website at the following location:
https://www.sandiego.gov/sites/default/files/batch_discharge_authorization_request_1.pdf
2. When discharging to the sewer system has been approved, you shall use a totalizer flow meter to record the total volume discharged to sewer and shall submit to the Engineer a log of actual discharged water quantities, dates, and locations. Failure to report this information to the Engineer is a violation of the authorization for discharge to the sanitary sewer. Within five (5) Working Days of the discharge, the Engineer shall report actual total flows to the sanitary sewer to the Public Utilities Department (PUD), Industrial Wastewater Control Program (IWCP).
3. If the discharge to the sewer system is not approved, you shall discharge the chlorinated water used for the testing of new mains to surface waters, storm drain inlets, or to other approved sources and you shall comply with 7-8.6.5,

“Hydrostatic Discharge Requirements”. All discharge activities related to the project shall comply with the State Water Resources Control Board, ORDER WQ 2014-0194-DWQ, STATEWIDE GENERAL NPDES PERMIT FOR DRINKING WATER SYSTEMS DISCHARGES as referenced by:

http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf

All testing shall be conducted by a QSP.

ADD:

7-8.6.5.2 Payment.

1. The payment for complying with the discharge requirements shall be included in the Bid item for the new water main.

7-20 ELECTRONIC COMMUNICATION. To the “WHITEBOOK”, ADD the following:

2. Virtual Project Manager shall be used on this Contract.

7-21.1 General. To the “WHITEBOOK”, item 3, DELETE in its entirety and SUBSTITUTE with the following:

3. During the construction phase of projects, the minimum waste management reduction goal is 90% of the inert material (a material not subject to decomposition such as concrete, asphalt, brick, rock, block, dirt, metal, glass, and etc.) and 65% of the remaining project waste. You shall provide appropriate documentation, including a Waste Management Form attached as an appendix, and evidence of recycling and reuse of materials to meet the waste reduction goals specified.

SECTION 9 - MEASUREMENT AND PAYMENT

ADD:

9-3.7 Compensation Adjustments for Price Index Fluctuations. To the “WHITEBOOK”, ADD the following:

5. This Contract is not subject to the provisions of The “WHITEBOOK” for Compensation Adjustments for Price Index Fluctuations for paving asphalt.

SECTION 203 – BITUMINOUS MATERIALS

203-3.4.4 Rubber Polymer Modified Slurry (RPMS). To the “WHITEBOOK”, ADD the following:

1. RPMS shall be used on this Contract.

SECTION 209 – PRESSURE PIPE

209 PRESSURE PIPE. To the “WHITEBOOK”, ADD the following:

2. PVC products, specifically type C900 and C905, as manufactured or distributed by J-M Manufacturing Company or JM Eagle shall not be used on the Contract for pressurized pipe.

SECTION 217 – BEDDING AND BACKFILL MATERIALS

217-2.2 Stones, Boulders, and Broken Concrete. To the “GREENBOOK”, Table 217-2.2, DELETE in its entirety and SUBSTITUTE with the following:

TABLE 217-2.2

Zone	Zone Limits	Maximum Size (greatest dimension)	Backfill Requirements in Addition to 217-2.1
Street or Surface Zone	From ground surface to 12" (300 mm) below pavement subgrade or ground surface	2.5" (63 mm)	As required by the Plans or Special Provisions.
Street or Surface Zone Backfill of Tunnels beneath Concrete Flatwork		Sand	Sand equivalent of not less than 30.
Trench Zone	From 12" (300 mm) below pavement subgrade or ground surface to 12" (300 mm) above top of pipe or box	6" (150 mm)	
Deep Trench Zone (Trenches 3' (0.9 m) wide or wider)	From 60" (1.5 m) below finished surface to 12" (300 mm) above top of pipe or box	Rocks up to 12" (300 mm) excavated from trench may be placed as backfill	
Pipe Zone	From 12" (300 mm) above top of pipe or box to 6" (150 mm) below bottom of pipe or box exterior	2.5" (63 mm)	Sand equivalent of not less than 30 or a coefficient of permeability greater than 1-½ inches/hour (35 mm per hour).
Overexcavation	Backfill more than 6" (150 mm) below bottom of pipe or box exterior	6" (150 mm)	Sand equivalent of not less than 30 or a coefficient of permeability greater than 1-½ inches/hour (35 mm per hour). Trench backfill slurry (100-E-100) per 201-1 may also be used.

SECTION 302 – ROADWAY SURFACING

ADD:

302-4.12.2.1.1 Slurry Treatment.

1. When slurry treatment is required by the Contract Documents, notify the Engineer at least 10 Working Days prior to the first application of slurry. The Engineer, upon assessment of street condition and classification, will verify the slurry type to be applied.
2. Application of sequential layers of slurry shall not commence until approved by the Engineer and until the following have been completed:
 - a) Mix design and wet track abrasion testing for the first-step slurry application has been approved by the Engineer. Unless otherwise directed by the Engineer, this testing may require 4 Working Days from field sampling to reporting of test results to the Engineer.
 - b) Corrective actions have been executed in accordance with 302-4.11.1.2, "Reduction in Payment Based on WTAT" such as reductions in payment, non-payment, or removal of material not meeting specifications, as directed by the Engineer.

302-4.12.4 Measurement and Payment. To the "WHITEBOOK", item 2, Bid Description Table, DELETE in its entirety and SUBSTITUTE with the following:

2. Payment will be made at the Contract Unit Price for each type of slurry applied:

BID DESCRIPTION	UNIT
Rubber Polymer Modified Slurry (RPMS) Type I	SF
Rubber Polymer Modified Slurry (RPMS) Type II	SF
Rubber Polymer Modified Slurry (RPMS) Type III	SF
Rubber Polymer Modified Slurry (RPMS) Type I (Bike Lane)	SF

The Bid items for RPMS shall include full compensation for the specified surface preparation not included in other Bid items and shall include the Work necessary to construct the RPMS as specified on the Plans. Sweeping, removals, and furnishing the aggregate required for the mix design shall also be included in this Bid item.

302-5.9 Measurement and Payment. To the "WHITEBOOK", item 2, DELETE in its entirety

302-7.4 Payment. To the "WHITEBOOK", item 1, last sentence, DELETE in its entirety and SUBSTITUTE with the following:

Payment shall not be made for additional fabric for overlapped areas.

SECTION 304 –METAL FABRICATION AND CONSTRUCTION

304-5 **PAYMENT.** To the “WHITEBOOK”, REVISE section “304-5” to “304-6”.

SECTION 306 – OPEN TRENCH CONDUIT CONSTRUCTION

306-1 **GENERAL.** To the “GREENBOOK”, ADD the following:

Build the Project in accordance with the water high-lining phasing shown on the Plans and in phases as follows:

1. Phase I: Flintkote & Dunhill-between Estuary Way & Roselle St
2. Phase II: Roselle St
3. Phase III: Estuary-between Flintkote Ave & Roselle St

306-7.8.2.1 **General.** To the “WHITEBOOK”, item 2, ADD the following:

- a) Specified test pressure for Class 235 pipe shall be 150 psi.
- b) Specified test pressure for Class 305 pipe shall be 200 psi.

306-15.2 **Shoring and Bracing.** To the “WHITEBOOK”, DELETE in its entirety and SUBSTITUTE with the following:

1. The Bid item for “Trench Shoring” shall include full compensation for furnishing, installing, maintaining, and removing all sheeting, shoring, or bracing for any conditions encountered that require shoring including the preparation of engineered Shoring Plans in accordance with 7-10.4.2.2, “Shoring Plan”. No additional payment shall be made.

SECTION 308 – MICROTUNNELING

308-1 **GENERAL.** To the “GREENBOOK”, ADD the following:

1. Perform the Work required to provide all buried piping, specials and appurtenances shown, specified and required for the construction of complete and operable pipelines using the microtunneling method of installation required to complete the Work.
2. Methods and equipment shall control surface settlement and heave above the pipeline to prevent damage to existing utilities, facilities, and improvements. Ground movements (settlement/heave) shall be limited to values that do not cause damage or distress to surface features, utilities, or improvements. In no case shall settlements exceed those specified herein. The Contractor shall be responsible for any damage to existing

features, improvements, or utilities, and shall repair any damage to the satisfaction of the Resident Engineer and/or the owner of the existing utility, facility or improvement, at no additional cost to the City, and without schedule extension.

3. The Work of this Section includes the installation of a casing by remote controlled tunneling operations and the installation of a pressurized potable water pipeline within the casing to the alignments and grades shown on the Plans. Remote controlled tunneling operations apply to the trenchless pipe installation method of Microtunneling where the casing pipe is installed directly behind the microtunneling boring machine (MTBM) and where the machine provides support to the excavation face at all times.
4. This Specification is intended to define in general terms the Work to be accomplished. The Contractor shall have sole responsibility for the means and methods utilized to install the potable water pipeline and casing to the lines and grades shown and for preventing settlement or heave, all within the tolerances specified herein and subject to review by the Resident Engineer. The Contractor shall demonstrate to the Resident Engineer that the proposed means and methods will complete the Work in accordance with the Permits, Specifications, this Section, Applicable Codes, and the Construction Schedule.
5. Contractor shall provide all items required to complete the Work by Microtunneling including but not limited to, shaft construction and removal, the Microtunneling/jacking system, dewatering, spoil transportation and separation, hoisting, lifting, safety and control equipment.
6. Work shall also include exploratory pilot tube guided boring operations which shall be conducted in advance of any microtunneling operations to identify any subsurface obstructions that may be present.
7. All work shall be performed in accordance with the Plans, these Specifications and as required by the San Diego Metropolitan Transit System (MTS) and North County Transit District (NCTD). Additional requirements for MTS and NCTD are included on the Plans.
8. Contractor shall review all available information regarding site and equipment lay-down constraints, geotechnical conditions, traffic control requirements, allowable settlement/heave along the alignment and applicable project requirements.

ADD:

308-1.2 Quality Assurance. ADD the following:

1. Failure to meet the qualification requirements is failure to fulfill the Contract and the Contractor will be required to obtain a subcontractor that meets the qualification requirements.

2. The project superintendent shall be experienced in microtunneling operations.
3. The microtunneling machine operator(s) shall be experienced in microtunneling operations.
4. The site safety representative and personnel responsible for air quality monitoring shall be certification by Cal/OSHA.
5. The Contractor shall provide at least 72 hours advance written notice to Resident Engineer of the planned launch of the MTBM.
6. All work by the Contractor shall be done in the presence of the Resident Engineer unless the Resident Engineer grants prior written approval to perform such work in Resident Engineer's absence.
7. The Contractor shall immediately notify the Resident Engineer, in writing, when any problems are encountered with equipment or materials, or if the Contractor believes the conditions encountered are materially and significantly different than those represented within the Contract Documents.
8. The Contractor shall allow access to the Resident Engineer and shall furnish necessary assistance and cooperation to aid the Resident Engineer in observations, measurements, data, and sample collection, including, but not limited to the following:
 - a) The Resident Engineer shall have reasonable access to the operator control container prior to, during, and following all microtunneling operations. This shall include, but not be limited to, providing visual access to real-time operator control screens, gauges, and indicators.
 - b) The Resident Engineer shall have reasonable access to the jacking and reception shafts prior to, during, and following all jacking operations. This shall include, but not be limited to, visual inspection of installed pipes, launch and retrieval seals, and verification of line and grade. The Contractor shall provide safe access in accordance with all safety regulations.
 - c) The Resident Engineer shall have reasonable access to the slurry separation plant prior to, during, and following all microtunneling operations. This shall include, but not be limited to, access to shaker screens, hydrocyclones, conveyor belts, centrifuge equipment, and slurry and spoil holding tanks. The Resident Engineer shall be allowed to collect soil samples from the shaker screens and/or spoil holding tanks on the slurry separation plant a minimum of once per installed pipe section, or every ten (10) feet, whichever is more often, and at any time when soil conditions change or debris or foreign objects are apparent or suspected.

- d) The Resident Engineer shall have reasonable access to the bentonite lubrication plant prior to, during, and following all jacking operations. This shall include, but not be limited to, access to visually inspect storage and mixing tanks, lubricant pressures and pumping rates, and amount and type of lubricants on site.

ADD:

308-1.3 Safety.

1. The Contractor is responsible for safety on the job site. Methods of construction shall be such as to ensure the safety of the Work, Contractor's and other employees on site, and the public. Perform all work in accordance with all current applicable regulations and safety requirements of the federal, state, and local agencies. Comply with all applicable provisions of Tunnel Safety Orders of the State of California and 29 CFR Part 1926, Subpart S, Underground Construction and Subpart P, Excavations, by OSHA. In the event of conflict, comply with the more stringent requirements.
2. No gasoline powered equipment shall be permitted in jacking and receiving shafts. Diesel, electrical, hydraulic, and air powered equipment is acceptable, subject to applicable local, State, and Federal regulations.
3. Furnish and operate a temporary ventilation system in accordance with applicable safety requirements when personnel are in the shaft or in the pipe. Perform all required air and gas monitoring. Ventilation system shall provide a sufficient supply of fresh air and maintain an atmosphere free of toxic or flammable gasses in all underground work areas.
4. If personnel will enter the pipe during construction, the Contractor shall develop and emergency response plan for rescuing personnel trapped underground in a shaft excavation or pipe. Keep on-site all equipment required for emergency response in accordance with the agency having jurisdiction.
5. City has obtained from the State of California, Industrial Relations Department, Division of Occupational Safety and Health Administration Mining and Tunneling Unit, an underground classification of "Potentially Gasey" for the tunnel. A copy of each classification is included in **Appendix O**.
6. Personnel entering the NCTD/MTS right of way are required to have current Roadway Worker Protective (RWP) training in accordance with the Federal Railroad Administration and Railroad Protective Liability (RPL) insurance. For more information related to RWP training, visit <http://www.gonctd.com/working-around-the-rails/#rowss>. Submit documentation indicating that all personnel entering NCTD/MTS right of way are properly trained and insured.

7. An NCTD-supplied railroad flag person is required when any work is to be performed within NCTD's right of way. Authorization must be obtained from NCTD in advance. For more information related to requesting an NCTD flag person please visit <http://www.gonctd.com/working-around-the-rails/#rowss>.

308-2

Definitions. DELETE Section in its entirety and SUBSTITUTE with the following:

Annular Space: The void between the outside of the carrier pipe and the interior of the casing.

Annular Grout: Process of filling the annular space between the outside of the carrier pipe and the interior of the casing pipe.

Carrier Pipe: Permanent pipe for operational use that is used to convey flows, for this Work the flow to be conveyed is potable water.

Casing: A pipe to support a bore in which the carrier pipe is inserted. Pipe jacked behind the microtunneling machine. The casing pipe must be specifically designed to be installed by pipe jacking using microtunneling equipment.

Contact Grouting: Contact grouting consists of the placement of grout to fill the overcut, voids caused or encountered during casing installation, the annular space outside the jacking pipe after pipe jacking installation is complete, around shafts as necessary to prevent surface settlement, and as necessary to complete portal stabilization work.

Controls: The system which synchronizes excavation, removal of excavated material, and jacking of pipe to maintain overall balance to provide complete and adequate ground support at all times.

Cutterhead: Any rotating tool or system of tools on a common support, which excavates at the face of a bore.

Earth Pressure Balance Machine: An earth pressure balance type of MTBM in which mechanical pressure is applied to the material at the face and controlled to provide the correct counter-balance to earth pressures in order to prevent heave or subsidence.

Full Face Control: Complete mechanical support of the excavated face at all times.

Ground Improvement: A prism of stabilized ground is created just outside the shoring system using grouting methods appropriate for the existing ground conditions. The improved block stabilizes the ground and lowers the permeability sufficiently to control groundwater inflows. It is important that the stabilized prism is cast tightly against the existing shoring, extending well beyond the portal to be cut in the shoring, so that groundwater cannot flow along the shoring and enter the portal. Any grout/soil-cement strength must also be carefully controlled to allow the tunneling equipment to efficiently penetrate the improved ground.

Guidance System: Relates the actual position of the MTBM to a design reference (e.g. by a laser beam transmitted from the jacking shaft along the centerline of the pipe to a target mounted in the shield).

Guillotine (Double-Wall) Stabilization Method: To provide stable ground and groundwater control at shaft penetrations, a set of steel sheetpiles is installed just outside the primary shoring system in front of the portal locations. Contact grout is then injected between the primary shoring system and guillotine sheets to confirm that the soil between is stable and to prevent groundwater inflows. A hole is then cut in the primary shoring, exposing the stabilized ground and allowing for the insertion of the casing or tunneling equipment into the shaft seal and through the primary shoring. Once the casing or tunneling shield and shaft seal are mated, the guillotine sheets can be lifted out of the tunnel path and removed.

Intermediate Jacking Station (IJS): A fabricated steel cylinder fitted with hydraulic jacks spaced around the circumference which is incorporated into the pipeline between two specially fabricated pipe sections. The function of an intermediate jacking station is to distribute the jacking load along the pipe string during pipe installation. The hydraulic jacks are removed at the completion of a drive and the gap between adjacent pipe sections is fully closed by pushing the pipes together with the main shaft jacks or another IJS. The steel cylinder remains as an extended sleeve or coupling. The steel cylinder should be protected from corrosion, consistent with corrosion protection used for the jacking pipe and joints.

Jacking Frame: A structural component that houses the hydraulic cylinders used to propel the microtunneling machine and pipeline. The jacking frame serves to distribute the thrust load to the pipeline and the reaction load to the shaft wall or thrust wall.

Jacking/Access Shaft (Pit): Excavation from which trenchless technology equipment is launched.

Jacking Record: A computer-generated or manually recorded report that contains information on microtunneling operations and may include: date, time, name of operator, tunnel drive identification, installed tunnel length, rate of advance, jacking forces, cutterhead speed and torque, slurry inflow and outflow rates and pressures, bypass valve position, use of any cutting or high-pressure nozzles, face pressure, steering jack positions, line and grade offsets, any movement of the guidance system, machine inclination and roll, intermediate jacking station use and jacking forces, pressure, volume, and location of any lubricant pumped, problems encountered with the tunneling machine or other components or equipment, and durations and reasons for delays.

Jacking Shield: A fabricated steel cylinder from within which the excavation is carried out either by hand or machine. Incorporated within the shield are facilities to allow it to be adjusted to control line and grade.

Laser: An optical system projecting a beam to a target to provide guidance reference for the excavation.

Launch/Retrieval Seal or Entry/Exit Seal: A mechanical seal usually comprised of one or more rubber flanges attached to a steel housing that is mounted to the wall of the jacking/receiving shaft. The microtunneling machine distends the flange seal as it passes through, reducing water, slurry, or lubrication inflows into the shaft during microtunneling operations.

Liner Plate Shaft: A shaft formed by sequential excavation and erection of support ring consisting of segmental steel liner plates. All voids between the excavation and the liner plates are filled with grout to ensure complete contact with the ground.

Lubrication: A fluid, normally bentonite or polymers, used to reduce jacking loads on the jacking pipe.

Lubrication/Grout Port: A port located within the MTBM, or in the casing/jacking pipes, fitted with a one-way valve for injection of lubrication material or grout into the void space between the casing/jacking pipe and the ground.

Microtunneling: A remotely controlled, guided, pipe jacking process that provides continuous support to the excavation face and uses a pressurized slurry spoil removal system. The microtunneling process does not require routine personnel entry into the tunnel. A key element of microtunneling is the ability to control the stability of the face by applying fluid and mechanical pressure to balance the earth and groundwater pressures.

Microtunnel Boring Machine (MTBM): Remote-controlled, guided slurry shield that can provide continuous support to the excavation face. The MTBM is operated from a control container located on the ground surface. Soil/rock excavation is achieved by a rotating cutterwheel. Excavated spoil enters a slurry chamber where it is mixed with drilling fluid to form a slurry. Pumps cycle the slurry to the surface where a separation plant removes the solids from the fluid. The recycled fluid is then returned to the face in a closed system of pumps and hoses. Because of the remote control operation and the closed spoil-removal system, routine personnel entry into the MTBM is not required. Drilling fluid used to convey spoil may be water; however, it often contains additives such as bentonite that thicken the fluid, allowing it to carry more solids, and providing gel strength to prevent the fluid from permeating the soils at the heading. The guidance system typically consists of a laser or theodolite and EDM (electronic distance measurement) device mounted in the jacking shaft communicating a reference line to a target mounted in the MTBM's articulated steering head. The target in an MTBM provides the operator with information about machine attitude and pitch, and allows for accurate steering control.

Obstruction: Objects located wholly or partially within the cross-sectional area excavated by the microtunneling machine that prevent the forward movement of the microtunneling machine after all diligent efforts to advance past the object by the Contractor have failed.

Overcut: The annular space between the excavated hole and the outside radius of the MTBM.

Pilot Tube Guided Boring Method: Trenchless guided pipe installation and the accurate direct jacking of smaller diameter pipes without the use of permanent steel casing.

Pipe String: The succession of joint individual pipes being used to advance the excavation equipment.

Portal Stabilization: Where the new tunneled pipelines enter or exit a shaft excavation, the Contractor shall stabilize the portal to prevent ground or groundwater inflows into the shaft that may lead to settlement around the shaft or flooding of the excavation. Portal stabilization may be accomplished using ground improvement, double sheeting methods combined with contact grouting (guillotine method), or may be integral to the shaft construction method (as for auger-drilled shafts and secant pile shafts).

Receiving/Exit Shaft (Pit): Excavation pit into which the trenchless technology equipment is driven and recovered.

Settlement Point: A point with elevation and spatial location established by survey prior to construction. The point is re-surveyed periodically to monitor ground movements. The point may be a nail, pin, subsurface settlement rod, borehole extensometer, or other device that can be readily located and surveyed.

Shaft or Pit: A vertical excavation to insert or receive microtunneling equipment and pipe.

Shaft Grouting: Injection of grout through vertical or inclined holes drilled from the ground surface to intersect the known or suspected void to fill voids. Alternatively, injection of grout from holes drilled horizontally through shaft support elements into the soil to intersect the known or suspected void.

Slurry: Water mixture, which may contain additives, that is used to transport spoils and counterbalance any groundwater pressure.

Slurry Chamber: Located behind the cutting head of a slurry microtunneling boring machine. Excavated material is mixed with slurry in the chamber for transport to the surface.

Slurry Line: A series of hoses or pipes that transports excavated spoil and slurry from the face of a slurry microtunneling machine to the ground surface for separation or transports clean slurry to the cutter face.

Slurry Pressure Balance Machine: A microtunneling system which uses a low pressure fluid to balance the ground and water pressure at the face of the tunnel and to transport the excavated spoil to the surface.

Slurry Separation: A process where excavated spoil is separated from the circulating slurry.

Spoil: Earth, rock, and other materials removed during construction.

Thrust Ring: A fabricated ring that is mounted on the face of the jacking frame. It is intended to transfer the jacking load from the jacking frame to the thrust bearing area of the pipe section being jacked.

Tunnel Portal Stabilization: Where the new tunneled pipelines enter or exit a shaft excavation, the Contractor shall stabilize the portal to prevent soil or groundwater inflows into the shaft that may lead to settlement around the shaft or flooding of the excavation. Portal stabilization may be accomplished using ground improvement (such as jet grouting), double sheeting methods combined with contact grouting (guillotine method), or may be integral to the shaft construction method (as for auger-drilled shafts, secant pile shafts, and concrete caissons). Portal stabilization is required at all shafts.

308-3 SUBMITTALS. ADD the following:

308-3.1 General.

1. Submittals shall be provided in accordance with Section 2-5.3.2 and provide sufficient detail to allow the Resident Engineer to judge whether the proposed equipment, materials, and procedures will meet the Contract requirements. All drawings shall be legible with dimensions accurately shown and clearly marked in English. Drawings and photographs transmitted by a facsimile will not be accepted. Review of submitted details and data will be based on consideration of requirements for the completed work, protection of existing utilities, and the possibility of unnecessary delays in the execution of the work to be constructed under this Contract. Review and acceptance of the Contractor's Submittals by the Resident Engineer shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
2. All submittal items shall be included in a single submittal package, in either a 3-ring binder or comb bound. Individual submittal of items or loose submittals will be cause for rejection.

308-3.2 Microtunneling Operator and Equipment.

1. **Qualifications:** Submit the names of the project superintendent, machine operators, and site safety representative. Submit personnel qualifications. Provide qualifications and training records for site safety representative and personnel responsible for air quality monitoring.
2. **Microtunneling Equipment:** Submit the following describing the microtunneling equipment and construction methods to be employed:
 - a) A detailed description of the methods and equipment to be used in completing each microtunnel drive.
 - b) Manufacturer's literature describing the microtunneling system including the MTBM and all ancillary equipment. Provide descriptions of projects on which this system has been successfully used including

names, addresses, and telephone numbers of owner's representatives for these projects as well as length, diameter, and pipe material used. If a used or refurbished MTBM is proposed, list previous usage, modifications made and dates of modifications, and detailed description of the extent and dates of refurbishment. Include the following information concerning the MTBM:

- i. Dimensions and weight,
 - ii. Torque, rotation speed range, and no-load or "dry" torque reading,
 - iii. Cutter types, configuration, and gauge cutter setting for overcut, (include photograph or detail drawing)
 - iv. Articulation and steering capability,
 - v. Cutterhead jets/ports
 - vi. Pull back/reverse provisions to remove MTBM if it becomes obstructed,
 - vii. Face/excavation chamber pressure gauge locations and types.
- c) The excavation diameter based upon the outermost dimensions of the gauge cutters or shield. Also provide the radial overcut which shall be determined as the difference between the maximum excavation diameter and the outer diameter of the jacking pipe, divided by two.
- d) A description of the alignment control systems including manufacturer's literature and drawings showing setup, support provisions, and other details for the laser or theodolite system. Submit a description of surveying methods to set guidance system positions and a description of procedures to check and reset or realign guidance system during construction. Submit a description of methods to ensure that thrust block, exit and entry seals, and jacking frame are installed on proper line and grade. Submit results of line and grade survey to ensure that the thrust block, jacking frame, guide rails, entry seal, and exit seals are installed properly prior to launch of each drive. Confirm that these systems can achieve the required pipeline line and grade within the specified tolerances.
- e) Capacity, number, and arrangement of main jacks including details of the thrust ring, thrust block, jacking frame, jacking controls, pressure gauges, and jack calibration data (pressure vs. force relationship for each stage of the jacks). Also, submit details of pipe restraint device/procedures to prevent pipe movement into shaft when rams are withdrawn.

- f) Details of pipe lubrication injection system and pipe lubricants to be used during microtunneling, including manufacturer's literature and MSDS sheets. Include a description of proposed lubrication procedures during jacking, including estimated volumes of lubricant that will be pumped. Confirm that sufficient volume of lubricant will be pumped at all times to completely fill the annular space outside the jacking pipe. Identify number of lubrication ports to be provided to comply with requirements herein.
 - g) Details of spoil and slurry handling, separation, transport, and disposal equipment and procedures including details of slurry additives, and the slurry separation plant. Confirm that slurry and spoils shall be contained at all times and shall not be allowed to spill and collect around slurry separation plant. Provide manufacturer's description for slurry additives and MSDS sheets. Provide written documentation from the disposal site(s) indicating that they will accept the spoil or slurry and are in compliance with applicable regulations.
 - h) Ventilation and air quality monitoring system, including monitors for MTBM deactivation and alarm activation.
3. Submit drawings and details of microtunneling entry and exit seals in the shafts including materials, dimensions, arrangement, and installation procedures.
 4. Shaft Layout Drawings: The Contractor shall submit shaft layout drawings detailing dimensions and approximate locations of all equipment, including overall work area boundaries. The Contractor's layout drawings shall show that all equipment and operations shall be completely contained within the allowable work areas shown on the Drawings.
 5. Submit details for special equipment and procedures related to installing the casing to the approximately 1% grade required.
 6. Schedule: Submit a schedule for all microtunneling work, identifying all major construction activities as independent items. The schedule shall include, as a minimum, the following activities: mobilization, traffic control, pilot tube guided boring, groundwater control at jacking and receiving shafts, shaft excavation and support, working slab construction, thrust wall construction, jacking equipment setup, portal stabilization, entry ring installation for launch of machine, microtunneling, retrieval of the MTBM, installation of the carrier pipe inside jacked casing, shaft backfill, accommodation of settlement monitoring activities performed by Others, site restoration, cleanup, and demobilization. The schedule shall also include the work hours and workdays for each activity, and a written description of the construction activities. The schedule will be reviewed by the Resident Engineer and shall be updated and resubmitted by the Contractor every two (2) weeks or more frequently if requested by the Resident Engineer.

7. Daily Records: The following daily records shall be submitted to the onsite Resident Engineer by noon on the day following the shift for which the data or records were taken.
- a) Jacking Records: The Contractor shall provide complete jacking records to the Resident Engineer. These records shall include, at a minimum: date, time, name of operator, tunnel drive identification, installed pipe number and corresponding tunnel length, rate of advance, jacking forces, cutterhead speed and torque, slurry flow rates and pressures, bypass valve position, use of any cutting or high-pressure nozzles, face pressure, steering jack positions, line and grade offsets, any movement of the guidance system, machine inclination and roll, intermediate jacking station use and jacking forces, problems encountered with the tunneling machine or other components or equipment, and durations and reasons for delays. Computer-recorded data should be referenced to time and distance and should be recorded at time intervals of one minute or less. Manually recorded observations should be made at intervals of not less than three times per pipe, whenever conditions change, and as directed by the Resident Engineer. At least fourteen (14) days prior to the launch of the machine, the Contractor shall submit samples of the automated and manual jacking records. Samples shall include electronic data and any necessary programs to interpret data, and the manual logs or records to be used.
 - b) Slurry Additives: The Contractor shall provide records of all slurry additives including any bentonite and polymers. The time and volume, or weight, of the additive shall be noted. Measurements of mud weights, specific gravity, and viscosity shall be made at the beginning, middle, and end of each shift, and submitted with the daily logs. Measurements shall be made on slurry samples taken from the slurry tanks and noted accordingly.
8. Calculations: Calculations shall be submitted in a neat, legible format. Assumptions used in calculations shall be consistent with information provided in the Geotechnical Report. All calculations shall be prepared by a professional engineer licensed in State of California, who shall stamp and sign calculations.
- a) Provide an estimate of the maximum jacking force expected to complete each drive, accounting for both face pressures and frictional resistance along the pipe string.
 - b) Calculations demonstrating that the soils behind the thrust block can transfer the maximum planned jacking forces exerted by the main jacks to the ground during pipe installation with a factor of safety of at least 1.5, without excessive deflection or displacement. Calculations shall also demonstrate that thrust block can withstand maximum jacking forces developed by the main jacks without excessive deflection or displacement.

9. Intermediate Jacking Stations: Submit drawings and design details for any intermediate jacking stations used, including dimensions, shell materials, seals, proposed spacing, criteria for installing, method of operation, number of stations, method of abandonment, and final seal configuration.
10. Contingency Plans: The following list includes problem scenarios that may be encountered during the microtunneling operations. The Contractor shall submit contingency plans for dealing with each problem scenario while satisfying the specifications. These plans shall include the observations and measurements required to clearly identify the cause of the problems.
 - a) Machine unable to advance:
 - i. Possible obstructions.
 - ii. Insufficient jacking capacity.
 - iii. Machine or component malfunction.
 - iv. Machine retrieval methods.
 - b) Slurry separation problems:
 - i. Cuttings are not adequately separated using the slurry separation plant.
 - ii. Cuttings settle out in the slurry lines before reaching the separation plant.
 - c) Strong hydrocarbon smell is detected in the slurry returns, MTBM, tunnel, or in the shaft. Combustible gas meters at MTBM or in tunnel exceed 10% of LEL for methane or possible volatile organic compounds.
 - d) Laser distorted by heat, humidity, or physical disturbance.
 - e) Jacking Forces:
 - i. Jacking forces increase dramatically or suddenly.
 - ii. Jacking forces reach design capacity of pipe, jacking frame, or thrust wall (treat these scenarios as separate incidents).
 - f) Settlement and Subsidence:
 - i. Survey measurements indicate deformations exceed allowable limits.
 - ii. Excavated volumes significantly exceed pipe volume installed.
 - iii. Slurry face pressures and/or torque on head decrease suddenly and significantly.

- g) Groundwater inflows to shaft increase significantly and/or transport fines into shaft in measurable quantities.
 - h) Steering or guidance/tracking system difficulties result in line and grade tolerances being exceeded.
 - i) Pipe has been damaged or has been found to be out of compliance with specifications:
 - i. Before installation.
 - ii. During, or after installation.
 - j) Thrust block deforms excessively under jacking loads, or provides insufficient capacity to advance pipe.
 - k) Control signal is lost. Cannot monitor position, torque, thrust, steering jack position, or other performance parameters.
 - l) Excessive pipe separation at joints or pipe string movement into shaft is experienced when jacks are retracted.
11. Safety Plan: Submit a Safety Plan for the microtunneling operations including air monitoring equipment and procedures, and provisions for lighting, ventilation, and electrical system safeguards.
12. Casing Pipe: Submit casing pipe manufacturer's literature on casing pipe including steel casing material properties, dimensional drawings for casing pipe, joint configurations, quality control certifications including welding certificates, and manufacturer's installation requirements.

308-3.3 Contact Grouting.

1. Work Plan and Methods:
 - a) Submit a work plan for each type of contact grouting required, including: contact grouting methods and details of equipment, grouting procedures and sequences, injection pressures, monitoring and recording equipment, pressure gauge calibration data, methods of controlling grout pressure, method of transporting grouting equipment and materials within the pipe, and provisions to protect pipe lining or shaft supports.
 - b) Submit details of grout mix proportions, admixtures, including manufacturer's literature, and laboratory test data verifying the strength of the proposed grout mix.
2. Reports and Records:
 - a) Maintain and submit daily logs of grouting operations, including grouting locations, pressures, volumes, and grout mix pumped, and time of pumping. Note any problems or unusual observations on logs.

3. Grout Strength Tests:
 - a) Submit test results for 24-hour and 28-day compressive strength tests for the cylinder moulds or grout cubes obtained during grouting operations.

308-3.4 Shafts.

1. Qualifications:
 - a) Submit the name and qualifications of the design engineer responsible for each excavation support system design.
 - b) Submit the qualifications of shaft contractor for each shaft type to be constructed in accordance with the requirements listed herein. Provide project name, date, owner's contact information, details of shaft geometry and construction, and soil and groundwater conditions.
 - c) Submit the name and qualifications of Superintendent(s) who will be supervising shaft construction for each shaft type.
2. Submit a schedule and sequence of shaft construction including major milestones such as installation of shoring, excavation, installation of wales/struts, tremie seal, working slab, and dewatering of shaft interior.
3. Submit scaled drawings (plan and section views with dimensions and sizes) showing the proposed shaft elements and shoring system to be used at each shaft location; adjacent and nearby existing structures and utilities; details of trenchless pipe penetrations; details of pipe penetrations for connection to open cut sections of the pipeline; staging areas for all shaft construction operations. The drawings shall be prepared, signed and stamped by a California licensed Civil or Structural Engineer.
4. Design Calculations:
 - a) Submit all calculations in a legible, comprehensible format. The calculations shall be performed by a Civil or Structural Engineer registered in the State of California, who shall stamp and sign the design calculations.
 - b) Submit design calculations for the shoring and bracing indicating it can withstand all earth and groundwater pressures, equipment, applicable traffic, and construction loads and other surcharge loads in accordance with the site conditions, the Geotechnical Report and any other requirements described in the Plans and Specifications.
5. Submit methods and details of excavation, containment, hauling, and disposal of the excavated materials, all spoils, and other materials used in shaft construction. Written documentation signed by the disposal site owner or manager indicating that the site will accept the spoil and that the site is in compliance with all applicable local, State, and Federal regulations.

6. Submit a description of procedures for excavation of the soils from the shaft interior. Describe the procedures for excavation of hard/very dense soils and soft rock.
7. Submit a description of procedures for control of groundwater inflows after excavation has been completed, method of maintaining bottom stability, and protection of subgrade.
8. Submit concrete mix information and placement procedures for the working slab. Describe procedure for installing concrete working slab to the required grade and at the correct elevation.
9. Submit details for protecting existing utilities and structures within zone of influence.
10. Submit details of procedures for preloading bracing members.
11. Submit procedures for checking and maintaining plumbness of the shaft and ensuring proper elevation is reached.
12. Submit method for establishing survey control and transferring line and grade to shaft entry and exit locations.
13. Submit description of contingency plans for excessive movement of shaft elements, flooding, bottom heave, and inability to install the shoring to the required depth.
14. Submit letter signed by authorized representatives of General Contractor, shaft subcontractor (if any), and tunneling subcontractor, stating that the parties have reviewed the jacking and reception shaft designs, and the designs meet performance and safety requirements of the tunneling subcontractor, including provisions for adequate jacking capacity, working space, and safe retrieval of the tunneling equipment.
15. Line Plate Shafts:
 - a) Submit a description of the equipment, procedures, and sequence to be used to construct the liner plate shafts, and to execute the associated grouting operations including:
 - i. Manufacturer's literature and design calculations for the liner plate, based on anticipated loading conditions.
 - ii. Details of plates including grout holes, bolt holes, bolt sizes, sealants, gaskets, and grommets where used.
 - iii. Material specifications for mechanical connectors, grout plugs, and grout sleeves.
 - iv. Excavation dimensions for each proposed shaft section.

- v. Typical liner plate ring geometry, including staggering of adjacent rings.
 - vi. A description of backfill/primary grouting operations that includes sketches as appropriate, indicating type and location of mixing equipment, pumps, injection points, venting method, direction of flow, pressure measurement and maximum allowable pressure, blocking or otherwise securing liner to avoid floating or excessive displacement, volume measurement, grouting sequence, schedule, and stage volumes.
 - vii. A grout mix design report including: grout type and designation; grout mix constituents and proportions, including materials by weight and volume; grout densities and viscosities, including wet density at point of placement initial set time of grout; bleeding/shrinkage/expansion; and compressive strength. Confirm that grout strength does not exceed capabilities of tunneling method.
- b) Grouting Records: Maintain daily logs of grouting operations and submit records of grouting to the Resident Engineer. The records shall include the following information:
- i. Hole name, collar station, face station, date
 - ii. Details of mixes used, including any admixtures
 - iii. Details of each batch of grout injected including estimated wastage
 - iv. Details of any interruptions, leakages and any equipment malfunctions
 - v. Name of grouting supervisor
16. Construction Records: The Contractor shall submit the following to the Resident Engineer at the times indicated.
- a) Written daily progress reports shall be submitted during construction. The progress reports shall have field logs recorded at intervals of five feet or less during excavation and shall be submitted to the Resident Engineer within one working day of the shift for which the logs were created. As a minimum, the logs shall include:
- i. The date, starting time, and finish time.
 - ii. Equipment used.
 - iii. Actual quantities and descriptions of excavated material including soil types.

- iv. Any unusual conditions, breakdowns, and delays, including problems with support, bottom instability and obstructions.
 - v. Detailed description of the support installed, including sizes, lengths, spacing and elevations relative to excavation elevation.
 - vi. Deformation monitoring results, and record of action taken by the designer of record and the Contractor if predicted deflections are exceeded.
17. Post-Construction: Within 15 days of backfill of excavations, the Contractor shall submit a detailed as-built location plan of all remaining buried shoring members including size, location, and cutoff elevation.

308-3.5 Portal Stabilization.

- a) Submit a description of the methods to be used for each portal stabilization technique proposed. Provide shop drawings showing the details and dimensions of each stabilization system and full narrative describing the procedures.
- b) Submit a list of which portal stabilization method will be used at each shaft location.
- c) Submit a description of the secondary or remedial methods that will be employed if the initial stabilization efforts fail to achieve the required stabilization.
- d) Submit mix designs for any concrete or grout proposed as a part of the portal stabilization work.

308-3.6 Carrier Pipe.

- 1. Submit a Work Plan describing the carrier pipe installation equipment, materials, and construction methods to be employed including how carrier pipe will be protected during grout operations.
- 2. Submit detail drawings and manufacturer's information for the casing isolators/spacers that will be used. Include dimension and component materials, and documentation of manufacturer's ISO 9001:2000 certification.
- 3. Submit manufacturer's information on the non-corrosive/environmentally safe casing spacer runner lubricant.
- 4. Submit annular space grouting work plan and methods including:
 - a) Work plan including grouting methods, details of equipment, grouting procedures, and sequences including injection methods, injection pressures, monitoring and recording equipment, pressure gauge calibration data, methods of controlling grout pressure, method of transporting grouting equipment, and materials.

- b) Contractor shall submit details of grout mix proportions, admixtures, including manufacturer's literature, and laboratory test data verifying the strength of the proposed grout mix, the proposed grout densities, viscosity, and initial set time of grout. Data for these requirements shall be derived from trial batches from an approved testing laboratory.
 - c) The Contractor shall submit a minimum of three (3) other similar projects where the proposed grout mix design and grouting personnel were used.
 - d) Contractor shall submit anticipated volumes of grout to be pumped for each application and reach grouted.
 - e) Contractor shall submit details of minimum and maximum grouting pressures to be used for each application and reach of pipeline.
 - f) End seal or bulkhead designs and locations.
 - g) Buoyant force calculations during grouting and measures to prevent flotation.
 - h) Plan shall include a description of methods and devices to prevent buckling of carrier pipe during grouting of annular space.
5. Reports and Records:
- a) Maintain and submit daily logs of grouting operations. Including grouting locations, pressures, volumes, and grout mix pumped, and time of pumping. Note any problems or unusual observations on logs.
6. Grout Strength Tests:
- a) Submit test results for 24-hour and 28-day compressive strength tests for the cylinder moulds or grout cubes obtained during grouting operations.
7. A safety plan for the carrier pipe installation operations including air monitoring equipment and procedures and provisions for lighting, ventilation, and electrical system safeguards. Provide name of site safety representative responsible for implementing safety program.

308-3.7 Submission of Report of Pilot Tube Guided Boring Findings.

- 1. Immediately following exploratory PTGBM operations, and prior to commencing microtunneling operations, Contractor shall submit a written report to the Resident Engineer documenting the PTGBM operations and include a summary of any issues or obstructions encountered that would prevent the advancement of the microtunneling operations and steel casing pipe.

308-5 SURFACE DESCRIPTION. DELETE Section in its entirety and SUBSTITUTE with the following:

Settlement and heave at the ground surface during and after construction shall be in accordance with Section 308-9.10 Settlement Monitoring.

308-6.3 Subsurface Data. ADD the following:

1. Geotechnical Report and baseline geotechnical conditions can be found within Section 2-7.

ADD:

308-6.4 Obstructions.

1. If the microtunneling operations should encounter an object or condition that impedes the forward progress of the machine, the Contractor shall notify the Resident Engineer immediately. The Contractor shall submit a plan to retrieve the MTBM and correct the condition and make it possible for the microtunneling machine and jacked pipe to advance past any and all objects or obstructions that impede forward progress of the machine. An allowance has been provided to cover the costs associated with the development of a plan for MTBM retrieval by pull back/reversal methods as well as for determining a new un-obstructed alignment, and proceeding with microtunneling operations along the new un-obstructed path.
2. If an obstruction is encountered during installation of the casing pipe that prevents advancement of the pipe, the casing pipe shall be abandoned in place and fully pressure grouted in accordance with MTS/NCTD requirements. The location, length, and depth of abandoned casing pipe shall be shown on the as-built drawings as required by MTS/NCTD requirements.
3. The Contractor will receive no additional compensation for removing, clearing, or otherwise making it possible for the MTBM to advance past objects consisting of cobbles, boulders, wood, and other nonmetallic objects or debris with maximum lateral dimensions less than thirty percent (30%) of the outer diameter of the MTBM or cutterhead, whichever is larger. Additionally, full-face, massive, jointed, and/or fractured rock up to 15,000 psi will not be considered an obstruction.

ADD:

308-7.1 General.

1. Steel casing pipe shall be of size and thickness specified herein or shown on the Plans. The Contractor may select a greater casing diameter or thickness for the method of work, loadings involved and site conditions at no additional cost to the City, subject to the review and additional requirements of the Resident Engineer. Such increases of the casing diameter shall not interfere with existing utilities or known features.

308-7.1.1

Materials.

1. Pipe used for casing shall be approved for microtunneling operations and shall consist of steel pipe which utilizes an integral, machined press-fit connection incorporating double "O" ring gaskets. Following installation, each joint must undergo a 1/8-inch single-pass seal weld. Pipe shall be Permalok T-7 joint pipe or approved equal.
2. Pipe design for jacking loads and acceptable fabrication tolerances is the responsibility of the Contractor. Maximum jacking loads applied to the jacking pipe shall not exceed fifty percent (50%) of the ultimate compressive strength of the pipe material or the maximum allowable design strength of the pipe as established by the manufacturer, whichever is lower.
3. All steel used in the manufacture of steel pipe shall conform to the requirements of ASTM A-36, ASTM A515, grade 60 or ASTM A572, grade 42.
4. Steel used in the manufacture of steel casing pipe connections shall conform to ASTM A-36 as a minimum and be machinable.
5. Gasket materials used in the manufacture of steel casing pipe pressure connections shall be BUNA - N with a minimum Shore A durometer of 70.
6. Roundness - The pipe casing diameter as measured along any single plane shall not vary more than 1% from the specified diameter.
7. Circumference -The outside circumference shall not vary more than $\pm 1\%$ from the nominal circumference based on the specified diameter, or $\pm 3/4"$ maximum.
8. Wall Thickness - The actual wall thickness of the steel pipe sections shall not vary more than 5% under the nominal wall thickness specified.
9. Straightness - The maximum straightness deviation in any 10 foot length shall be $1/8"$. The maximum straightness deviation in fabricated sections up to 40' shall be $3/8"$.
10. "O"-ring groove dimensions and separation between male and female connector surfaces shall be such as to maintain a minimum gasket squeeze of 10% and a maximum of 30% of the gasket diameter. In no case shall the minimum squeeze be less than .006".
11. Steel pipe 30" in diameter and over shall be manufactured by the rolled and welded cylinder method utilizing the DSAW process in sections of not less than 8' long, except as needed to achieve the final finished length of pipe.
12. Pipe connectors shall be full penetration butt-welded square to the ends of pipe sections, or profiled directly on the finished sections, at the option of the manufacturer.

13. Pipe connectors shall have a 1/8-inch chamfer at the appropriate locations so as to create a 1/8-inch v-notch for application of a single-pass seal weld when joints have been fully assembled in the field.
14. Grout Ports: Grout ports shall be installed at the pipe manufacturer's facilities. Grout ports shall be 2-inch diameter threaded couplings fitted with a slotted head threaded plug. Grout ports shall be installed on pipe sections to provide no more than 10-ft of spacing between grout ports when the pipe is assembled in place.

308-7.1.2 Quality Control.

1. All welding shall be performed by qualified welding operators in accordance with the requirements of ANSI/AWS D1.1.
2. All welding procedures shall be either pre-qualified in accordance with ANSI/AWS D 1.1 for full penetration welds, or qualified by testing, as required.
3. One reduced section tension test specimen shall be evaluated for each lot of 250' of each size and wall thickness, and shall show a tensile strength of not less than 95% of the minimum strength specified for the grade of steel used.
4. All steel pipe 30" in diameter and larger shall have hydrostatic testing waived and replaced by 100% visual weld inspection and 10% spot UT or radiographic evaluation to AWS D1.1 criteria for weld penetration and fusion.
5. All pipe end connections shall be examined at time of shipment and shall be free of injurious defects or that section shall be rejected and repaired prior to shipping.
6. All steel pipe shall be clearly marked with the manufacturer's name, manufacturer's job number, customer name, O.D., wall thickness, and weight per foot.
7. One set of "O" ring gaskets from each lot of 20 sets or less shall be 100% inspected for defects including excessive flash, dimensional tolerance and proper fit up in the gland. Gasket stretch shall not exceed 5% of the specified inside diameter, once seated in the groove.
8. Steel casing pipe shall be assembled and installed in accordance with manufacturers installation requirements.

308-8.1 Microtunneling Tunnel Boring Machine (MTBM). DELETE in its entirety and SUBSTITUTE with the following:

1. Only pressurized, closed-face, remotely operated microtunneling equipment using slurry spoil removal, shall be used for all microtunneling work required for this project. The machine shall be capable of fully supporting the face during both excavation and shutdown periods, and shall have the capability of exerting a continuous, measurable, controllable stabilizing pressure at the face as

required to prevent loss of ground and groundwater inflows. The system shall be capable of adjustment required to counterbalance the groundwater and soil pressures at the tunnel face. A pressure gage shall be provided so the operator can monitor the pressure exerted at the heading.

2. Microtunneling equipment selected for the project shall be suitable for and capable of efficiently advancing through the geologic conditions indicated in the Geotechnical Baseline Conditions.
3. The machine shall have a watertight articulation joint between two segments of the shield. The shield shall be steerable in both the vertical and horizontal directions to allow the operator to maintain line and grade within the specified tolerances.
4. The MTBM shall incorporate a suitable seal between the MTBM and the leading casing pipe.
5. The MTBM shall have a guidance system designed to function at the maximum required drive length without loss of accuracy or reliability of function. A display showing the position of the machine in relation to design line-and-grade shall be provided at the control panel to allow the operator to continuously monitor line and grade deviations.
6. The cutterhead shall have a reversible drive system so that it can rotate in either direction or other suitable provisions to minimize rotation or roll of the machine or pipe during installation.
7. The maximum radial overcut shall be 1 inch. The minimum radial overcut shall be 0.50 inches. The radial overcut shall be determined as the difference between the maximum diameter created by the cutting teeth or overcut band on the machine (whichever is greater) and the outer diameter of the pipeline or casing, divided by two.
8. A lubrication injection system shall be provided to inject pipe lubricant around the MTBM and jacking pipe to decrease frictional resistance. Lubrication materials may include a mixture of bentonite and/or polymers and water. Lubrication ports shall be provided in the MTBM and jacking pipe to allow for lubrication along the pipe string at intervals of not more than ten (10) feet.
9. The machine shall be equipped with a computerized data acquisition system for collecting information for the jacking record. An on-site printer and disk drive/USB port shall also be required for production of a printed daily jacking record and an electronic copy of the data. As a supplement to the computerized data acquisition system, the Contractor shall also use manual data acquisition for collecting information for the jacking record.
10. Where there is a potential for flammable or noxious gases to be encountered, or if required by Cal/OSHA, the machine shall have an automatic shut-off switch and provisions for continuous gas monitoring.

11. The MTBM equipment shall have pull back capabilities to allow retrieval of the machine in the event an obstruction is encountered. This retrieval shall be accomplished by either reversing the machine, pull back methods to retrieve the machine along the bore path, or similar approved methods. If an obstruction is encountered, Contractor shall abandon the casing in place in accordance with MTS/NCTD requirements.

308-8.2 Jacking Equipment. DELETE in its entirety and SUBSTITUTE with the following:

1. Provide a suitable jacking frame and thrust block to carry out the work. Provide, install, and operate intermediate jacking stations as necessary to complete the microtunneling drive and in accordance with these specifications.
2. Provide a MTBM operation which includes a pipe jacking system with the following features:
 - a) Main jacks mounted in a jacking frame located in the jacking shaft.
 - b) Jacking system, which successively pushes the MTBM along with a string of connected pipes toward a receiving shaft.
 - c) Sufficient jacking capacity to push the MTBM and the pipe string between the shaft locations identified on the Shop Drawings.
 - d) Hydraulic cylinder extension rates which are synchronized with the excavation rate of the MTBM, as determined by the soil conditions.
 - e) Develops a uniform distribution of jacking forces on the end of the pipe by use of spreader rings and packing.
 - f) Provides and maintains a pipe lubrication system at all times to lower the friction developed on the surface of the pipe during jacking.
3. A thrust block shall be used to transfer jacking loads to the soil behind the jacking shaft. The thrust block face shall be constructed perpendicular to the proposed pipe alignment. The thrust block shall be designed to withstand the maximum jacking forces developed by the main jacks, without excessive deflection or displacement. Forces applied to the soil/rock shall not exceed the allowable passive earth pressure, with a minimum factor of safety of 1.5 or the strength of the ground support system with consideration of passive soil resistance and allowable deformations of the support system and soil/rock mass.
4. Intermediate jacking stations (IJS) shall be installed and used if the total jacking force during a drive exceeds 70% of the capacity of the main jacks, the safe design capacity of the pipe or IJS pipe, or the maximum allowable jacking force on the thrust block, whichever is less. The Contractor may elect to use the additional IJS's before jacking forces reach the threshold values. IJS shells shall be protected from corrosion to the same extent as the adjacent pipe and joints. IJS's shall be installed and operated in accordance with approved submittals.

5. Transport the jacking pipe from storage to the jacking shaft without damage. Transport methods shall be acceptable to pipe manufacturer. Damaged jacking pipe shall not be used in the Work, unless permitted in writing by the Resident Engineer. Set the pipe to be jacked on properly braced and supported guide rails or jacking frame.
6. The axial forces from the thrust jacks shall be distributed to the jacking pipe uniformly through a thrust ring and/or cushion material to prevent damage to the ends of the pipe.
7. Jacking pipe sections shall be jacked into position following the design line and grade without damaging the pipe. In the event a section of pipe is damaged during the jacking operation, the Contractor, with written approval from the Resident Engineer, shall make temporary repairs to the pipe and shall jack the pipe through to the next shaft for removal. Other methods of repairing the damaged pipe may be used if approved in writing by the Resident Engineer.
8. Provide any specialized equipment as necessary to safely install the casing to the grade required. Provide a pipe clamp or other specific means to safely hold to installed pipe string in place while the jacks are retracted to set the next piece of jacking pipe if required.

308-8.4 Automated Spoils Transportation. DELETE in its entirety and SUBSTITUTE with the following:

1. Automated Spoil Transportation: Provide a MTBM, which includes an automated spoil transportation slurry system, which shall measure earth and groundwater pressure and be capable of making adjustments required to counter-balance the earth and ground water pressures by the use of a slurry pressure balance system. System shall be capable of adjustment required to maintain face stability for the particular soil condition to be encountered in the Work and shall monitor and continuously balance the ground water pressure to prevent loss of slurry or uncontrolled ground water inflow. System shall include the following items:
 - a) Manage the pressure at the excavation face by use of the slurry pumps (which may be of variable speeds), pressure control valves and a flow meter.
 - b) Include a slurry bypass unit in the system to allow the direction of flow to be changed and isolated, as necessary.
 - c) Have a spoil transportation system that has the capability for removal of soil in balance with excavation and advance.
2. Slurry Separation Plant: The slurry separation plant shall be designed to achieve the rates of spoil separation and slurry cleaning required for planned production rates. The Contractor is advised that along portions

of the project, the ground conditions may include silt and clay-rich soil that could present delays if a gravity separation method is used alone. Shaker screens, hydrocyclones and centrifuges may be required for efficient separation of spoils. The separation plant must fit within the allowable work areas shown on the Plans. Excavated slurry pits or ponds will not be allowed. All excavated materials and slurry must be completely contained within tanks, trucks, or other containers at all times. For disposal of excavated materials Contractor shall comply with local, State and Federal regulations, codes and statutes and obtain and comply with any necessary permits. The slurry separation system shall:

- a) Provide adequate separation of the spoil from the slurry so that slurry with a sediment content within the limits set by the Contractor's Work Plan can be returned to the cutting face for reuse. A mechanical separation plant, including a centrifuge, may be implemented as deemed necessary by the work plan. Appropriately contain spoil at the site prior to disposal.
- b) Use the type of separation process suited to the size of the tunnel being constructed, the soil type being excavated, and the work space available at each work area for operating the plant.
- c) Carefully monitor the composition of the slurry to maintain the slurry weight and viscosity limits defined by the Contractor's Work plan.

308-8.6 Guidance/Monitoring Equipment. DELETE in its entirety and SUBSTITUTE with the following:

1. The City will provide survey control points at each shaft for the Contractor's use in tunnel alignment guidance and monitoring. The Contractor shall verify these control points prior to the start of construction, and shall confirm positions or report any errors or discrepancies in writing to the Resident Engineer.
2. After confirming all established survey control points, the Contractor shall use these control points to furnish and maintain all reference lines and grades for microtunneling. The Contractor shall use these lines and grades to establish the exact location of the MTBM as it is being advanced using a laser or theodolite guidance system. Submit to Resident Engineer copies of field notes used to establish all lines and grades and allow Resident Engineer to check guidance system setup prior to beginning each microtunneling drive. Provide access for Resident Engineer to perform survey checks of guidance system and line-and-grade of jacking pipe on a daily basis during microtunneling operations. The Contractor is fully responsible for the accuracy of the Work and the correction of it, as required.
3. The Contractor shall install the jacking pipe in accordance with the following tolerances:

- a) Variations from design line: +/- three (3) inches maximum.
 - b) Variations from design grade: +/- three (3) inches maximum.
4. The machine shall be steered to maintain line and grade within the tolerances specified. This shall be achieved by continuously monitoring and adjusting line, grade, machine inclination, roll, and steering attitude during the operation. If the installation deviates from line or grade, make the necessary corrections, and return to the design alignment and grade at a rate of not more than one inch (1) per twenty-five (25) feet.
 5. The guidance system shall be mounted independently from the thrust block and jacking frame to maintain alignment if there is movement of equipment during jacking. Stop microtunneling operations and reset guidance system if its alignment shifts or is moved off design alignment and grade for any reason. Check guidance system setup at least once per shift. Guidance system should only be reset by experienced, competent surveying personnel in accordance with approved procedures outlined in the submittals.
 6. Monitor line and grade continuously during microtunneling operations. Record deviation with respect to design line and grade at least once per foot and submit records to Resident Engineer as requested. Control line and grade of the jacking pipe to within the specified tolerances.
 7. If the pipe installation does not meet the specified tolerance, the Contractor shall correct the installation including any necessary redesign of the pipeline or structures and acquisition of necessary easements. Or as an alternative, the City maintains the right to accept the defective alignment and deduct funds due to the Contractor commensurate with the redesign and acquisition of new easements. All corrective work shall be performed by the Contractor at no additional cost to the City and without schedule extension, and is subject to the written approval of the Resident Engineer.

308-9.1 General. DELETE in its entirety and SUBSTITUTE with the following:

1. Microtunneling shall not begin until the following tasks have been completed:
 - a) All required submittals have been provided, reviewed, and approved.
 - b) Jacking shaft and receiving shaft excavations and support systems have been completed in accordance with approved submittals. Elevations of working slab surfaces have been surveyed to confirm that work can be completed in accordance with alignment and grade shown on Plans.
 - c) The Contractor has stabilized the soils at all entry and exit locations as Specified.

- d) All settlement monitoring points have been installed, surveyed, and accepted by the Resident Engineer.
- e) The location, orientation, and grade of the jacking frame or guide rails and entry/exit seals have been surveyed to ensure they are on the proper line and grade and to verify that they are properly supported. Special care shall be taken when setting the guide rails or jacking frame in the jacking shaft to ensure stability and accuracy of the alignment and grade. Guide rails or jacking frame shall be securely attached to the shaft supports and concrete working slab, with supplementary concrete or grout if necessary, to prevent movement or shifting during the work.
- f) Exploratory pilot tube guided borings have been completed along the alignment and have confirmed the absence of any obstructions that would prevent successful completion of microtunneling and pipe jacking operations.
- g) A start-up inspection of all mechanical and hydraulic systems associated with the microtunneling operations has been completed. The system shall be tested on the surface to ensure that the microtunneling machine and supporting equipment is functioning properly. The Resident Engineer shall be notified at least 72 hours prior to the start-up inspection and a site inspector representing the City will be present during the start-up inspection. Key machine performance data will be measured and recorded by the Contractor during this inspection, including cutterhead rotational torque, functionality of main and steering jacks, laser and target, and other components. The records of the start-up inspection will be submitted to the Resident Engineer within 24 hours of the completed inspection.
- h) Site safety representative has prepared a code of safe practices and an emergency plan in accordance with Cal/OSHA and other applicable requirements. Provide the Resident Engineer with a copy of each prior to starting microtunneling. Hold safety meetings and provide safety instruction for new employees as required by Cal/OSHA. Conduct a pre-construction safety conference in accordance with Cal/OSHA requirements. Arrange this conference and inform the Resident Engineer of the time and place of the conference at least seven (7) days in advance.
- i) The Contractor shall notify DigAlert system to request marking of utilities by utility owners/operators that subscribe to DigAlert, and shall individually notify all other known or suspected utilities to request marking of these utilities. The Contractor shall confirm that all requested locates are made prior to commencing tunneling operations. The Contractor shall visually confirm and stake all existing lines, cables, or other underground facilities including exposing all crossing utilities and utilities within ten (10) feet laterally of the designed tunnel.

2. The Contractor shall properly manage and dispose of groundwater inflows to the shafts.
3. Conduct all operations such that trucks and other vehicles do not interfere with traffic or create a mud, dust, or noise nuisance in the streets and to adjacent properties. Promptly clean up, remove, and dispose of mud, spoils and slurry spillage, and any slurry discharges.
4. All work shall be done so as not to disturb roadways, adjacent structures, landscaped areas, or existing utilities. Any damage shall be immediately repaired to original or better condition.
5. Whenever there is a condition that is likely to endanger the stability of the excavation or adjacent facilities, the Contractor shall advise the Resident Engineer and obtain permission to operate with a full crew 24 hours a day, including weekends and holidays, without interruption, until those conditions no longer jeopardize stability.

ADD:

308-9.1.1 Microtunneling.

1. Microtunneling shall be completed in accordance with approved submittals, and all applicable permit conditions.
2. Microtunneling operations shall control surface settlement and heave above the pipeline to prevent damage to existing utilities, facilities, and improvements. The Contractor shall repair any damage resulting from construction activities, at no additional cost to City and without extension of schedule for completion. The Contractor shall modify equipment and procedures as required to avoid recurrence of excessive settlements, heave, or damage.
3. The microtunneling machine shall be operated to restrict the excavation of the materials to a volume equal to the MTBM and pipe jacked, to prevent loss of ground and settlement or possible damage to overlying structures. Control the advance rate and monitor the volume of material excavated and adjust advance rate, as required, to avoid loss of ground, over-excavation, or surface heave.
4. Provide a lubrication system, and inject pipe lubricants through injection ports at the rear of the microtunneling machine and ports in the jacking pipe to minimize pipe friction. Pipe lubricants shall be injected continuously as the pipe is advanced and in sufficient volume to, at a minimum, completely fill the calculated volume produced by the overcut.
5. Pressure shall be applied at the tunnel face to maintain face stability and shall be monitored continuously. Face pressure shall be maintained between calculated active and passive earth pressure.

6. Control slurry pressure and avoid excessive pumping pressures to prevent the discharge of slurry at the ground surface or into any water body. Contain and clean up any slurry discharges immediately. Wash any paved areas with water to avoid the tracking of slurry away from the discharge area.
7. Completely contain, transport, and dispose of all excavated materials, waste slurry, and drilling fluids away from the construction site. All spoils and slurry must be contained in trucks, tanks, or other containers at all times. Dumping of spoil or slurry on the ground, discharge into sewers, or discharge into the shafts is not permitted. Slurry shall be pumped into tanker trucks and disposed of at acceptable facilities in accordance with current State regulations for disposal of these materials. Use only the disposal sites identified in approved submittals for muck and slurry disposal.
8. The Contractor shall perform contact grouting for all microtunneling reaches as specified.

308-9.3 Annular Space Grouting. DELETE in its entirety:

ADD:

308-9.3 Contact Grouting.

308-9.3.1 General.

1. This section provides minimum requirements for contact grouting of all voids caused by overcutting, voids caused or encountered during casing installation, the annular space outside the jacking pipe after pipe jacking installation is complete, around shafts as necessary to prevent surface settlement, as necessary to complete portal stabilization work.

308-9.3.2 Reference Specifications, Codes and Standards.

1. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive specification shall govern. The latest edition available on the date of issue of Contract Documents shall be used.
2. Commercial Standards:
 - a) ASTM C 31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field
 - b) ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - c) ASTM C 94 - Standard Specification for Ready-Mixed Concrete
 - d) ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch Cube Specimens)
 - e) ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar

- f) ASTM C 150 - Standard Specification for Portland Cement
- g) ASTM C 937 - Standard Specification for Grout Fluidifier for Preplaced-Aggregate Concrete

308-9.3.3 Design Criteria.

1. Contact grout shall be used to fill any voids caused or encountered outside the casing pipe, to fill the voids created by the shield overcut during pipe jacking, and to fill any voids caused or encountered outside of shafts, and as necessary for portal stabilization.
2. Grout Mixes: Develop one or more grout mixes designed to completely fill the voids outside the casing or shafts and to provide acceptable strength to prevent settlement. Grout used outside shaft excavations shall be excavatable by the tunneling equipment. Determine 24-hour and 28-day strength of each grout mix in accordance with ASTM C39 or C109. All grout mix proportions shall be subject to review and acceptance by the Resident Engineer.
3. Grout Composition: Grout shall consist of Portland cement, bentonite, fluidifier as necessary, and water in the proportions specified herein or as approved by the Resident Engineer. Sand may be added to the grout mix in instances of very high grout takes as approved by the Resident Engineer. The addition of sand may require additional water or fluidifier to be added to the grout mix.
4. Compressive Strength: The minimum compressive strength at 24 hours shall be at least 10 psi. The minimum compressive strength at 28 days shall be 50 psi. Coordination with the tunneling subcontractor shall be completed to ensure that the grout strength can be efficiently excavated by the pipe jacking equipment without damaging the equipment or causing excessive wear.
5. Grout Strength Tests: Prepare samples for 24-hour and 28-day compressive strength tests according to ASTM C31 for cylinders or ASTM C109 for cubes. Test samples according to ASTM C39 or C109 as applicable. Grout for the cylinders or cubes shall be taken from the nozzle of the grout injection line. Collect at least one set of four (4) samples for each 500 cubic feet of grout injected but not less than one set for each grouting shift, unless directed in writing otherwise by the Resident Engineer.

308-9.3.4 Materials.

1. Cement: Cement shall Type V Portland cement with high sulfate resistance conforming to ASTM C 150. Type II cement shall meet Table 4 false set requirements of ASTM C 150.
2. Bentonite: Bentonite shall be a commercially processed powdered bentonite, Wyoming type, such as Imacco-gel, Black Hills, or equal.

3. Fluidifier: Fluidifiers shall hold the solid constituents of the grout in colloidal suspension, be compatible with the cement and water used in the grouting work, and comply with the requirements of ASTM C 937.
4. Admixtures: Other admixtures may be used subject to the written approval of the Resident Engineer to improve the pumpability, to control set time, to hold sand in suspension, and to prevent segregation and bleeding.

308-9.3.5 Equipment.

1. Equipment for mixing and injecting grout shall be adequate to satisfactorily mix and agitate the grout and force it into the grout ports, in a continuous flow at the desired pressure. Pumps shall be capable of continuously developing a sustained pressure of 15 psi in excess of existing groundwater pressures at the grout port connection.
2. Two pressure gauges shall be provided, one at the grout pump and one at the collar of each port being grouted. The accuracy of the gauges shall be periodically checked with an accurately calibrated pressure gauge. A minimum of two spare pressure gauges shall be available on site at all times.
3. The grouting equipment shall be provided with a meter to determine the volume of grout injected. The meter shall be calibrated in cubic feet to the nearest one-tenth of a cubic foot.
4. The grouting equipment shall be maintained in satisfactory operating condition throughout the course of the work to ensure continuous and efficient performance during grouting operations.
5. Suitable stop valves shall be provided at the collar of each port for use in maintaining pressure as required until the grout has set.
6. Grout hoses shall have an inside diameter not less than 1-1/2 inches and capable of withstanding the maximum water and grout pressures to be used.

308-9.3.6 Execution.

308-9.3.6.1 General Requirements.

1. The Contractor shall use contact grouting to fill any voids caused or encountered during shaft construction that could lead to shaft movements during pipe jacking operations, or that could lead to settlement and damage of installed pipe, surface features, or subsurface utilities.
2. The Contractor shall use contact grouting to completely fill the void space outside the jacking pipe caused by the pipe jacking shield overcut, and any voids caused or encountered during the trenchless construction.
3. The Contractor shall use contact grouting to fill and abandon boreholes for subsurface monitoring points as noted on the Plans.

4. All grouting operations are to be performed in the presence of the Resident Engineer. Notify the Resident Engineer at least 24 hours in advance of starting contact grouting operations. Presence of the Resident Engineer does not relieve the Contractor of proper operation and performance of the grouting operations. Contractor is solely responsible for means and methods to properly perform the contact grouting operations.
5. The Contractor shall take care to prevent the spill or escape of grout to the ground surface, into any water body, or into any sanitary or storm sewer. The Contractor shall closely monitor grouting operations to detect any spills or escape of grout to the surface or into any water body, sanitary sewer, or storm sewer. Any such spill shall be immediately contained and cleaned up by the Contractor at no additional cost.
6. During grouting work, provide for adequate disposal of all waste and wastewater. Remove and properly dispose of all waste grout resulting from grouting operations. The contents of grout lines shall not be discharged into the pipe, sanitary sewers, storm drains, or water bodies.

308-9.3.6.2 Mixing and Injection of Grout.

1. All materials shall be free of lumps when put into the mixer and the grout mix shall be continuously agitated. Grout shall flow unimpeded and shall completely fill all voids. Grout not injected within 90 minutes of mixing shall be wasted.
2. The grouting process shall be operated and controlled so that the grout is delivered uniformly and steadily.
3. Recirculate grout mixes when any new mix is batched or after adding water, fluidifier, or sand to mix. Recirculate mix for at least 2 minutes prior to pumping grout into grout port.
4. In general, grouting will be considered completed when less than one cubic foot of grout of the accepted mix and consistency can be pumped in 5 minutes under the specified maximum pressure. After the grouting is finished, the valve shall be closed before the grout header is removed, and remain closed until grout has set. For any port ahead of the grouting operation, with a valve attached, and the valve in the open position; the current port shall be considered grouted if grout issues forth, from the subsequent port, with the same consistency, and at the same rate as that being pumped. Replace grout plugs in pipe at the completion of grouting.
5. The maximum sustained grouting pressure shall be 15 psi in excess of existing groundwater pressures at the grout port collar connection, unless otherwise approved in writing by the Resident Engineer.

308-9.3.6.3 Contact Grouting of Shafts.

1. Commence contact grouting of shafts after completion of each shaft, and before trenchless construction begins.
2. Inject grout through vertical or inclined holes drilled from the ground surface to intersect the known or suspected void. Alternatively, drill grout holes horizontally through shaft support elements into the soil to intersect the known or suspected void. Holes shall be sufficiently close to ensure all voids are completely filled.
3. Install check valve and grout nipple in each hole drilled.
4. Inject grout through each grout nipple until completion, as defined in Paragraph 308-9.3.7.2.
5. Resident Engineer may direct Contractor, at the Contractor's expense, to drill and grout additional holes if the grouting operation has not, in the judgment of the Resident Engineer, achieved satisfactory filling of all known or suspected voids.

308-9.3.6.4 Contact Grouting of Jacked Pipelines.

1. Commence contact grouting outside of the jacking pipe within 48 hours following the completion of each jacked drive.
2. Grout ports shall be provided in jacking pipes at intervals not greater than 10 feet.
3. Contact grout ports shall be installed by the pipe manufacturer in the pipe before pipe is jacked into place. Drilling grout ports through pipe shall not be permitted. Grout ports shall be threaded to accept valve fittings and plugs.
4. An attempt shall be made to hook-up and pump grout at every port or coupling unless approval is granted by the Resident Engineer in writing to omit grouting of selected ports.
5. Before attempting to grout a port the Contractor shall use a rod to clean the area outside the grout port of loose soil and to provide a path for grout to travel.
6. Inject grout through the grout connections in such a manner as to completely fill all voids outside the pipe resulting from, or encountered during, pipe jacking operations. Grout pressure shall be controlled to avoid damaging the pipe, and to avoid movement of the surrounding ground or improvements.

7. Grouting shall generally progress sequentially in a constant upgradient direction from one grout port to the next grout port in the sequence indicated in the approved submittals.
8. At all times during the grouting operations, sufficient contact grout ports ahead of the port to be grouted shall be cleaned and ready for grouting. Valves or other suitable devices shall be attached and placed in the fully open position on all ungrouted ports within the maximum grout communication distance, as determined by the Contractor and accepted by the Resident Engineer.
9. For any port ahead of the grouting operation, with a valve attached, and the valve in the open position, such port shall be considered grouted if grout issues forth of the same consistency and color, and at the same rate as that being pumped. Replace grout plugs in pipe at the completion of grouting.
10. Pipe grout fittings shall be sealed with screw type plugs upon completion of grouting. For carrier pipes, dry pack mortar shall be used to fill any recesses, and to provide a smooth surface inside the pipe.

308-9.3.6.5 Cleanup.

1. After completion of contact grouting, all related construction debris, grout, oil, grease, and all other materials shall be removed from the jacking pipe, jacking and receiving shafts, and all Contractor work areas.

308-9.5 Construction Zones. DELETE in its entirety and SUBSTITUTE with the following:

1. Microtunneling construction zones in the public right-of-way shall maintain a minimum of one lane of traffic at all times during the construction of the receiving shaft. Once receiving shaft construction is complete all traffic, pedestrian and bicycle lanes shall be opened while microtunneling and pipe jacking operations are in progress. Contractor shall use traffic rated steel plates to allow for safe passage of vehicles, pedestrians and bicycles.
2. Microtunneling construction zones on private property shall remain within the confines of the temporary construction easement.

308-9.6 Shafts. DELETE in its entirety:

ADD:

308-9.6 Shafts.

308-9.6.1 General. DELETE in its entirety and SUBSTITUTE with the following:

1. This section provides the minimum requirements and acceptable construction methods for excavation and support of shafts for the trenchless

crossing. The shafts will also be used to facilitate the construction of connections, valves, and other permanent structures shown on the Plans.

2. The Contractor shall design, furnish, install and maintain a system of supports, including all bracing and associated items, to retain excavations in a safe manner and to control ground movements. Provide portal stabilization to control groundwater inflows and to prevent loss of ground or subsidence at entry and exit locations. Upon completion of the required tunnel construction, the support system shall be removed, as specified herein, and the shaft excavations backfilled as specified in other Sections, or as shown on the Plans.
3. The Work shall include: site grading; safety fencing and signage; construction staging areas; design and construction of shaft excavations and excavation support systems; material disposal; ground improvement, where necessary; protection of existing utilities; control and disposal of groundwater, surface water, and construction water; tunnel portal stabilization; removal, backfilling, and abandoning of shafts; and site restoration.
4. The Contractor shall have sole responsibility for selection of shaft types, construction methods, and shaft excavation sizes to complete the work, meeting the requirements of these Specifications. The size of the shafts shall be adequate to complete all trenchless construction and to construct all structures indicated on the Plans.
5. Acceptable shaft types may include: drilled shafts, liner plate, or other construction methods for jacking/receiving shafts subject to review and written approval by the Resident Engineer. Sloped open excavations, trench boxes and speed shores are not allowed.

ADD:

308-9.6.2 Reference Specifications, Codes and Standards.

1. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive specification shall govern. The latest edition available on the date of issue of Contract Documents shall be used.
2. Commercial Standards:
 - a) AASHTO "Standard Specifications for Highway Bridges"
 - b) ACI 318 - Building Code Requirements for Reinforced Concrete
 - c) AISC - Manual of Steel Construction
 - d) ANSI/AWS D1.1 - Structural Welding Code
 - e) AREMA "Manual for Railway Engineering" 2005 Edition

- f) ASTM A 36 - Specification for Structural Steel
 - g) ASTM A1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
3. Codes:
- a) Cal/OSHA, State of California Administrative Code, Title 8, Industrial Relations, Chapter 4, Subchapter 4, Construction Safety Orders.
 - b) Occupational Safety and Health Administration (OSHA) Regulations, 29 CFR Part 1926 Subpart P - Excavations, and Subpart S - Underground Construction.
4. Geotechnical Information:
- a) See Section 2-7 of SSP.

308-9.6.3 Design Criteria.

1. General:
- a) Excavation support systems shall be designed by a Civil or Structural Engineer registered in the State of California who has experience in the design of soil retaining structures, and who shall stamp and sign the submittals and shop drawings.
 - b) Selection of appropriate materials, equipment, and means and methods for performing shaft excavation, providing initial ground support, and controlling groundwater and surface water shall be made by Contractor based on the conditions described in the Geotechnical Report. Shafts shall be designed to fit within the allowable space indicated on the Plans and as required by approved traffic control plans.
 - c) The Contractor's licensed engineer shall design all shafts to provide a continuous, dry, excavation support system. Shafts shall be designed to support earth and groundwater pressures, equipment, applicable traffic, and construction loads and pressures (i.e. annulus grouting pressures) and other surcharge loads in accordance with the site conditions, the geotechnical information listed in the Geotechnical Report, and any other requirements described in these Plans and Specifications.
 - d) Shafts shall be designed to withstand the full hydrostatic head of groundwater or shall include provisions for dewatering to completely remove groundwater loading. Design excavation support systems in accordance with AISC and ACI code provisions, as applicable.

- e) The shaft design shall allow the safe and expeditious construction of the permanent facilities without excessive movement or settlement of the ground and in a manner that will prevent damage to, or movement of, any adjacent structures, utilities, or other facilities.
- f) The shaft shall be of a size large enough to facilitate all necessary groundwater control, construction operations including the trenchless pipe installation, construction of any structures, and pipeline connections to open cut reaches of the project.
- g) All shafts shall be designed with a concrete working slab to provide a stable platform to complete the Work. The working slab in the jacking shaft must be installed at the grade of the trenchless drive specified on the Plans.
- h) Suitable thrust or reaction blocks shall be installed for pipe jacking equipment.
- i) The support systems shall be designed to protect adjacent utilities from damage and to minimize horizontal and vertical movements to below the maximum allowable values for deformation.
- j) The shaft shall be designed for staged installation and removal of all or portions of the upper 10 ft to accommodate construction of connections and backfill sequences.
- k) The Contractor is responsible for providing all necessary Portal Stabilization measures to prevent the inflow of soil and control the inflow of groundwater through the tunnel portals at all shafts. Stability of the tunnel portals shall be confirmed by incremental openings prior to full-size opening being cut in sheets.
- l) Watertight jacking and reception shaft seals shall be used at all shaft penetrations. Seals shall be designed by the Contractor to resist or prevent passage or flow of soils, groundwater, lubricant and other materials into the shaft during trenchless construction activities.
- m) The strength of any grout mixture used to fill the annulus between the internal shoring or other supports, and the excavation, if used, shall be selected to allow the tunneling machine to efficiently excavate or advance through the grouted annulus during both launch and retrieval. The tunneling subcontractor shall be consulted to ensure compatibility between the grout strength and tunneling equipment. The minimum strength of the grout mixture shall equal or exceed the strength of the soils outside the excavation.
- n) The shaft floors shall be designed with a sump to remove any groundwater, rainwater, runoff, or construction water that enters the shaft. The Contractor shall not discharge groundwater inflows into storm sewers, sanitary sewers, water bodies, or streets, unless

permitted in writing by the City. Contractor shall properly dispose of groundwater in accordance with permit requirements, and other applicable sections.

- o) The Contractor is allowed to install and operate pumping systems outside of shafts provided that the Contractor obtains necessary permits for handling, treatment, and disposal of groundwater and complies with permit requirements and local, State, and Federal regulations and statutes.
- p) Relocate interfering utilities and appurtenant items, as needed to install shoring systems and perform other activities required for construction of shafts and trenchless crossings. Coordinate with agency of jurisdiction to relocate. Cost of coordination and relocation by Contractor.

2. Liner Plate Shafts:

- a) Liner plate shafts shall meet the criteria below:
 - i. Liner plates shall be designed so that erection and assembly can be accomplished from either within or outside the shaft.
 - ii. Liner plates shall be capable of withstanding the ring thrust load and transmitting this load from plate to plate.
 - iii. The minimum thickness of liner plates shall be determined by the Contractor's shaft design engineer.
- b) Grouting:
 - i. All voids behind liner plates shall be fully grouted.
 - ii. Grouting shall be performed in a sequence which will preclude deflections exceeding 5 percent of the shaft diameter.
 - iii. At a minimum, grouting shall be performed at the end of each day.

308-9.6.4 Quality Assurance.

- 1. Failure to meet the qualification requirements is failure to fulfill the Contract and the Contractor will be required to obtain a subcontractor that meets the qualification requirements.
- 2. Contractor Qualification and Experience: The Contractor who shall perform the Work specified herein shall have successfully completed shafts utilizing each of the proposed shaft construction methods of similar size, depth, complexity and in similar ground conditions. In addition, the Superintendent(s) for the construction work shall have successful experience with the proposed shaft construction method(s).

3. Quality control, testing, and inspection shall be provided as required by the Contractor's design engineer and in accordance with approved submittals. The Contractor's design engineer shall visit the site to observe the Work in progress on at least a weekly basis or more frequently if required by the Resident Engineer.
4. The Contractor shall immediately notify the Resident Engineer, in writing, when any problems are encountered with equipment or materials, or if the Contractor believes the conditions encountered are materially and significantly different from those represented within the Contract Documents.
5. Construction Monitoring: Settlement of adjacent property and/or facilities will not be permitted. Settlement monitoring of adjacent facilities shall be conducted in accordance with the Specifications and as shown on the Plans.
6. The Contractor shall allow access to the Resident Engineer and shall furnish necessary assistance and cooperation to aid the Resident Engineer in observations and data and sample collection.

308-9.6.5 Safety.

1. The Contractor shall be solely responsible for, and bear the sole burden of cost for any and all damages resulting from improper shoring or failure to shore. Observation of shaft installation by the Resident Engineer does not relieve the Contractor from the requirements of this section.
2. The safety of workers, the protection of adjacent structures, property and utilities, and the installation of adequate supports for all excavations shall be the sole responsibility of the Contractor.
3. The design, planning, installation, and removal of all shoring shall be accomplished in such a manner as to maintain stability of the required excavation and prevent movement of soil that may cause damage to adjacent shoring systems, structures and utilities, damage or delay the Work, or endanger life and health.
4. All materials and methods of construction shall meet the applicable requirements of the Contract Documents, and the applicable requirements of the Construction Safety Orders of the State of California Department of Industrial Relations and Division of Occupational Safety and Health. Particular attention is called to Subpart P - Excavation, and Subpart S - Underground Construction of the Standards (29 CFR 1926/1920, latest revision), and the Division 1, California Department of Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 20, Tunnel Safety Orders.

308-9.6.6 Materials.

1. All timber and structural steel used for the supporting systems, whether new or used, shall be sound and free from defects which may impair strength.
2. Liner Plate:
 - a) ASTM A1011 and Section 15 of AASHTO "Standard Specifications for Highway Bridges" for tunnels beneath roads or Chapter 1, Section 4.15.5, Table 1-4-38 of AREMA "Manual for Railway Engineering" 2005 Edition for tunnels beneath railroads.
 - b) Every other plate radially of every second ring vertically shall be fitted with a grout hole.
 - c) Liner plate flanges shall be provided with factory-installed gaskets.
 - d) Steel liner plates for initial support of shaft excavation shall be corrugated sections manufactured by Contech Construction Products, American Commercial or approved equal.
 - e) Liner plates shall be designed so that erection and assembly can be accomplished entirely from either outside or inside the shaft. Liner plates shall be capable of withstanding the ring thrust load and transmitting this load from plate to plate and shall be capable of controlling groundwater inflow. The minimum thickness of liner plates shall be determined by the Contractor's shaft design.

308-9.6.7 Execution.

308-9.6.7.1 General.

1. Shaft excavations and site development shall commence only after approval of applicable submittals by the Resident Engineer. Install excavation support systems in accordance with approved submittals.
2. The Contractor shall notify DigAlert, and shall confirm that any utilities not subscribing to DigAlert have been individually notified. Contractor shall confirm that all located are made prior to beginning excavation.
3. Contractor shall confirm locations of all utilities that are within footprint of shaft excavation and all utilities within 10 feet of the shaft excavation footprint. Confirmation shall be done using potholing or vacuum excavation. The utility location information obtained shall be provided to the City on the Contractor's submitted as-built redline plan set.
4. The Contractor shall construct the shaft wall support system in accordance with the approved submittals. Corrective measures shall be immediately taken where movement or deformation of support systems may in any way impair the integrity of the support system or that of adjacent facilities responsible for the safety and integrity of the shaft excavation.

5. All excavated spoils, and other materials used during shaft construction, shall be completely contained when stockpiled on site, and shall be disposed of by the Contractor in accordance with the accepted disposal plan at the completion of shaft construction. Any spills shall be completely contained and cleaned up promptly by the Contractor. Under no circumstances shall spoils, drilling fluids, groundwater inflows, or construction water enter any sanitary or storm sewers, or any water body. Contractor shall properly dispose of groundwater in accordance with permit requirements.
6. Settling of adjacent property and/or facilities will not be permitted. Settlement monitoring of adjacent facilities shall be conducted.
7. All welding shall conform to the applicable provisions of ANSI/AWS D1.1.
8. Care shall be taken to keep the shafts plumb during construction. The deviation from plumb shall not exceed one (1) foot (12 inches) in 100 feet, or 1%, unless otherwise specified herein. Any correction of shaft deviation, and any construction and associated costs resulting from relocation of appurtenances inside the shaft, including the tunneled pipe connections and the launch and retrieval seals, caused by the shaft's deviation from plumb or other deficiencies in workmanship shall be accomplished at the Contractor's expense and shall not be cause for schedule extension.
9. For trenchless shaft penetrations, provide watertight gasketed seals and portal stabilization at all locations.
10. Backfill the voids between the excavation face and the shoring with sand, pea gravel, or lean grout packed into place to limit ground movements and to ensure uniform thrust reaction behind thrust block.
11. Pumping from shaft sumps shall not result in boils, softening of the ground, or loss of fines. Sumps, subdrains, and drain blankets shall be installed as necessary, using suitable filters or screens so that fines are not removed from the formation.
12. The work site shall be secured in accordance with the requirements of Cal/OSHA. In addition to the above, the shafts, when not in use for more than 48 consecutive hours, shall be completely covered with steel plates, preventing any unauthorized entry.

308-9.6.7.2 Liner Plate Shafts.

1. Longitudinal joints in adjacent rings shall be staggered and not in alignment more often than every second ring.
2. Care shall be taken during installation of all initial support to maintain the vertical alignment, grade and shape of the shaft.
3. Voids behind liner plates shall be fully grouted.

4. Grouting:
 - a) Every second liner plate in a ring shall be provided with 1.5-inch or larger grouting holes located near the centers.
 - b) The holes in each ring shall be staggered resulting in a diamond pattern for grout holes.
 - c) All space between the liner plate and the earth shall be filled with grout forced in under pressure.
 - d) Enough water shall be used to produce, when well mixed, a grout having the consistency of thick cream.
 - e) As the pumping through any hole is stopped, it shall be lugged to prevent backflow of grout.
 - f) Grouting shall be performed in a sequence which will preclude deflections exceeding 5 percent of the shaft diameter.
 - g) At minimum, grouting shall be performed at the end of each day.
5. Shaft excavation shall not proceed more than 30 inches below the bottom of the last row of liner plate before installation of another row of liner plate.

Use steel ribs, tie rods, stiffeners, or other restraint as required to maintain the liner plate ring in a true circle without buckling until backfill grouting operations are complete.
6. Ribs shall be blocked to the liner plate by hardwood or steel wedging/blocking at two points per plate. Nail wedges to preclude loosening.
7. Erect liner plates with tight, clean joints and gaskets and in a manner which will not deform or overstress the completed rings. Flanges shall be clean and free from material that could interfere with proper bearing.
8. Previously placed rings of liner plates shall be monitored daily for signs of damage or distress. Where the Resident Engineer or the Contractor observes damage or distress, promptly repair or replace such elements, as appropriate, and at no additional cost to the City.

308-9.6.7.3 Shaft Bottom Stability and Groundwater Inflows.

1. The Contractor is responsible for preventing, controlling, or otherwise handling groundwater inflows through the bottom of the shaft excavations. All groundwater inflows shall be collected and disposed of in accordance with the specifications.

2. The Contractor shall control groundwater inflows to prevent heaving, boiling, piping, or other loosening of the subgrade that will compromise shaft integrity or provide unsuitable foundation for the pipe and/or manholes.

308-9.6.7.4 Portal Stabilization.

1. For all shafts, prior to initiating penetration through the shaft wall, securely install tunnel entry/exit seals.
2. The Contractor shall stabilize the ground outside the shaft seals to facilitate launching or receiving of the tunneling equipment from the shafts. Stabilization methods shall ensure that the ground will remain stable without inflow of soil or water into the shaft while the machine is being launched or received. Suitable portal stabilization shall be confirmed by the progressive demonstration steps specified.

308-9.6.7.5 Settlement Instrumentation and Monitoring.

1. Performance of excavation support system shall be monitored for both horizontal and vertical deflections by Contractor.
2. If excessive settlement or deflections of supports or nearby utilities or other improvements occur that exceed those values predicted by the Contractor's shoring designer and the maximum allowable values specified, modifications to the excavation and shoring approach will be required. Revised shop drawings and calculations shall be submitted to the Resident Engineer. Changes to excavation sequence and shoring shall be implemented as may be necessary at no additional cost to the City.

308-9.6.7.6 Shaft Removal and Backfill.

1. The Contractor shall remove shoring to a minimum depth of 10 feet, and as required to accommodate construction of connections and backfill sequences, unless otherwise noted on the Plans. All shoring elements located in the upper 10 feet, including shaft walls, wales, struts, lagging, and shores shall be removed from the excavation prior to restoration. Shoring elements that remain in place shall be identified on the record drawings. Removal of the support system shall be performed in a manner that will not disturb or harm adjacent construction or facilities and only after backfill has been fully compacted. Any voids created or encountered during the removal of the support system shall be immediately filled with grout as specified in 308-9.3 or as approved in writing by the Resident Engineer. The support system removed from the excavation shall remain the property of the Contractor and shall be removed from the site.

2. Backfill of shafts shall be Controlled Low Strength Material (CLSM) in accordance with section 201-6. CLSM backfill shall be placed within both shafts and shall be placed within 12-inches of the finished surface.

308-9.6.7.7 Cleanup.

1. The Contractor shall remove all construction debris, spoil, slurry, oil, grease, and other materials from the shaft, pipeline, and all surface work areas upon completion of construction of the pipeline.

ADD:

308-9.8 Water Control for Shafts and Tunnels.

308-9.8.1 General.

1. Provide continuous control of water in shafts and tunnels during the course of construction, including weekends and holidays, and during periods of Work stoppages.
2. Control of water in excavations, dewatering and discharge of water shall be per Section 7-8.6 "Water Pollution Control" and its subsections of the Whitebook.

ADD:

308-9.9 Portal Stabilization.

1. This Section describes requirements for portal stabilization measures to be taken at shaft locations to prevent ground inflows, and to control groundwater inflows during launching and retrieving of the tunneling equipment. The Contractor shall provide portal stabilization at all shaft penetrations such that no soil/rock and no more than 5 gpm of water enters the shaft when portals are opened for launching or retrieving of the tunneling equipment.
2. The Contractor may provide portal stabilization using grouting methods, guillotine wall (double-wall) methods, methods integral to the shaft construction, or other methods proposed by the Contractor, subject to Resident Engineer's written approval.
3. The Work includes all operations necessary to provide portal stabilization that meets the requirements herein. This includes any secondary measures (such as additional contact grouting) or work required if initial stabilization methods are not successful.

308-9.9.1 Design Criteria.

1. The Contractor shall provide portal stabilization to prevent ground inflows and to control groundwater inflows during launch and retrieval of the casing or tunneling equipment for all shaft locations.

2. Portal stabilization methods shall ensure that no soil/rock and no more than 5 gpm of water enters the shaft when creating portals for the launch or retrieval of the casing or tunneling equipment.
3. The Contractor may accomplish portal stabilization by the use of ground improvement, the guillotine wall (double-wall) method, methods integral to the shoring system (such as for auger-drilled shafts and secant piles) or by other Contractor suggested methods, subject to the requirements of these Specifications and Resident Engineer's written approval.
4. The maximum 28-day compressive strength of any grout used or soil-cement created shall not exceed 150 psi. The minimum compressive strength shall be at least 10 psi. Additionally, the cured grout or soil-cement shall be of a strength that can be efficiently penetrated by the tunneling equipment without damage to the equipment.
5. Guillotine Wall (Double-Wall) Method:
 - a) The guillotine wall shall extend not less than three (3) feet beyond the maximum portal dimensions to be opened in the primary shoring system, in all directions.
 - b) The contractor shall inject contact grout between the primary shoring system and the guillotine wall, as necessary, to stabilize the ground between and to seal any voids that would allow groundwater flow into the shaft, before opening tunnel portals.
6. Ground Improvement Method:
 - a) Choose ground improvement methods that will achieve the stability Specified herein, in the ground conditions described in Geotechnical Report for each shaft location.
 - b) The prism of improved ground shall extend not less than three (3) feet beyond the maximum portal dimensions to be opened in the primary shoring system, in all directions.

308-9.9.2 Execution.

308-9.9.2.1 Guillotine Wall Methods.

1. The Contractor shall visually verify the location of all utilities that may cross, or are within 5 feet adjacent to the location of guillotine sheets before commencing installation.
2. Pre-drilling may be necessary to install guillotine shoring to the required depths.
3. Guillotine sheets shall be completely removed after the tunneling equipment has been seated in the shaft seal.

308-9.9.2.2 Ground Improvement Methods.

1. Prisms of improved ground shall be installed in full contact with the shoring to prevent uncontrolled groundwater flow along the shoring face and into the portals. If ground improvement cannot be performed tight against the shoring face, supplemental contact grouting shall be used to achieve control of groundwater inflows.

308-9.9.2.3 Verification of Stability.

1. The Contractor shall stabilize the soil at all tunnel portal locations to prevent the inflow of weak, raveling, running, or flowing ground and to control groundwater inflows. The Contractor shall confirm that the ground has been stabilized to the extent that ground will remain stable without movement of soil or water while the entry/exit location shoring is removed and while the casing/tunneling equipment is being launched or received into a shaft or during jacking operations. The progressive steps identified below shall be used to confirm suitable stabilization has been achieved for all shaft types and entry/exit locations:
 - a) After the Contractor believes he has stabilized the ground sufficiently outside a given shaft seal, the Contractor shall demonstrate the stability of the ground by cutting a 3 inch diameter hole in the shoring wall near the center of the bore. If no soil/rock or less than 5 gpm of water enters the shaft, the Contractor may progress to the next demonstration step. If soil/rock or more than 5 gpm of water enter into the shaft, the Contractor shall seal the demonstration hole and further stabilize the ground before repeating the demonstration step.
 - b) After successful completion of the first demonstration step, the Contractor shall demonstrate the stability of the ground by cutting a 12 inch diameter hole in the shoring wall at the location of previous demonstration hole. If no soil/rock or less than 5 gpm of water enters the shaft, the Contractor may progress to the next demonstration step. If soil/rock or more than 5 gpm of water enters the shaft, the Contractor shall seal the demonstration hole and further stabilize the ground before repeating the demonstration step.
 - c) After successful completion of the first two demonstration steps, and if the Contractor believes the portal stabilization work is sufficient, the Contractor may proceed with remainder of the shaft wall penetration procedures.
 - d) Successful completion of shaft wall penetrations and related activities necessary to demonstrate such shall be at the Contractor's sole expense.

ADD:

308-9.10 Settlement Monitoring.

308-9.10.1 General.

1. Settlement monitoring will be conducted by Others. City will contract with a surveyor licensed in the State of California to conduct settlement monitoring activities.
2. Contractor shall coordinate his Work with the City's surveyor to ensure settlement monitoring activities can be conducted as required both prior to and during the Contractor's Work.
3. Elevations of settlement monitoring locations shall be determined before the Contractor mobilizes any equipment to the site and prior to beginning any excavation operations to establish baseline conditions. Settlement monitoring locations will also be surveyed during and after trenchless operations to monitor any movements related to the pipe jacking. All monitoring points will be surveyed after trenchless construction has been completed to evaluate long-term settlements, as specified herein.
4. Minimum instrumentation requirements are shown on the Plans and specified herein for the Contractor's information. Contractor will be provided with the settlement monitoring survey work plan approved by NCTD/MTS prior to conducting any Work. The work plan will generally include the following:
 - a) Survey Procedures: Written description of the survey procedures to be used for the settlement monitoring program. Information including but not limited to; method of establishing control, method for controlling sources of error, method for protecting/preserving control and settlement monitoring points, method for re-establishing survey control/settlement points if disturbed, method for conducting survey operations, processing data and reporting survey results. Description of all equipment to be used to conduct survey.
 - b) Surface Monitoring Locations: Drawings identifying the location of the proposed settlement monitoring points and reference benchmarks. Proposed monitoring points will be shown in plan and profile.
 - c) Description of methods and materials proposed for installing and protecting surface settlement monitoring points.
 - d) Certificates of calibration for all survey equipment demonstrating that equipment has been properly calibrated within the last 12 months.

5. Reports and Records: Contractor will be provided with all reports of settlement monitoring data.
 - a) Within 72 hours following installation of the settlement monitoring points, drawings showing the actual as-built installed location, the identification number, the type of monitoring point, the installation date and time, and the tip elevation of the monitoring point will be provided to Contractor. Details of installed monitoring points, accessories and protective measures including all dimensions and materials used will be included.
 - b) Surveyed baseline measurements of all monitoring points will be provide to Contractor at least fourteen (14) days prior to mobilizing equipment to site and commencing excavation.
 - c) Data from readings of all monitoring points will be provided to the Contractor within 24 hours of reading. Surveyed measurements with the calculated deltas in relation to the established MTBM for all monitoring points during and after construction will be provided to Contractor.

308-9.10.2 Design Criteria.

1. Any ground movements (settlement/heave) shall be limited to values that shall not cause damage to adjacent utilities and facilities. In no case shall settlements exceed the applicable values listed in Table 1 below.

Table 1 – Allowable Settlement / Heave Values

Site Feature	Allowable Settlement / Heave (inches)
Railway Right of Way and Tracks	0.00
Public Roadways & Private Improved Areas	0.50
Underground Utilities	1.00
Unimproved Ground	2.00

308-9.10.3 Quality Assurance.

1. Surveying for monitoring settlement instrumentation shall be referenced to the same control points and benchmarks established for setting out the Work. Control points shall be tied to benchmarks and other monuments outside of the zone of influence of the excavation or trenchless construction.

308-9.10.4 Execution.

308-9.10.4.1 General Requirements.

1. Contractor shall provide access and assistance to the Resident Engineer and the City's surveyor conducting settlement monitoring activities at all times throughout the duration of the project.
2. Contractor shall notify both the Resident Engineer and MTS/NCTD prior to the day planned to cross beneath the tracks to allow for MTS/NCTD inspector to inspect the area.
3. The Contractor shall immediately notify the Resident Engineer and MTS/NCTD of any cumulative change in elevation or location of any settlement monitoring location in excess of the allowable values specified. Contractor shall resolve the issue using methods defined in Contractor's contingency plan or other reasonable methods as approved by the Resident Engineer and MTS/NCTD.
4. The Contractor shall immediately report to the Resident Engineer any movement, cracking, heave or settlement which is detected and take immediate remedial action. The Contractor shall be fully responsible for any such damage to existing site features, utilities, railways, roadways or the like.

308-9.10.4.2 Monitoring Frequency.

1. The frequency of settlement monitoring conducted by Others is as indicated below. Contractor's schedule shall account for coordination with settlement monitoring activities.
 - a) Baseline Survey of Surface Monitoring Points: Elevations of settlement monitoring points shall be determined before the Contractor mobilizes any equipment to the site and prior to beginning any excavation operations to establish baseline conditions. Baseline survey measurements shall be obtained from three separate surveys performed two weeks apart prior to mobilizing any equipment to the site and prior to beginning any excavation.
 - b) Survey During Trenchless Operations: Survey measurements shall be taken at least once per day after beginning any trenchless activities, including pilot tube guided boring. In addition, survey measurements shall be obtained just prior to tunneling beneath the NCTD Operations tracks, at least once while tunneling beneath the tracks and immediately after tunneling beneath the tracks.
 - c) Survey Following Trenchless Operations: Once trenchless operations are complete, all settlement monitoring locations shall be surveyed once per day for the first seven days, once after 14

days, once after 30 days, once after 6 months and once after 12 months of completing the trenchless work. If no settlement is detected, monitoring may be discontinued.

308-9.10.4.3 Surface Monitoring Points.

1. The general location of the surface monitoring point locations are shown on the Plans.
2. NCTD Operations Tracks: Survey elevations collected by Others will be along the centerline of the proposed casing, and at 10 feet and 20 feet from each side of the centerline as shown on the Plans. These surface monitoring points shall be located at the top of each of the four rails, between the two tracks and at a distance two feet from the toe of the ballast on each side of the track. There shall be a total of thirty five survey monitoring points for the NCTD Operations Tracks.
3. Surveying of surface monitoring points shall consist of determining the elevation of each monitoring point with respect to a benchmark approved by the Resident Engineer and MTS/NCTD. Vertical and horizontal measurements shall be accurate to 0.05 feet or smaller.

308-9.10.4.4 Instrument Protection, Maintenance and Repair.

1. Contractor shall protect the instruments and surface control points from damage. Damaged installations shall be immediately reported to the Resident Engineer so that they may be replaced or repaired by others prior to continuing excavation or pipe jacking, unless permitted otherwise in writing by the Resident Engineer.

ADD:

308-9.11 Installation of Carrier Pipe in Casing.

308-9.11.1 General.

1. This Section includes requirements for the installation of carrier pipe into jacked steel casings at locations shown on the Plans.

308-9.11.2 Reference Specifications, Codes and Standards.

1. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive language shall govern. The latest edition available on the date of issue of Contract Documents shall be used.

2. Commercial Standards:
 - a) ASTM C 39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - b) ASTM C 109, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50 mm Cube Specimens)
 - c) ASTM C 150, Specification for Portland Cement.
 - d) ASTM C 494, Specification for Chemical Admixtures for Concrete.
3. Safety Codes:
 - a) Occupational Safety and Health Administration (OSHA) Regulations and Standards for Underground Construction, 29 CFR Part 1926, Subpart S, Underground Construction and Subpart P, Excavation.

308-9.11.3 Design Criteria.

1. Carrier pipe shall be installed within the horizontal and vertical tolerances as indicated in this Specification, incorporating all support/insulator dimensions required.
2. All voids between the outside of the carrier pipe and the interior of the casing shall be filled with annular space grout. All exterior carrier pipe surfaces and all interior casing surfaces shall be in contact with the grout.
3. Annular space grout shall be Low Density Cellular Concrete (LDCC). The LDCC shall be Portland cement based grout mix with the addition of a foaming agent designed for this application.
4. Grout Mixes: Develop one or more grout mixes designed to completely fill the annular space based on the following requirements:
 - a) Provide adequate retardation, to completely fill the annular space in one monolithic pour.
 - b) Provide less than 1% shrinkage by volume.
 - c) Compressive Strength: Minimum strength of 10 psi in 24 hours, 50 psi in 28 days per ASTM C-495
 - d) The Contractor shall design a grout mix with the proper density and use proper methods to prevent floating or damage of the carrier pipe.
 - e) The grout shall be proportioned to flow and to completely fill all voids between the carrier pipe and the casing.

5. The Contractor shall provide end seals, as approved by the Resident Engineer at each end of the casing to contain the grout backfill. The end seals shall be designed to withstand the anticipated grouting pressure and be watertight to prevent groundwater from entering the casing.
6. The Contractor shall provide casing spacers/insulators to support the carrier pipe, during installation and grouting. The casing spacers shall provide a minimum 2 inches of clearance between all pipes and the casing surface. The casing spacers shall hold stable all pipes during the grouting operations and prevent floating.

308-9.11.4 Quality Assurance.

1. The Contractor responsible for installation of the carrier pipe and associated conduits shall have completed similar work.
2. Grout Strength Tests:
 - a) Perform 24 hour and 28-day compressive strength tests for proposed grout mix design.
 - b) Perform field sampling during annular space grouting. Collect at least one set of four (4) cylinder moulds for each 100 cubic yards of grout injected but not less than one set for each grouting shift. Perform 24 hour and 28-day compressive strength tests per ASTM C-495. Remaining samples shall be tested as directed by Resident Engineer.
3. Casing isolator/spacer manufacturer shall be certified against the provisions of ISO 9001:2000.

308-9.11.5 Materials.

1. Carrier pipe shall meet the specification requirements for PVC Pressure Water Pipe 16 inch to 36 inch per Section 209-4.4 of the City Supplement.
2. Casing Spacers / Isolators:
 - a) Factory made isolators/spacers capable of supporting the carrier pipe and electrically isolating the carrier and casing from one another.
 - b) Suitable for supporting weight of carrier pipe without deformation or collapse during installation.
 - c) Runner lubrication shall be environmentally safe and within manufacturer's recommendations.

- d) Casing isolators/spacers shall have a minimum 14 gage steel band. Contractor shall design risers for loads, and as a minimum shall use 10 gage steel risers, except on bottom runners where steel risers shall be 7 gage minimum.
 - e) No riser shall be located at the 6 o'clock position, and all risers shall be symmetrical about the vertical axis.
 - f) Steel band to have a polyvinyl chloride inner liner with a minimum thickness of 0.09 inch, a durometer "A" of 85-90 hardness, and a minimum dielectric strength of 58,000 volts.
 - g) The runners shall be a minimum of 2" in width and a minimum of 11" in length. Runners shall be attached to the band or riser by 3/8", minimum, welded steel studs. Runner studs and nuts shall be recessed well below the wearing surface of the runner, and recess shall be filled with a corrosion inhibiting filler.
 - h) Runners shall be glass-reinforced polymer with a minimum compressive strength of 18,000 psi per ASTM D638. Polyethylene is not acceptable.
 - i) Steel risers shall have a minimum of three 1" long intermittent fillet welds on each side.
 - j) Steel riser height with attached runner to be sufficient to provide a minimum clearance of 2 inches between the outside of carrier pipe bells, restraints or couplings and the inside of the casing.
 - k) Manufacturers:
 - i. PSI Products, Inc., Available from GPT, Houston, TX, (713) 747-6948.
 - ii. Advance Products & Systems, Inc. (337)-233-6116
 - iii. Or approved equal.
3. Grout: Grout used for backfilling the annular space between the carrier pipe and casing shall consist of a low density cellular concrete grout (LDCC).
4. The grouting equipment shall be provided with a meter to determine the volume of grout injected. The meter shall be calibrated in cubic feet to the nearest one-tenth of a cubic foot.

308-9.11.6 Execution.

308-9.11.6.1 General.

1. Carrier pipe installation shall not begin until the following tasks have been completed:
 - a) All required submittals have been provided, reviewed, and accepted.
 - b) All casing joints are watertight and no water is entering casing from any sources.
 - c) All contact grouting is complete.
 - d) Casing alignment as-builts have been submitted and accepted by Resident Engineer.
 - e) Site safety representative has prepared a code of safe practices and an emergency plan in accordance with Cal/OSHA and other applicable requirements. Hold safety meetings and provide safety instruction for new employees as required by Cal/OSHA.
2. The carrier pipe shall be installed within the casing between the limits indicated on the Plans to the specified lines and grades, and utilizing methods which include due regard for safety of workers, adjacent structures and improvements, utilities, and the public.
3. Furnish all necessary equipment, power, water, and utilities for carrier pipe installation, insulator runner lubricant, grouting, and other associated Work required for the Contractor's methods of construction.

308-9.11.6.2 Control of Line and Grade.

1. Carrier pipe shall be installed inside the steel casing within the following tolerances:
 - a) Horizontal: +/- one (1) inch from design line
 - b) Vertical: +/- one (1) inch from design grade
2. Contractor shall check line and grade set up prior to beginning carrier pipe installation. Contractor shall perform survey checks of line-and-grade of carrier pipe during installation operations. The Contractor is fully responsible for the accuracy of the Work and the correction of it, as required.
3. Where the carrier pipe installation exceeds the specified tolerances, correct the installation, including, if necessary, redesign of the pipe or structures, subject to approval by the City.

308-9.11.6.3 Installation of Carrier Pipe.

1. Pipe Installation: Remove all loose soil from casing. Grind smooth all rough welds at casing joints. Provide casing spacers, or insulators, or other approved devices to prevent flotation, movement, or damage to the pipe during installation and grout backfill placement. Install casing isolators/spacers on the pipeline, two feet inside each end of casing. Install a minimum of two spacers per ten feet of carrier pipe section equally spaced for the length of casing. Carrier pipe shall be installed without sliding or dragging it on the ground or in the casing in a manner that could damage the pipe. Coat the casing spacer runners with a non-corrosive/environmentally safe lubricant to minimize friction when installing the carrier pipe.
2. Testing of Carrier Pipe:
 - a) Prior to filling of the annular space, pressure testing shall be performed in accordance with section 306-8.9. Any leakage found during this inspection shall be corrected.
 - b) Intermediate electrical isolation testing shall be completed prior to the filling of the annular space between the casing and carrier pipe with grout.
3. Mixing of Grout: The material shall be mixed in equipment of sufficient size to provide the desired amount of grout material for each stage in a single operation. The equipment shall be capable of mixing the grout at the required densities for the approved procedure and shall be capable of changing the densities as required by field conditions.
4. Backfill Annular Space with Grout: After the installation of the carrier pipe, the remaining space (all voids) between the casing and the carrier shall be filled with LDCC grout so all surfaces of the exterior carrier pipe wall and casing interior are in contact with the grout. Grout shall be pumped through a pipe or hose. Use grout pipes, or other appropriate materials to avoid damage to carrier pipe during grouting.
5. Injection of LDCC Grout: The grout injection pressure shall not exceed the carrier pipe manufacturer's approved recommendations or 5 psi (whichever is lower). Pumping equipment shall be of a size sufficient to inject grout at a volume, velocity, and pressure compatible with the size/volume of the annular space. Once grouting operations begin, grouting shall proceed uninterrupted, unless grouting procedures require multiple stages. Grout placements shall not be terminated until the estimated annular volume of grout has been injected.

6. Block the carrier pipe during grouting to prevent flotation during grout installation. The Contractor shall also protect and preserve the interior surfaces of the casing from damage. It is the responsibility of the Contractor to submit to the Resident Engineer sufficient information indicating all proposed equipment, materials, and the method for filling this void.
7. PVC carrier pipe shall be properly protected during grouting operations to ensure PVC pipe is not exposed to heat caused by grouting and grout curing operations. Contractor shall take such precautions as necessary including filling the PVC carrier pipe with cold water or other such methods as required to protect carrier pipe.

ADD:

308-9.12 Pilot Tube Guided Boring.

308-9.12.1 General.

1. This section includes the requirements for exploratory horizontal pilot bores that shall be installed along the proposed trenchless alignment shown on the Plans using the Pilot Tube Guided Boring Method (PTGBM).
2. The Contractor shall conduct exploratory PTGBM operations in advance of any microtunneling operations to determine if obstructions are present along the trenchless alignment that would prevent the advancement of the microtunneling operations and steel casing pipe.

308-9.12.2 Equipment.

1. Line and Grade Control System - The control system shall include but not be limited to a theodolite, LED target, camera, and monitor screen. The equipment must be capable of installing the pilot tubes to the desired line and grade with a tolerance of plus or minus one inch between the drive and receiving shafts.
2. Jacking Frame - The jacking frame shall possess adequate strength to advance the pilot tube from the drive shaft to the receiver shaft. The jacking force shall be easily regulated down to the safe working load rating of the pilot tube. The frame shall develop a uniform distribution of jacking forces on the end of the pilot tube. The auger motor shall possess adequate torque to steer the pilot tube and adequate torque and speed to effectively auger the excavated material from the face of the bore to the drive shaft.
3. Pilot Tube - The pilot tubes shall be constructed of steel in rigid but short sections to accommodate the drive and receiver shafts. The tubes shall rigidly connect to each other and the steering tip and have a clear inside

diameter large enough to adequately view the LED target. The tubes shall withstand the torque encountered in the steering process. Pilot tubes shall be no larger than 4-inches in diameter.

4. Hydraulic Power Unit - The hydraulic power unit shall rest on the surface and be connected to the jacking frame by hoses. The unit shall meet all applicable noise standards.
5. Shafts - Shafts for microtunneling operation shall be used for the exploratory PTGBM operations and all portal stabilization, water and soil control measures, and shaft seals shall be in place prior to the commencement of PTGBM operations.

308-9.12.3 Execution.

308-9.12.3.1 Installation of Pilot Tubes.

1. A rigid steel pilot tube no greater than 4-inches in diameter and assembled in segments approximately 3 feet in length shall be installed through the ground from the drive shaft to the reception shaft by earth displacement with the jacking frame. The alignment of the pilot tube shall be established with a theodolite mounted at the rear of the drive shaft and accurately set to the desired line and grade. The theodolite shall view a lighted target in the lead or steering pilot tube. A camera shall be fitted to the theodolite and shall transmit the image of the crosshair and the target onto a monitor screen to be viewed in the drive shaft by the operator. As the operator advances the pilot tube through the earth the center of the target will drift from the crosshair as a result of the biased or slanted leading tip of the pilot tube. The operator shall rotate the pilot tube as required to orient the slanted steering tip toward the crosshair and continue to advance the pilot tube until it reaches the reception shaft.
2. Pilot tubes shall be installed along the entire proposed trenchless alignment from the drive shaft to the receiving shaft in two separate locations, one running along the soffit of the proposed casing at the 12 o'clock position and one at the invert of the proposed casing at the 6 o'clock position.
3. Shaft penetrations shall include seals to prevent the loss of any soil or groundwater during pilot tube installation operations.

308-9.12.3.2 Removal of Pilot Tubes.

1. All pilot tubes shall be retrieved from either the drive or receiving shaft prior to the commencement of microtunneling operations. Removal operations shall be conducted in such a manner to ensure no loss of soil occurs during removal process.

308-11 **MEASUREMENT.** DELETE Section in its entirety.

308-12 **PAYMENT.** DELETE Section in its entirety.

ADD:

308-13 **MEASUREMENT AND PAYMENT.**

308-13.1 **Construction of Jacking Pit (Shaft 1).** Measurement and payment for the jacking pit (Shaft 1) shall be made at the lump sum price listed in the Bid Proposal. Said payment shall be considered as full compensation for furnishing the materials, tools, labor, equipment and for performing the work including but not limited to; site grading, safety fencing and signage, construction staging areas, design and construction of shaft excavation and excavation support systems, material disposal, ground improvement where necessary, protection of existing utilities, tunnel portal stabilization, removal of upper portions of shaft support, backfilling of shaft with CLSM slurry, site restoration and all other work appurtenant to shaft construction.

308-13.2 **Construction of Receiving Pit (Shaft 2).** Measurement and payment for the receiving pit (Shaft 2) shall be made at the lump sum price listed in the Bid Proposal. Said payment shall be considered as full compensation for furnishing the materials, tools, labor, equipment and for performing the work including but not limited to; site grading, safety fencing and signage, construction staging areas, design and construction of shaft excavation and excavation support systems, material disposal, ground improvement where necessary, protection of existing utilities, tunnel portal stabilization, removal of upper portions of shaft support, backfilling of shaft with CLSM slurry, site restoration and all other work appurtenant to shaft construction.

308-13.3 **Exploratory Horizontal Pilot Bores (Pilot Tube Guided Boring).** Measurement and payment for exploratory horizontal pilot bores using Pilot Tube Guided Boring shall be made per linear foot between the limits of Shaft 1 and Shaft 2 listed in the Bid Proposal. Said payment shall be considered as full compensation for furnishing the materials, tools, labor, equipment and for performing the work including but not limited to; the installation and removal of pilot tubes, submission of a report documenting PTGB operations and all other work appurtenant to exploratory horizontal pilot bores within the limits shown on the Plans and specified herein.

308-13.4 **Steel Casing Installation via Microtunneling.** Measurement and payment for installation of steel casing pipe via microtunneling shall be made per linear foot between the limits of Shaft 1 and Shaft 2 listed in the Bid Proposal. Said payment shall be considered as full compensation for furnishing the materials, tools, labor, equipment and for performing the work including but not limited to; grouting and

lubricants, furnishing and installing steel casing pipe via microtunneling, excavating and disposal of materials encountered by installation of the casing pipe, and all other work appurtenant to installing the steel casing pipe via microtunneling within the limits shown on the Plans and specified herein.

308-13.5 Installation of Carrier Pipe within Steel Casing. Measurement and payment for installation of the carrier pipe within the steel casing pipe shall be made per linear foot listed in the Bid Proposal. Said payment shall be considered as full compensation for furnishing the materials, tools, labor, equipment and for performing the work including but not limited to; installation of the carrier pipe, installation of fittings, installation of pipe restraints, installation of casing spacers, grouting of annular space between casing and carrier pipe and all other work appurtenant to installation of the carrier pipe including the 90 degree fitting located near the bottom of Shaft 1 at Station 2+82 to the 90 degree fitting located near the bottom of Shaft 2 at Station 6+63 as shown on the Plans and specified herein.

308-13.6 Installation of 16-inch PVC Pipe within Shaft 1 and Shaft 2. Measurement and payment for installation of the 16-inch PVC pipe within Shaft 1 and Shaft 2 shall be made per linear foot listed in the Bid Proposal. Said payment shall be considered as full compensation for furnishing the materials, tools, labor, equipment and for performing the work including but not limited to; installation of the 16-inch PVC pipe, installation of fittings, installation of pipe restraints, and all other work appurtenant to installation of the vertical sections of 16-inch PVC pipe within Shafts 1 and 2 including the 90 degree vertical bend located near the top of each shaft as shown on the Plans and specified herein.

308-13.7 Microtunneling Obstruction Allowance. An allowance has been included should the microtunneling operations encounter an object or condition that impedes the forward progress of the MTBM machine. Allowance shall only be made available if authorized in writing by the City. The allowance provided shall be considered as full compensation for the development of a work plan for MTBM retrieval by pull back/reversal methods as well as for determining a new un-obstructed alignment, and proceeding with microtunneling operations along the new un-obstructed alignment. The allowance may be reduced or increased at the discretion of the City without impact to other Bid items or adjustment in compensation to the Contractor.

SECTION 600 – ACCESS

600-3.1 ADA Requirements. To the “WHITEBOOK”, ADD the following:

You are responsible for maintaining adequate Accessible Parking spaces during construction within the temporary construction areas in accordance with Reference Standards. Accessible Parking shall be restored in original location upon completion.

600-5 Payment. To the “WHITEBOOK”, ADD the following:

Payment for Vehicular and Pedestrian Access within the temporary construction areas shall include all temporary markings, striping, signage, and removal when required shall be paid for under the Bid Item for "Vehicular and Pedestrian Access". Permanent Accessible Parking markings and signage shall be paid for under the Bid Item for "Striping".

SECTION 901 - INSTALLATION AND CONNECTION

901-2.5 **Payment.** To the "WHITEBOOK", item 3, DELETE in its entirety and SUBSTITUTE with the following:

3. Traffic control, saw cutting the trench area, trench caps, and other spot repairs in the vicinity of the disturbed area at each restored connection shall be included in the square foot Bid item for "Pavement Restoration for Final Connection". Asphalt overlay and slurry seal Work shall be paid for under separate Bid items.

EQUAL OPPORTUNITY CONTRACTING PROGRAM (EOCP) SECTION A - GENERAL REQUIREMENTS

4.1 **Nondiscrimination in Contracting Ordinance.** To the "WHITEBOOK", subsection 4.1.1, paragraph (2), sentence (1), DELETE in its entirety and SUBSTITUTE with the following:

You shall not discriminate on the basis of race, gender, gender expression, gender identity, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, or suppliers.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

SUPPLEMENTARY SPECIAL PROVISIONS
APPENDICES

APPENDIX A

ADDENDUM TO A MITIGATED NEGATIVE DECLARATION (AMND)



THE CITY OF SAN DIEGO

ADDENDUM TO A MITIGATED NEGATIVE DECLARATION

Project No. 492114
Addendum to MND No. 255100
SCH No. 2011091045

SUBJECT: Water Group 939

I. PROJECT DESCRIPTION

Water Group 939 is located within the Torrey Pines and University Community Planning Areas of Council District 1 and affects the following roadways/public right-of-way with improvements: Roselle Street (Southeast of Dunhill), Dunhill Street (West from Roselle Street to Flintkoke Avenue), Flinkoke Avenue (Northwest from Dunhill Street to an unnamed section of Carmel Mountain Road, then northeasterly to the intersection of Carmel Mountain Road and Sorrento Valley Blvd.). The project will be located underneath Carroll Creek/Soledad Canyon (Tributary of Los Penasquitos Creek) at three crossings (occurring between Dunhill Street and Carmel Mountain Road). Two of these crossings are existing lines that are proposed be slurry sealed and capped and one crossing (between Roselle Street and Sorrento Valley Blvd.) will be a new line utilizing horizontal directional drilling methodology. Additionally, one isolated line located at Torrey Pines Road (northerly of Torrey Pines Place will be capped and sealed).

Overall, the project encompasses approximately 6,846 linear feet (1.31 miles) of water mains. Approximately 3,036 linear feet (0.58 miles) are proposed to utilize a "replacement in place" technique. These pipelines will replace existing 4 and 12 inch lines with new 8 and 16 inch lines. Additionally, approximately 3,810 linear feet (0.73 miles) of new 8 and 16 inch water mains are proposed as well.

The proposed depth of all water mains would be approximately 4 to 5 feet, below existing grade and within trenching widths, ranging from 3 to 5 feet in diameter. One exception to this is the placement of a new segment underneath Carroll Creek/Soledad Canyon (Tributary of Los Penasquitos Creek), which will have a maximum depth of 25 feet below grade. This segment of pipeline will utilize horizontal directional drilling and receiving pits, which will be located within existing developed parking lot areas.

With regards to line abandonment, approximately 5,130 linear feet (0.97 miles) are proposed to be abandoned in place where lines would be injected with slurry seal and sealed utilizing standard City

practices. Related improvements includes potholing, replacement of water services lines, new curb ramps, fire hydrants, street resurfacing, traffic control, and Best Management Practices (BMP's).

Staging for construction will be limited to areas with pavement where no sensitive resources exist. These locations will be verified by a City representative prior to the start of construction.

Furthermore, portions of the project alignment will occur within identified floodplains and adjacent to the City's Multi-Habitat Planning Area (MHPA). All work will occur either within previously disturbed areas or areas below grade. As such, there would be no direct impacts to sensitive biological resources.

II. ENVIRONMENTAL SETTING

The project would occur within the Torrey Pines and University Community Planning Areas of Council District 1, contained within the developed public right-of-way or areas below grade. As stated prior, portions of the project alignment will occur within identified floodplains and adjacent to the City's Multi-Habitat Planning Area (MHPA). Portion of the project that interface with the MHPA are designed in manner as to avoid any direct impacts and is consistent Section 15162 of the State CEQA Guidelines. Surrounding land uses include light-industrial, business-park, and park space (open-space).

III. PROJECT BACKGROUND

A Citywide Pipelines Projects Mitigated Negative Declaration (MND) No. 255100 was prepared by the City of San Diego's Development Services Department (DSD) and was certified by the City Council on November 30, 2011 (Resolution No. 307122). The Citywide Pipelines Projects MND provides for the inclusion of subsequent pipeline projects that are located within the public right-of-way and would not result in any direct impacts to sensitive biological resources.

Therefore, in accordance with Section 15164 of the State CEQA Guidelines this addendum has been prepared. Additionally, in accordance with requirements in Section 128.0306 of the San Diego Municipal Code, and State CEQA Guidelines Section 15064(c), no public review period is required for this addendum.

Archaeological Resources

The Citywide Pipelines Project MND No. 255100 concluded that pipeline projects located within the public right-of-way and city easements could result in significant environmental impacts relating to archaeological resources, which included mitigation to reduce impacts to archaeological resources to below a level of significance. The Water Group 939 project area includes the excavation of previously undisturbed soil which has the potential to contain sensitive archaeological resources.

To reduce potential archaeological resource impacts to below a level of significance, excavation within previously undisturbed soil, for either new trench alignments and/or for replacement of

pipelines within the same trench alignment occurring at a deeper depth than the previously existing pipeline, would be monitored by a qualified archaeologist or archaeological monitor and Native American monitor. Any significant archaeological resources encountered would be recovered and curated in accordance with the mitigation monitoring and Reporting Program (MMRP) detailed in Section VI.

Biological Resources

The scope of the project will be limited to areas that have been previously disturbed, graded and or paved. As such, it has been determined that there would be no direct impacts to biological resources. All issues concerning biological resources will be addressed through Biological Resource Protection During Construction and the Multi Habitat Planning Area (MHPA) protocol as detailed in Section VI.

Land Use (MHPA Adjacency)

Portions of the project that interface with the City's Multi Habitat Planning Area (MHPA) involving trenching activities that are either within previously disturbed areas or new facilities that would be placed below grade in a manner which was determined would not directly affect the MHPA. It was determined the project is subject to MHPA land use adjacency mitigation requirements inclusive of mitigation for avian protection specified in accordance with the mitigation monitoring and Reporting Program (MMRP) detailed in Section VI.

IV. ENVIRONMENTAL DETERMINATION

The City previously prepared and certified the **Mitigated Negative Declaration (No. 255100 / SCH No. 2011091045)**. Based on all available information in light of the entire record, the analysis in this Addendum, and pursuant to Section 15162 of the State CEQA Guidelines, the City has determined the following:

- There are no substantial changes proposed in the project which will require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes have not occurred with respect to the circumstances under which the project is undertaken which will require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental document was certified as complete or was adopted, shows any of the

following:

- a. The project will have one or more significant effects not discussed in the previous environmental document;
- b. Significant effects previously examined will be substantially more severe than shown in the previous environmental document;
- c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
- d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous environmental would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Based upon a review of the current project, none of the situations described in Sections 15162 and 15164 of the State CEQA Guidelines apply. No changes in circumstances have occurred, and no new information of substantial importance has manifested, which would result in new significant or substantially increased adverse impacts as a result of the project. Therefore, this Addendum has been prepared in accordance with Section 15164 of the CEQA State Guidelines. Public review of this Addendum is not required per CEQA.

V. IMPACT ANALYSIS

The subsequent impact analysis is to demonstrate that environmental impacts associated with the project are consistent with the previously certified MND. The following includes the project-specific environmental review pursuant to the CEQA. The analysis in this document evaluates the adequacy of the MND relative to the project.

Archaeological Resources

The Citywide Pipelines Project MND No. 255100 concluded that pipeline projects located within the public right-of-way and city easements could result in significant environmental impacts relating to archaeological resources, which included mitigation to reduce impacts to archaeological resources to below a level of significance. The Water Group 939 project area would include excavation of previously undisturbed soil which has the potential to contain sensitive archaeological resources.

To reduce potential archaeological resource impacts to below a level of significance, excavation within previously undisturbed soil, for either new trench alignments and/or for replacement of pipelines within the same trench alignment occurring at a deeper depth than the previously existing pipeline, would be monitored by a qualified archaeologist or archaeological monitor and Native American monitor. Any significant archaeological resources encountered would be recovered and

curated in accordance with the mitigation monitoring and Reporting Program (MMRP) detailed in Section VI.

Biological Resources

The scope of the project will be limited to areas that have been previously disturbed, graded and or paved. As such, it has been determined that there would be no direct impacts to biological resources. All protocol concerning biological resources will be addressed through Biological Resource Protection during Construction and the Multi Habitat Planning Area (MHPA) language as detailed in Section VI.

Land Use (MHPA Adjacency)

Portions of the project that interface with the City's Multi Habitat Planning Area (MHPA) involving trenching activities that are either within previously disturbed areas or new facilities that would be placed below grade in a manner which was determined would not directly affect the MHPA. It was determined the project is subject to the MHPA land use adjacency mitigation requirements inclusive of mitigation for avian protection specified in accordance with the mitigation monitoring and Reporting Program (MMRP) detailed in Section VI.

Based on the foregoing analysis and information, there is no evidence that the project would require a major change to the MND. The project would not result in any new significant impact, nor would a substantial increase in the severity of impacts from that described in the MND result.

VI. MITIGATION, MONITORING AND REPORTING PROGRAM

HISTORICAL RESOURCES (ARCHAEOLOGY)

I. Prior to Permit Issuance or Bid Opening/Bid Award

A. Entitlements Plan Check

1. Prior to permit issuance or Bid Opening/Bid Award, whichever is applicable, the Assistant Deputy Director (ADD) Environmental designee shall verify that the requirements for Archaeological Monitoring and Native American monitoring have been noted on the applicable construction documents through the plan check process.

B. Letters of Qualification have been submitted to ADD

1. Prior to Bid Award, the applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the project and the names of all persons involved in the archaeological monitoring program, as defined in the City of San Diego Historical Resources Guidelines (HRG). If

applicable, individuals involved in the archaeological monitoring program must have completed the 40-hour HAZWOPER training with certification documentation.

2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the archaeological monitoring of the project meet the qualifications established in the HRG.
3. Prior to the start of work, the applicant must obtain written approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search

1. The PI shall provide verification to MMC that a site specific records search (1/4 mile radius) has been completed. Verification includes, but is not limited to a copy of a confirmation letter from South Coastal Information Center, or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.
3. The PI may submit a detailed letter to MMC requesting a reduction to the ¼ mile radius.

B. PI Shall Attend Precon Meetings

1. Prior to beginning any work that requires monitoring; the Applicant shall arrange a Precon Meeting that shall include the PI, Native American consultant/monitor (where Native American resources may be impacted), Construction Manager (CM) and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified Archaeologist and Native American Monitor shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Archaeological Monitoring program with the Construction Manager and/or Grading Contractor.
 - a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.
2. Acknowledgement of Responsibility for Curation (CIP or Other Public Projects)
The applicant shall submit a letter to MMC acknowledging their responsibility for the cost of curation associated with all phases of the archaeological monitoring program.

3. Identify Areas to be Monitored

- a. Prior to the start of any work that requires monitoring, the PI shall submit an Archaeological Monitoring Exhibit (AME) (with verification that the AME has been reviewed and approved by the Native American consultant/monitor when Native American resources may be impacted) based on the appropriate construction documents (reduced to 11x17) to MMC identifying the areas to be monitored including the delineation of grading/excavation limits.
- b. The AME shall be based on the results of a site specific records search as well as information regarding the age of existing pipelines, laterals and associated appurtenances and/or any known soil conditions (native or formation).
- c. MMC shall notify the PI that the AME has been approved.

4. When Monitoring Will Occur

- a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
- b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction documents which indicate conditions such as age of existing pipe to be replaced, depth of excavation and/or site graded to bedrock, etc., which may reduce or increase the potential for resources to be present.

5. Approval of AME and Construction Schedule

After approval of the AME by MMC, the PI shall submit to MMC written authorization of the AME and Construction Schedule from the CM.

III. During Construction

A. Monitor Shall be Present During Grading/Excavation/Trenching

1. The Archaeological Monitor shall be present full-time during all soil disturbing and grading/excavation/trenching activities which could result in impacts to archaeological resources as identified on the AME. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the AME.**

2. The Native American consultant/monitor shall determine the extent of their presence during soil disturbing and grading/excavation/trenching activities based on the AME and provide that information to the PI and MMC. If prehistoric resources are encountered during the Native American consultant/monitor's absence, work shall stop and the Discovery Notification Process detailed in Section III.B-C and IV.A-D shall commence.
3. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as modern disturbance post-dating the previous grading/trenching activities, presence of fossil formations, or when native soils are encountered that may reduce or increase the potential for resources to be present.
4. The archaeological and Native American consultant/monitor shall document field activity via the Consultant Site Visit Record (CSVSR). The CSVSR's shall be faxed by the CM to the RE the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion**), and in the case of ANY discoveries. The RE shall forward copies to MMC.

B. Discovery Notification Process

1. In the event of a discovery, the Archaeological Monitor shall direct the contractor to temporarily divert all soil disturbing activities, including but not limited to digging, trenching, excavating or grading activities in the area of discovery and in the area reasonably suspected to overlay adjacent resources and immediately notify the RE or BI, as appropriate.
2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.
4. No soil shall be exported off-site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered.

C. Determination of Significance

1. The PI and Native American consultant/monitor, where Native American resources are discovered shall evaluate the significance of the resource. If Human Remains are involved, follow protocol in Section IV below.

- a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required.
- b. If the resource is significant, the PI shall submit an Archaeological Data Recovery Program (ADRP) and obtain written approval of the program from MMC, CM and RE. ADRP and any mitigation must be approved by MMC, RE and/or CM before ground disturbing activities in the area of discovery will be allowed to resume. **Note: If a unique archaeological site is also an historical resource as defined in CEQA Section 15064.5, then the limits on the amount(s) that a project applicant may be required to pay to cover mitigation costs as indicated in CEQA Section 21083.2 shall not apply.**
 - (1). Note: For pipeline trenching and other linear projects in the public Right-of-Way, the PI shall implement the Discovery Process for Pipeline Trenching projects identified below under "D."
- c. If the resource is not significant, the PI shall submit a letter to MMC indicating that artifacts will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that that no further work is required.
 - (1). Note: For Pipeline Trenching and other linear projects in the public Right-of-Way, if the deposit is limited in size, both in length and depth; the information value is limited and is not associated with any other resource; and there are no unique features/artifacts associated with the deposit, the discovery should be considered not significant.
 - (2). Note, for Pipeline Trenching and other linear projects in the public Right-of-Way, if significance cannot be determined, the Final Monitoring Report and Site Record (DPR Form 523A/B) shall identify the discovery as Potentially Significant.

D. Discovery Process for Significant Resources - Pipeline Trenching and other Linear Projects in the Public Right-of-Way

The following procedure constitutes adequate mitigation of a significant discovery encountered during pipeline trenching activities or for other linear project types within the Public Right-of-Way including but not limited to excavation for jacking pits, receiving pits, laterals, and manholes to reduce impacts to below a level of significance:

- 1. Procedures for documentation, curation and reporting
 - a. One hundred percent of the artifacts within the trench alignment and width shall be documented in-situ, to include photographic records, plan view of the trench

and profiles of side walls, recovered, photographed after cleaning and analyzed and curated. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact.

- b. The PI shall prepare a Draft Monitoring Report and submit to MMC via the RE as indicated in Section VI-A.
- c. The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) the resource(s) encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines. The DPR forms shall be submitted to the South Coastal Information Center for either a Primary Record or SDI Number and included in the Final Monitoring Report.
- d. The Final Monitoring Report shall include a recommendation for monitoring of any future work in the vicinity of the resource.

IV. Discovery of Human Remains

If human remains are discovered, work shall halt in that area and no soil shall be exported off-site until a determination can be made regarding the provenance of the human remains; and the following procedures as set forth in CEQA Section 15064.5(e), the California Public Resources Code (Sec. 5097.98) and State Health and Safety Code (Sec. 7050.5) shall be undertaken:

A. Notification

1. Archaeological Monitor shall notify the RE or BI as appropriate, MMC, and the PI, if the Monitor is not qualified as a PI. MMC will notify the appropriate Senior Planner in the Environmental Analysis Section (EAS) of the Development Services Department to assist with the discovery notification process.
2. The PI shall notify the Medical Examiner after consultation with the RE, either in person or via telephone.

B. Isolate discovery site

1. Work shall be directed away from the location of the discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can be made by the Medical Examiner in consultation with the PI concerning the provenience of the remains.
2. The Medical Examiner, in consultation with the PI, will determine the need for a field examination to determine the provenience.

3. If a field examination is not warranted, the Medical Examiner will determine with input from the PI, if the remains are or are most likely to be of Native American origin.
- C. If Human Remains **ARE** determined to be Native American
1. The Medical Examiner will notify the Native American Heritage Commission (NAHC) within 24 hours. By law, **ONLY** the Medical Examiner can make this call.
 2. NAHC will immediately identify the person or persons determined to be the Most Likely Descendent (MLD) and provide contact information.
 3. The MLD will contact the PI within 24 hours or sooner after the Medical Examiner has completed coordination, to begin the consultation process in accordance with CEQA Section 15064.5(e), the California Public Resources and Health & Safety Codes.
 4. The MLD will have 48 hours to make recommendations to the property owner or representative, for the treatment or disposition with proper dignity, of the human remains and associated grave goods.
 5. Disposition of Native American Human Remains will be determined between the MLD and the PI, and, if:
 - a. The NAHC is unable to identify the MLD, OR the MLD failed to make a recommendation within 48 hours after being notified by the Commission, OR;
 - b. The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097.94 (k) by the NAHC fails to provide measures acceptable to the landowner, THEN
 - c. To protect these sites, the landowner shall do one or more of the following:
 - (1) Record the site with the NAHC;
 - (2) Record an open space or conservation easement; or
 - (3) Record a document with the County.
 - d. Upon the discovery of multiple Native American human remains during a ground disturbing land development activity, the landowner may agree that additional conferral with descendants is necessary to consider culturally appropriate treatment of multiple Native American human remains. Culturally appropriate treatment of such a discovery may be ascertained from review of the site

utilizing cultural and archaeological standards. Where the parties are unable to agree on the appropriate treatment measures the human remains and items associated and buried with Native American human remains shall be reinterred with appropriate dignity, pursuant to Section 5.c., above.

D. If Human Remains are **NOT** Native American

1. The PI shall contact the Medical Examiner and notify them of the historic era context of the burial.
2. The Medical Examiner will determine the appropriate course of action with the PI and City staff (PRC 5097.98).
3. If the remains are of historic origin, they shall be appropriately removed and conveyed to the San Diego Museum of Man for analysis. The decision for internment of the human remains shall be made in consultation with MMC, EAS, the applicant/landowner, any known descendant group, and the San Diego Museum of Man.

V. Night and/or Weekend Work

A. If night and/or weekend work is included in the contract

1. When night and/or weekend work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
2. The following procedures shall be followed.

a. No Discoveries

In the event that no discoveries were encountered during night and/or weekend work, the PI shall record the information on the CSV and submit to MMC via fax by 8AM of the next business day.

b. Discoveries

All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction, and IV - Discovery of Human Remains. Discovery of human remains shall always be treated as a significant discovery.

c. Potentially Significant Discoveries

If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction and IV-Discovery of Human Remains shall be followed.

- d. The PI shall immediately contact the RE and MMC, or by 8AM of the next business day to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.
- B. If night and/or weekend work becomes necessary during the course of construction
1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
 2. The RE, or BI, as appropriate, shall notify MMC immediately.
- C. All other procedures described above shall apply, as appropriate.

VI. Post Construction

- A. Submittal of Draft Monitoring Report
1. The PI shall submit two copies of the Draft Monitoring Report (even if negative), prepared in accordance with the Historical Resources Guidelines (Appendix C/D) which describes the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program (with appropriate graphics) to MMC via the RE for review and approval within 90 days following the completion of monitoring. **It should be noted that if the PI is unable to submit the Draft Monitoring Report within the allotted 90-day timeframe as a result of delays with analysis, special study results or other complex issues, a schedule shall be submitted to MMC establishing agreed due dates and the provision for submittal of monthly status reports until this measure can be met.**
 - a. For significant archaeological resources encountered during monitoring, the Archaeological Data Recovery Program or Pipeline Trenching Discovery Process shall be included in the Draft Monitoring Report.
 - b. Recording Sites with State of California Department of Parks and Recreation
The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) any significant or potentially significant resources encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines, and submittal of such forms to the South Coastal Information Center with the Final Monitoring Report.

2. MMC shall return the Draft Monitoring Report to the PI via the RE for revision or, for preparation of the Final Report.
 3. The PI shall submit revised Draft Monitoring Report to MMC via the RE for approval.
 4. MMC shall provide written verification to the PI of the approved report.
 5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.
- B. Handling of Artifacts
1. The PI shall be responsible for ensuring that all cultural remains collected are cleaned and catalogued.
 2. The PI shall be responsible for ensuring that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate.
- C. Curation of artifacts: Accession Agreement and Acceptance Verification
1. The PI shall be responsible for ensuring that all artifacts associated with the survey, testing and/or data recovery for this project are permanently curated with an appropriate institution. This shall be completed in consultation with MMC and the Native American representative, as applicable.
 2. When applicable to the situation, the PI shall include written verification from the Native American consultant/monitor indicating that Native American resources were treated in accordance with state law and/or applicable agreements. If the resources were reinterred, verification shall be provided to show what protective measures were taken to ensure no further disturbance occurs in accordance with Section IV – Discovery of Human Remains, Subsection C.
 3. The PI shall submit the Accession Agreement and catalogue record(s) to the RE or BI, as appropriate for donor signature with a copy submitted to MMC.
 4. The RE or BI, as appropriate shall obtain signature on the Accession Agreement and shall return to PI with copy submitted to MMC.
 5. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.
- D. Final Monitoring Report(s)

1. The PI shall submit one copy of the approved Final Monitoring Report to the RE or BI as appropriate, and one copy to MMC (even if negative), within 90 days after notification from MMC of the approved report.
2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

BIOLOGICAL RESOURCE PROTECTION DURING CONSTRUCTION

In the event that unanticipated biological impacts occur, the impacts shall be reported to DSD/MSCP staff and mitigated as appropriate in accordance with City Biology Guidelines, ESL and MSCP, State CEQA, and other applicable local, state and federal law.

MSCP SUBAREA PLAN -LAND USE ADJACENCY GUIDELINES – AUGUST 2013

Prior to issuance of any construction permit or notice to proceed, DSD/ LDR, and/or MSCP staff shall verify the Applicant has accurately represented the project's design in or on the Construction Documents (CD's/CD's consist of Construction Plan Sets for Private Projects and Contract Specifications for Public Projects) are in conformance with the associated discretionary permit conditions and Exhibit "A", and also the City's Multi-Species Conservation Program (MSCP) Multi-Habitat Planning Area (MHPA) Land Use Adjacency Guidelines. The applicant shall provide an implementing plan and include references on/in CD's of the following:

- A. Grading/Land Development/MHPA Boundaries - MHPA boundaries on-site and adjacent properties shall be delineated on the CDs. DSD Planning and/or MSCP staff shall ensure that all grading is included within the development footprint, specifically manufactured slopes, disturbance, and development within or adjacent to the MHPA. For projects within or adjacent to the MHPA, all manufactured slopes associated with site development shall be included within the development footprint.
- B. Drainage - All new and proposed parking lots and developed areas in and adjacent to the MHPA shall be designed so they do not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials prior to release by incorporating the use of filtration devices, planted swales and/or planted detention/desiltation basins, or other approved permanent methods that are designed to minimize negative impacts, such as excessive water and toxins into the ecosystems of the MHPA.
- C. Toxics/Project Staging Areas/Equipment Storage - Projects that use chemicals or generate by-products such as pesticides, herbicides, and animal waste, and other substances that are potentially toxic or impactful to native habitats/flora/fauna (including water) shall incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. No trash, oil, parking, or other construction/development-related

material/activities shall be allowed outside any approved construction limits. Where applicable, this requirement shall be incorporated into leases on publicly-owned property when applications for renewal occur. Provide a note in/on the CD's that states: "All construction related activity that may have potential for leakage or intrusion shall be monitored by the Qualified Biologist/Owners Representative or Resident Engineer to ensure there is no impact to the MHPA."

- D. Lighting - Lighting within or adjacent to the MHPA shall be directed away/shielded from the MHPA and be subject to City Outdoor Lighting Regulations per LDC Section 142.0740.
- E. Barriers - New development within or adjacent to the MHPA shall be required to provide barriers (e.g., non-invasive vegetation; rocks/boulders; 6-foot high, vinyl-coated chain link or equivalent fences/walls; and/or signage) along the MHPA boundaries to direct public access to appropriate locations, reduce domestic animal predation, protect wildlife in the preserve, and provide adequate noise reduction where needed.
- F. Invasives- No invasive non-native plant species shall be introduced into areas within or adjacent to the MHPA.
- G. Brush Management - New development adjacent to the MHPA shall be set back from the MHPA to provide required Brush Management Zone 1 area on the building pad outside of the MHPA. Zone 2 may be located within the MHPA provided the Zone 2 management will be the responsibility of an HOA or other private entity except where narrow wildlife corridors require it to be located outside of the MHPA. Brush management zones will not be greater in size than currently required by the City's regulations, the amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done and vegetation clearing shall be prohibited within native coastal sage scrub and chaparral habitats from March 1-August 15 except where the City ADD/MMC has documented the thinning would be consistent with the City's MSCP Subarea Plan. Existing and approved projects are subject to current requirements of Municipal Code Section 142.0412.
- H. Noise - Due to the site's location adjacent to or within the MHPA where the Qualified Biologist has identified potential nesting habitat for listed avian species, construction noise that exceeds the maximum levels allowed shall be avoided during the breeding seasons for the following: Ridgeway Rail (3/1-7/31); Belding's Savannah Sparrow (4/1-7/31); California Gnatcatcher(3/1-8/15); Least Bell's vireo (3/15-9/15); and Southwestern Willow Flycatcher (5/1-8/30) (select only the species that apply). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys shall be required in order to determine species presence/absence. If protocol surveys are not conducted in suitable habitat during the breeding season for the aforementioned listed species, presence shall be assumed with implementation of noise attenuation and biological monitoring.

When applicable (i.e., habitat is occupied or if presence of the covered species is assumed), adequate noise reduction measures shall be incorporated as follows:

GENERAL NOISE - BIRDS

To cover all potentially sensitive bird species in the area, if work is to be performed from Feb. 1- Sept 15 where the construction noise would be greater than 60 dB at the nearest native upland or wetland habitat boundary, then presence should be assumed and that work should be avoided until after the breeding season or noise barriers should be erected outside the habitat so that noise impacts are reduced to below 60 dB during construction.

COASTAL CALIFORNIA GNATCATCHER (Federally Threatened)

1. Prior to the preconstruction meeting, the City Manager (or appointed designee) shall verify that the Multi-Habitat Planning Area (MHPA) boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 1 AND AUGUST 15, THE BREEDING SEASON OF THE COASTAL CALIFORNIA GNATCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE HABITAT AREAS WITHIN THE MHPA THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE COASTAL CALIFORNIA GNATCATCHER. SURVEYS FOR THE COASTAL CALIFORNIA GNATCATCHER SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF GNATCATCHERS ARE PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:
 - I. BETWEEN MARCH 1 AND AUGUST 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED GNATCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND
 - II. BETWEEN MARCH 1 AND AUGUST 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED GNATCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL

EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

- III. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE COASTAL CALIFORNIA GNATCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (AUGUST 16).

LEAST BELL'S VIREO (State Endangered/Federally Endangered)

2. Prior to the issuance of any grading permit (FOR PUBLIC UTILITY PROJECTS: prior to the preconstruction meeting), the City Manager (or appointed designee) shall verify that the following project requirements regarding the least Bell's vireo are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 15 AND SEPTEMBER 15, THE BREEDING SEASON OF THE LEAST BELL'S VIREO, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE LEAST BELL'S VIREO. SURVEYS FOR THE THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF THE LEAST BELL'S VIREO IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:
 - I. BETWEEN MARCH 15 AND SEPTEMBER 15, NO CLEARING, GRUBBING, OR

GRADING OF OCCUPIED LEAST BELL'S VIREO HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

- II. BETWEEN MARCH 15 AND SEPTEMBER 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED LEAST BELL'S VIREO OR HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF ANY OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR
- III. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE LEAST BELL'S VIREO. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 16).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited

to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF LEAST BELL'S VIREO ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MARCH 15 AND SEPTEMBER 15 AS FOLLOWS:
 - I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR LEAST BELL'S VIREO TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

SOUTHWESTERN WILLOW FLYCATCHER (Federally Endangered)

- 3. Prior to the issuance of any grading permit (FOR PUBLIC UTILITY PROJECTS: prior to the preconstruction meeting), the City Manager (or appointed designee) shall verify that the following project requirements regarding the southwestern willow flycatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MAY 1 AND SEPTEMBER 1, THE BREEDING SEASON OF THE SOUTHWESTERN WILLOW FLYCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE SOUTHWESTERN WILLOW FLYCATCHER. SURVEYS FOR THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF THE SOUTHWESTERN WILLOW FLYCATCHER IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:
 - IV. BETWEEN MAY 1 AND SEPTEMBER 1, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

- V. BETWEEN MAY 1 AND SEPTEMBER 1, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR
- VI. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE SOUTHWESTERN WILLOW FLYCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 1).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF SOUTHWESTERN WILLOW FLYCATCHER ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MAY 1 AND SEPTEMBER 1 AS FOLLOWS:
- I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR SOUTHWESTERN WILLOW FLYCATCHER TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

The above Mitigation Monitoring and Reporting Program will require additional fees and/or deposits to be collected prior to the issuance of building permits, certificates or occupancy and/or final maps to ensure the successful completion of the monitoring program.

VII. IMPACT SIGNIFICANCE

This Addendum also identifies that all significant project impacts would be mitigated to below a level of significance, consistent with the previously certified MND.

VIII. CERTIFICATION

Copies of the addendum, the final MND, **the Mitigation Monitoring and Reporting Program** and associated project-specific technical appendices, if any, may be reviewed in the office of the Development Services Department, or purchased for the cost of reproduction.



Mark Brunette, Senior Planner
Development Services Department


Date of Final Report

Analyst: Chris Tracy, AICP, Associate Planner

Attachments:

- Figure 1: Location Map
- Mitigated Negative Declaration No. 255100/SCH No. 2011091045
- Biological Resources Memo

The Addendum to Mitigated Negative Declaration No. 255100 was not circulated for public review pursuant to San Diego Municipal Code (SDMC) Chapter 6, Article 9, Paragraph 69.0211 (Addenda to Environmental Reports). The final Addendum was distributed to the following City of San Diego staff members for informational purposes in accordance with CEQA Section 15164.

DISTRIBUTION:

City of San Diego

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MMC

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WATER GROUP 939 (ORTHO MAP/FLOODPL)

SENIOR ENGINEER
SHEILA BOSE
619-533-4698

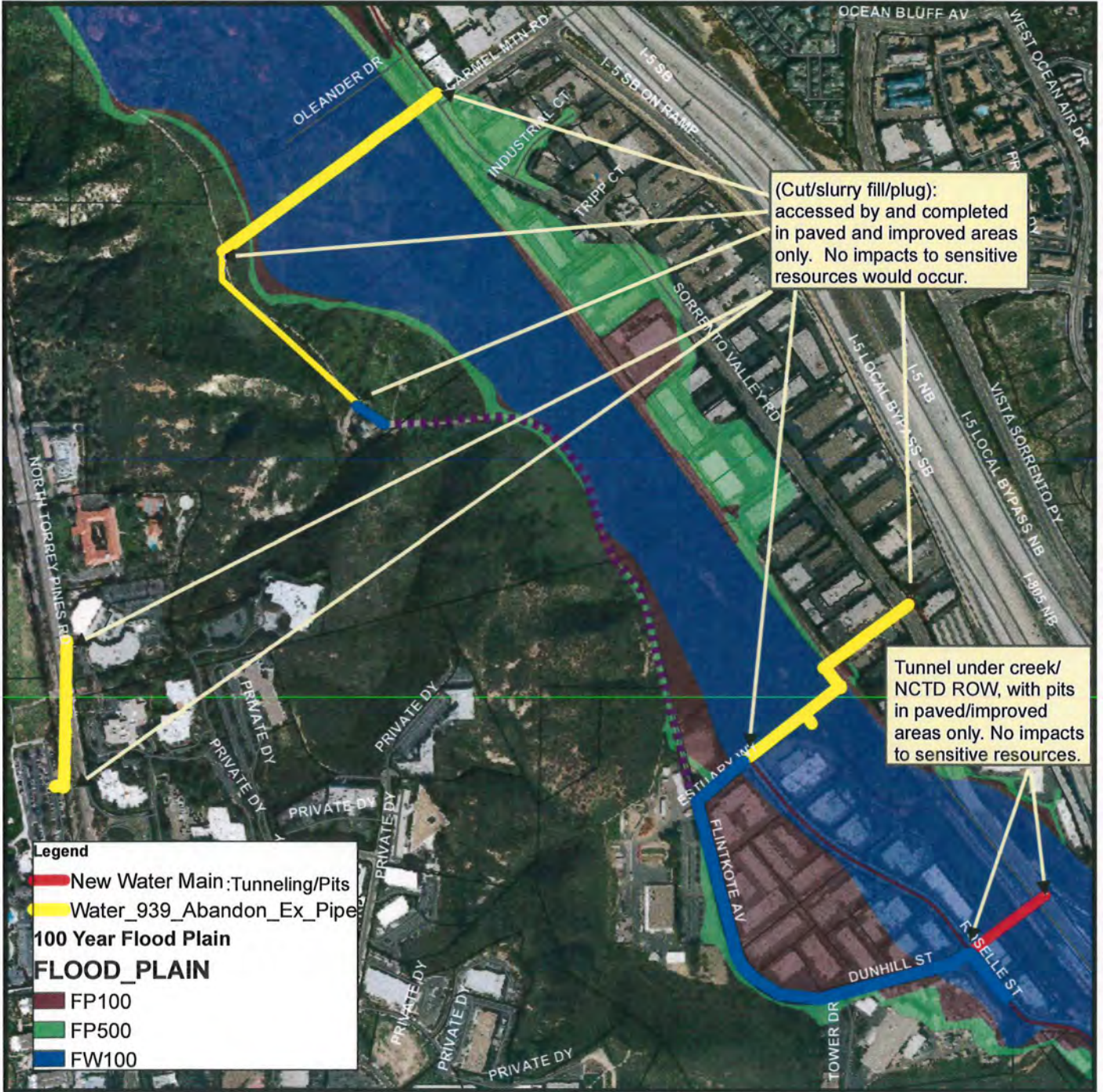
PROJECT MANAGER
CASEY CROWN
619-533-5485

PROJECT ENGINEER
ELIZABETH DUNN
619-533-7461

CONSTRUCTION PROJECT
INFORMATION LINE
619-533-4207



Division Name - If Needed



(Cut/slurry fill/plug):
accessed by and completed
in paved and improved areas
only. No impacts to sensitive
resources would occur.

Tunnel under creek/
NCTD ROW, with pits
in paved/improved
areas only. No impacts
to sensitive resources.

Legend

- New Water Main :Tunneling/Pits
- Water_939_Abandon_Ex_Pipe

100 Year Flood Plain

FLOOD_PLAIN

- FP100
- FP500
- FW100

- Replace in place Water lines.
- New Trench in existing gated dirt access/roadway within right of way easement only.

*Note: All abandonments would occur in place with access on the developed right of way only in order to cut, slurry and plug the line. No easement vacations proposed due to current existing parallel lines, or future use by the Public Utilities Department.

*Note: Water Projects pipe installed trenches 3-5' deep, 3-5' wide.



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ENTITLEMENTS DIVISION
(619) 446-5460

MITIGATED NEGATIVE DECLARATION

Project No. 255100
SCH No. 2011091045

SUBJECT: Citywide Pipeline Projects: COUNCIL APPROVAL to allow for the replacement, rehabilitation, relocation, point repair, new trenching, trenchless construction, and abandonment of water and/or sewer pipeline alignments and associated improvements such as curb ramps, sewer lateral connections, water service connections, manholes, new pavement/slurry, the removal and/or replacement of street trees and the removal and/or replacement of street lights. This environmental document covers the analysis for ~~five~~ four (4) near-term pipeline projects (Harbor Drive Pipeline, Water Group 949, ~~Sewer Group 787~~, Water Group 914, and Sewer/Water Group 732), as well as any subsequent future pipeline projects. The construction footprint for a typical pipeline project, including staging areas and other areas (such as access) would be located within the City of San Diego Public Right-of-Way (PROW) and/or within public easements and may include planned pipeline construction within private easements from the PROW to the service connection. A signed agreement between the City and the property owner would be required for work conducted on private property. Project types that would be included in the analysis contained herein would consist of sewer and water group jobs, trunk sewers, large diameter water pipeline projects, new and/or replacement manholes, new/or replacement fire hydrants, and other necessary appurtenances. All associated equipment would be staged within the existing PROW adjacent to the work areas. The near-term and future projects covered in the document would not impact *Sensitive Biological Resources* or *Environmentally Sensitive Lands (ESL)* as defined in the Land Development Code and would not encroach into the City's Multi-Habitat Planning Area (MHPA). Applicant: The City of San Diego Engineering and Capital Projects Department AND Public Utilities Department.

Update 10/20/2011

Revisions to this document have been made when compared to the Draft Mitigated Negative Declaration (DMND) dated September 9, 2011. In response to the Comment Letter received from The California Department of Fish and Game, further description and graphics of Water Group 949 as it relates to the MHPA has been added to the Final MND. Please note that Sewer Group 787, which is adjacent to the MHPA, has been removed from the project description and is no longer covered in this MND.

The modifications to the FMND are denoted by ~~strikeout~~ and underline format. In accordance with the California Environmental Quality Act, Section 15073.5 (c)(4), the addition of new information that clarifies, amplifies, or makes insignificant modification does not require recirculation as there are no new impacts and no new mitigation identified. An environmental document need only be recirculated when there is identification of new significant environmental impact or the addition of a new mitigation measure required to avoid a significant environmental impact. The addition

of corrected mitigation language within the environmental document does not affect the environmental analysis or conclusions of the MND.

Construction for the near-term and any future projects is anticipated to occur during the daytime hours Monday through Friday, but may occur during the weekend, if necessary. The contractor would comply with all applicable requirements described in the latest edition of the *Standard Specifications for Public Works Construction* ("GREENBOOK") and the latest edition of the *City of San Diego Standard Specifications for Public Works Construction* ("WHITEBOOK"). The City's supplement addresses unique circumstances to the City of San Diego that are not addressed in the GREENBOOK and would therefore take precedence in the event of a conflict. The contractor would also comply with the California Department of Transportation *Manual of Traffic Controls for Construction and Maintenance Work Zones*. If the Average Daily Traffic (ADT) within a given project(s) vicinity is 10,000 ADT or greater, a traffic control plan would be prepared and implemented in accordance with the *City of San Diego Standard Drawings Manual of Traffic Control for Construction and Maintenance Work Zones*. For proposals subject to 10,000 ADT or less, traffic control may be managed through shop drawings during construction. Construction methods to be employed would consist of, but not be limited to:

Open Trenching: The open trench method of construction would be used for complete replacement and new alignment portions of the project. Trenches are typically four feet wide and are dug with excavations and similar large construction equipment.

Rehabilitation: Rehabilitation of alignment involves installing a new lining in old pipelines. The insertion is done through existing manhole access points and does not require removal of pavement or excavation of soils.

Abandonment: Pipeline abandonment activities would be similar to rehabilitation methods in that no surface/subsurface disturbance would occur. This process may involve slurry or grout material injected into the abandoned lines via manhole access. The top portion of the manhole is then typically removed and the remaining space backfilled and paved over.

Potholing: Potholing would be used to verify reconnection of laterals to main where lines would be raised or realigned (higher than existing depth, but still below ground) or to verify utility crossings. These "potholes" are made by using vacuum type equipment to open up small holes into the street of pavement.

Point Repairs: Point repairs include replacing a portion of a pipe segment by open trench excavation methods in which localized structural defects have been identified. Generally, point repairs are confined to an eight-foot section of pipe.

The following near term project(s) have been reviewed by the City of San Diego, Development Services Department (DSD) for compliance with the Land Development Code and have been determined to be exempt from a Site Development Permit (SDP) and/or a Coastal Development Permit (CDP). These projects would involve excavation in areas having a high resource sensitivity and potential for encountering archaeological and paleontological resources during construction related activities. Therefore, mitigation would be required to reduce potential significant impacts to archaeological and paleontological resources to below a level of significance. With respect to Storm Water, all projects would be reviewed for compliance with the City's Storm Water Standards

Manual. All projects that are not-exempt from the Standard Urban Storm Water Mitigation Plan (SUSMP) would incorporate appropriate Permanent Best Management Practices (BMPs) and construction BMPs into the project design(s) and during construction, as required. As such, all projects would comply with the requirement of the Municipal Storm Water Permit.

HARBOR DRIVE PIPELINE (PROJECT NO. 206100)

The Harbor Drive Pipeline includes the replacement of 4.4 miles of 16-inch cast iron (CI) and asbestos cement (AC) pipe that comprises the Harbor Drive 1st and 2nd Pipelines (HD-1 and HD-2) at a depth no greater than five (5) feet. Facility age and cast iron main replacement are the primary drivers for these projects, but due to the history of AC breaks in the area, approximately 1.0 mile of AC replacement is also included. The project is anticipated to be awarded in Fiscal Year 2013.

HD-1 and HD-2 were built primarily in the 1940's and 1950's and were made out of cast iron or asbestos cement and serve the western most part of the University Heights 390 Zone and the northern section of the Point Loma East 260 Zone. The pipelines also serve as redundancy to each other. Several segments were replaced by various City of San Diego Public Utilities Department projects throughout the years and those segments are not a part of the current scope. Previously replaced segments were 16 inch PVC, except for the bridge crossing which used 24-inch CMLC. The pipeline is located entirely within the PROW, will not require any easements, and is not adjacent to the MHPA or located within any designated historical districts. The following streets would be affected by this project: West Laurel, Pacific Highway, North Harbor Drive (within the roadway, under the bridge and within landscape areas), Nimitz Boulevard, Rosecrans Street, Evergreen Street, Hugo Street, Locust Street, Canon Street, Avenida De Portugal, and Point Loma Avenue.

Mitigation for the Harbor Drive Pipeline: Historical Resources (Archaeological Monitoring)

WATER GROUP 949 (PROJECT NO. 232719)

Water Group 949 would consist of the replacement and installation of 5.27 miles of water mains within the Skyline- Paradise Hills, University, Clairemont Mesa, Southeastern San Diego (Greater Golden Hills) community planning areas. 16,931 Linear Feet (LF) of 16-inch cast iron water mains would be replace-in-place with new 16-inch polyvinyl chloride (PVC) pipe within the existing trench. The remaining 10,913 LF of new 16-inch PVC would be installed in new trenches. All work within Regents Road, Site 2 (Figure 8), adjacent to the MHPA would only occur within the developed footprint such as the paved right of way, and concrete sidewalk or slab areas. In addition, all work within 100 feet of the MHPA would observe mitigation such as but not limited to, bird breeding season measures, avoidance of discharge into the MHPA, and avoidance of direct lighting towards the MHPA areas. As such, no impacts to MHPA and/or sensitive resources would occur. The project would also include replacement and reinstallation of valves, water services, fire hydrants, and other appurtenances and would also included the construction of curb ramps, and street resurfacing. Traffic control measures and Best Management Practices (BMPs) would be implemented during construction. Any street tree removal, relocation, and/or trimming would be done under the supervision of the City Arborist. All staging of construction equipment will be located outside of any potentially sensitive areas. The following streets and nearby alleyways would be affected by this project: Tuther Way, Cielo Drive, Woodman Street, Skyline Drive, Regents Road, Hidalgo Avenue, Clairemont Mesa Boulevard, Luna Avenue, B Street, F Street, Ash Street, 25th Street, and 27th Street.

Mitigation Required for Water Group 949: This project would require the implementation of MHPA Land Use Adjacency Guidelines in the University and Clairemont Mesa Community Planning areas that are adjacent (within 100 feet) to the MHPA and Historical Resources (Built Environment) mitigation for the area of the project located within the Greater Golden Hill Historic District.

SEWER GROUP 787 (PROJECT NO. 231928)

Sewer Group 787 would consist of the replacement of 26,436 lineal feet (LF) of existing 16-inch cast iron sewer pipe with new 16-inch polyvinyl chloride (PVC) pipe within the existing trench. A total of 1,267 LF of new 16-inch PVC sewer alignment would be installed in new trenches. In addition, the project would abandon 1,606 LF of existing 16-inch cast iron pipe. The proposed project would be installed by conventional excavation (open trench) in trenches from 3-5 feet deep. The project would affect the following streets and nearby alleyways: 42nd Street, Monroe Avenue, Edgware Road, Polk Avenue, Orange Avenue, Menlo Avenue, 47th Street, Dwight Street, Myrtle Avenue, Manzanita Place, Heather Street, Dahlia Street, Poplar Street, Columbine Street, Pepper Drive, Juniper Street, Marigold Street, Sumac Drive, 44th Street, Laurie Lane, and Roseview Place all within the City Heights and Kensington-Talmadge Community Planning Areas.

~~**Mitigation Required for Water Group 787: This project would require the implementation of MHPA Land Use Adjacency Guidelines in the City Heights and Kensington-Talmadge Community Planning areas that are adjacent (within 100 feet) to the MHPA, Historical Resources (Archaeological and Paleontological Monitoring).**~~

WATER GROUP 914 (PROJECT NO. 233447)

Water Group 914 would consist of the replacement and installation of approximately 21,729 lineal feet (LF) of existing 6-inch, 8-inch and 12-inch cast iron pipes and 6-inch asphalt concrete pipes with new 8-inch, 12-inch and 16-inch polyvinyl chloride (PVC) pipe. Also included would be the construction of two underground pressure regulator stations that measure 54 square-feet and 6.5 feet deep each. 17,472 LF would be located in existing trenches and 4,257 LF would be located in new trench lines. The proposed project would be installed by conventional excavation (open trench) in trenches from 3-5 feet deep. However two 300 LF parallel line sections (600 LF total) of the water alignment would be installed by trenchless methodology utilizing two (2) 40 square foot launch and receiver pits. The trenchless installation would occur at the intersection of Coronado Avenue and Ebers Street and is designed to avoid a recorded archaeological resource at this intersection. The trenchless methodology would employ directional underground boring that would install the pipe at a depth deeper than the recorded resource. In addition, a 4-inch AC water segment of approximately 520 LF located along Point Loma Avenue between Guizot Street and Santa Barbara Street will be abandoned in place. The project would affect the following streets and nearby alleyways: Point Loma Avenue, Santa Barbara Street, Bermuda Avenue, Pescadero Avenue, Cable Street, Orchard Avenue, Froude Street, Sunset Cliffs Boulevard, Savoy Circle, and Del Monte Avenue all within the Ocean Beach and Peninsula Community Planning Areas.

Mitigation for Water Group 914: Historical Resources (Archaeological Monitoring) and (Built Environment)

SEWER AND WATER GROUP 732 (PROJECT NO. 206610)

Sewer and Water Group Job 732 would consist of the installation of approximately 5,500 total linear feet (LF) of 8 inch Polyvinyl Chloride (PVC) sewer pipe, and approximately 3,000 total linear feet (LF) of 12 inch PVC water pipe. Approximately, 1,035 LF of water pipe would be rehabilitated using trenchless technology in the same trench, with the remainder of the installation accomplished through open trenching. Related work would include construction of new manholes, replacement and re-plumbing of sewer laterals, installation of curb ramps, pavement restoration, traffic control, and storm water best management practices. Construction of the project would affect portions of the following streets and adjacent alleys in the Peninsula Community Plan area: Xenophon Street, Yonge Street, Zola Street, Alcott Street, Browning Street, Plum Street, Willow Street, Evergreen Street, Locust Street, and Rosecrans Street.

Mitigation Required for Sewer and Water Group 732: Historical Resources (Archaeological and Paleontological Monitoring).

SUBSEQUENT PIPELINE PROJECT REVIEW (LONG TERM)

Applications for the replacement, rehabilitation, relocation, point repair, open trenching and abandonment of water and/or sewer pipeline alignments within the City of San Diego PROW as indicated in the Subject block above and in the Project Description discussion of the Initial Study would be analyzed for potential environmental impacts to Historical Resources (Archaeology, Paleontology and the Built Environment) and Land Use (MSCP/MHPA), and reviewed for consistency with this Mitigated Negative Declaration (MND). Where it can be determined that the project is "consistent" with this MND and no additional potential significant impacts would occur pursuant to State CEQA Guideline § 15162 (i.e. the involvement of new significant environmental effects of a substantial increase in the severity of previously identified effects) or if the project would result in minor technical changes or additions, then an Addendum to this MND would be prepared pursuant to §15164. Where future projects are found not to be consistent with this MND, then a new Initial Study and project specific MND shall be prepared.

- I. PROJECT DESCRIPTION: See attached Initial Study.
- II. ENVIRONMENTAL SETTING: See attached Initial Study.
- III. DETERMINATION:

The City of San Diego conducted an Initial Study which determined that the near term projects and any future subsequent projects could have a significant environmental effect in the following areas(s): Land Use (MSCP/MHPA Land Use Adjacency), Historical Resources (Built Environment), Historical Resources (Archaeology) and Paleontology. When subsequent projects are submitted to DSD, the Environmental Analysis Section (EAS) will determine which of the project specific mitigation measures listed in Section V. would apply. Subsequent revisions in the project proposal create the specific mitigation identified in Section V of this Mitigated Negative Declaration. Projects as revised now avoid or mitigate the potentially significant environmental effects previously identified, and the preparation of an Environmental Impact Report will not be required.

IV. DOCUMENTATION:

The attached Initial Study documents the reasons to support the above Determination.

V. MITIGATION, MONITORING AND REPORTING PROGRAM (MMRP):

A. GENERAL REQUIREMENTS – PART I

Plan Check Phase (prior to permit issuance)

1. Prior to Bid Opening/Bid Award or beginning any construction related activity on-site, the Development Services Department (DSD) Director's Environmental Designee (ED) shall review and approve all Construction Documents (CD) (plans, specification, details, etc.) to ensure the MMRP requirements have been incorporated.
2. In addition, the ED shall verify that the MMRP Conditions/Notes that apply ONLY to the construction phases of this project are included VERBATIM, under the heading, "ENVIRONMENTAL/MITIGATION REQUIREMENTS."
3. These notes must be shown within the first three (3) sheets of the construction documents in the format specified for engineering construction document templates as shown on the City website:

<http://www.sandiego.gov/development-services/industry/standtemp.shtml>

4. The **TITLE INDEX SHEET** must also show on which pages the "Environmental/Mitigation Requirements" notes are provided.

B. GENERAL REQUIREMENTS – PART II

Post Plan Check (After permit issuance/Prior to start of construction)

1. **PRE CONSTRUCTION MEETING IS REQUIRED TEN (10) WORKING DAYS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT.** The PERMIT HOLDER/OWNER is responsible to arrange and perform this meeting by contacting the CITY RESIDENT ENGINEER (RE) of the Field Engineering Division and City staff from MITIGATION MONITORING COORDINATION (MMC). Attendees must also include the Permit holder's Representative(s), Job Site Superintendent and the following consultants as necessary:

Biologist, Archaeologist, Native American Monitor, Historian and Paleontologist

Note: Failure of all responsible Permit Holder's representatives and consultants to attend shall require an additional meeting with all parties present.

CONTACT INFORMATION:

- a) The PRIMARY POINT OF CONTACT is the **RE** at the **Field Engineering Division 858-627-3200**
- b) For Clarification of ENVIRONMENTAL REQUIREMENTS, it is also required to call **RE and MMC at 858-627-3360**

2. MMRP COMPLIANCE: This Project, Project Tracking System (PTS) No. 255100, or for subsequent future projects the associated PTS No, shall conform to the mitigation requirements contained in the associated Environmental Document and implemented to the satisfaction of the DSD’s ED, MMC and the City Engineer (RE). The requirements may not be reduced or changed but may be annotated (i.e. to explain when and how compliance is being met and location of verifying proof, etc.). Additional clarifying information may also be added to other relevant plan sheets and/or specifications as appropriate (i.e., specific locations, times of monitoring, methodology, etc

Note:

Permit Holder’s Representatives must alert RE and MMC if there are any discrepancies in the plans or notes, or any changes due to field conditions. All conflicts must be approved by RE and MMC BEFORE the work is performed.

- 3. OTHER AGENCY REQUIREMENTS:** Evidence that any other agency requirements or permits have been obtained or are in process shall be submitted to the RE and MMC for review and acceptance prior to the beginning of work or within one week of the Permit Holder obtaining documentation of those permits or requirements. Evidence shall include copies of permits, letters of resolution or other documentation issued by the responsible agency as applicable.
- 4. MONITORING EXHIBITS:** All consultants are required to submit, to RE and MMC, a monitoring exhibit on a 11x17 reduction of the appropriate construction plan, such as site plan, grading, landscape, etc., marked to clearly show the specific areas including the **LIMIT OF WORK**, scope of that discipline’s work, and notes indicating when in the construction schedule that work will be performed. When necessary for clarification, a detailed methodology of how the work will be performed shall be included.
- 5. OTHER SUBMITTALS AND INSPECTIONS:** The Permit Holder/Owner’s representative shall submit all required documentation, verification letters, and requests for all associated inspections to the RE and MMC for approval per the following schedule:

Document Submittal/Inspection Checklist

<i>Issue Area</i>	<i>Document submittal</i>	<i>Associated Inspection/Approvals/Note</i>
General	Consultant Qualification Letters	Prior to Pre-construction Mtg.
General	Consultant Const. Monitoring	Prior to or at Pre-Construction Mtg.
Biology	Biology Reports	Limit of Work Verification
Historical	Historical Reports	Historical observation (built environmt)
Archaeology	Archaeology Reports	Archaeology observation
Paleontology	Paleontology Reports	Paleontology observation
Final MMRP		Final MMRP Inspection

SPECIFIC MMRP ISSUE AREA CONDITIONS/REQUIREMENTS:

A. LAND USE [MULTIPLE SPECIES CONSERVATION PROGRAM (MSCP) For PROJECTS WITHIN 100 FEET OF THE MHPA]**I. Prior to Permit Issuance**

- A. Prior to issuance of any construction permit, the DSD Environmental Designee (ED) shall verify the Applicant has accurately represented the project's design in the Construction Documents (CDs) that are in conformance with the associated discretionary permit conditions and Exhibit "A", and also the City's Multi-Species Conservation Program (MSCP) Land Use Adjacency Guidelines for the Multiple Habitat Planning Area (MHPA), including identifying adjacency as the potential for direct/indirect impacts where applicable. In addition, all CDs where applicable shall show the following:
1. **Land Development / Grading / Boundaries** –MHPA boundaries on-site and adjacent properties shall be delineated on the CDs. The ED shall ensure that all grading is included within the development footprint, specifically manufactured slopes, disturbance, and development within or adjacent to the MHPA..
 2. **Drainage / Toxins** –All new and proposed parking lots and developed area in and adjacent to the MHPA shall be designed so they do not drain directly into the MHPA, All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials prior to release by incorporating the use of filtration devices, planted swales and/or planted detention/desiltation basins, or other approved permanent methods that are designed to minimize negative impacts, such as excessive water and toxins into the ecosystems of the MHPA.
 3. **Staging/storage, equipment maintenance, and trash** –All areas for staging, storage of equipment and materials, trash, equipment maintenance, and other construction related activities are within the development footprint. Provide a note on the plans that states: "*All construction related activity that may have potential for leakage or intrusion shall be monitored by the Qualified Biologist/Owners Representative to ensure there is no impact to the MHPA.*"
 4. **Barriers** –All new development within or adjacent to the MHPA shall provide fencing or other City approved barriers along the MHPA boundaries to direct public access to appropriate locations, to reduce domestic animal predation, and to direct wildlife to appropriate corridor crossing. Permanent barriers may include, but are not limited to, fencing (6-foot black vinyl coated chain link or equivalent), walls, rocks/boulders, vegetated buffers, and signage for access, litter, and educational purposes.
 5. **Lighting** – All building, site, and landscape lighting adjacent to the MHPA shall be directed away from the preserve using proper placement and adequate shielding to protect sensitive habitat. Where necessary, light from traffic or other incompatible uses, shall be shielded from the MHPA through the utilization of including, but not limited to, earth berms, fences, and/or plant material.
 6. **Invasive Plants** – Plant species within 100 feet of the MHPA shall comply with the Landscape Regulations (LDC142.0400 and per table 142-04F, Revegetation and Irrigation Requirements) and be non invasive. Landscape plans shall include a note that states: "*The ongoing maintenance requirements of the property owner shall*

prohibit the use of any planting that are invasive, per City Regulations, Standards, guidelines, etc., within 100 feet of the MHPA."

7. **Brush Management** –All new development adjacent to the MHPA is set back from the MHPA to provide the required Brush Management Zone (BMZ) 1 area (LDC Sec. 142.0412) within the development area and outside of the MHPA. BMZ 2 may be located within the MHPA and the BMZ 2 management shall be the responsibility of a HOA or other private entity.
8. **Noise-** Due to the site's location adjacent to or within the MHPA, construction noise that exceeds the maximum levels allowed shall be avoided, during the breeding seasons for protected avian species such as: *California Gnatcatcher* (3/1-8/15); *Least Bell's vireo* (3/15-9/15); and *Southwestern Willow Flycatcher* (5/1-8/30). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys shall be required in order to determine species presence/absence. When applicable, adequate noise reduction measures shall be incorporated. Upon project submittal EAS shall determine which of the following project specific avian protocol surveys shall be required.

COASTAL CALIFORNIA GNATCATCHER

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 1 AND AUGUST 15, THE BREEDING SEASON OF THE COASTAL CALIFORNIA GNATCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- a. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE HABITAT AREAS WITHIN ADJACENT TO THE MHPA THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE COASTAL CALIFORNIA GNATCATCHER. SURVEYS FOR THE COASTAL CALIFORNIA GNATCATCHER SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF GNATCATCHERS ARE PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MARCH 1 AND AUGUST 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED GNATCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

1. BETWEEN MARCH 1 AND AUGUST 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED GNATCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION

ACTIVITIES WOULD NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

2. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE COASTAL CALIFORNIA GNATCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB(A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (AUGUST 16).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- b. IF COASTAL CALIFORNIA GNATCATCHERS ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MARCH 1 AND AUGUST 15 AS FOLLOWS:

1. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR COASTAL CALIFORNIA GNATCATCHER TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
2. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

LEAST BELL'S VIREO (State Endangered/Federally Endangered)

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 15 AND SEPTEMBER 15, THE BREEDING SEASON OF THE LEAST BELL'S VIREO, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE LEAST BELL'S VIREO. SURVEYS FOR THE THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF THE LEAST BELL'S VIREO IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MARCH 15 AND SEPTEMBER 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED LEAST BELL'S VIREO HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

BETWEEN MARCH 15 AND SEPTEMBER 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED LEAST BELL'S VIREO OR HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF ANY OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED

UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE LEAST BELL'S VIREO. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB(A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED

TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 16).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF LEAST BELL'S VIREO ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MARCH 15 AND SEPTEMBER 15 AS FOLLOWS:
- I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR LEAST BELL'S VIREO TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

SOUTHWESTERN WILLOW FLYCATCHER (Federally Endangered)

1. Prior to the first reconstruction meeting, the City Manager (or appointed designee) shall verify that the following project requirements regarding the southwestern willow flycatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MAY 1 AND SEPTEMBER 1, THE BREEDING SEASON OF THE SOUTHWESTERN WILLOW FLYCATCHER, UNTIL

THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE SOUTHWESTERN WILLOW FLYCATCHER. SURVEYS FOR THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF THE SOUTHWESTERN WILLOW FLYCATCHER IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MAY 1 AND SEPTEMBER 1, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

BETWEEN MAY 1 AND SEPTEMBER 1, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN.

NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE SOUTHWESTERN WILLOW FLYCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB(A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 1).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF SOUTHWESTERN WILLOW FLYCATCHER ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MAY 1 AND SEPTEMBER 1 AS FOLLOWS:
- I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR SOUTHWESTERN WILLOW FLYCATCHER TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

II. Prior to Start of Construction

A. Preconstruction Meeting

The Qualified Biologist/Owners Representative shall incorporate all MHPA construction related requirements, into the project's Biological Monitoring Exhibit (BME).

The Qualified Biologist/Owners Representative is responsible to arrange and perform a focused pre-con with all contractors, subcontractors, and all workers involved in grading or other construction activities that discusses the sensitive nature of the adjacent sensitive biological resources.

III. During Construction

- A. The Qualified Biologist/Owners Representative, shall verify that all construction related activities taking place ~~within or~~ adjacent to the MHPA are consistent with the CDs, the MSCP/MHPA Land Use Adjacency Guidelines. The Qualified Biologist/Owners Representative shall monitor and ensure that:
1. **Land Development /Grading Boundaries** - The MHPA boundary and the limits of grading shall be clearly delineated by a survey crew prior to brushing, clearing, or grading. Limits shall be defined with orange construction fence and a siltation fence (can be combined) under the supervision of the Qualified Biologist/Owners Representative who shall provide a letter of verification to RE/MMC that all limits were marked as required. ~~Within or a~~Adjacent to the MHPA, all manufactured slopes associated with site development shall be included within the development footprint.
 2. **Drainage/Toxics** - No Direct drainage into the MHPA shall occur during or after construction and that filtration devices, swales and/or detention/desiltation basins that drain into the MHPA are functioning properly during construction, and that permanent maintenance after construction is addressed. These systems should be maintained approximately once a year, or as often a needed, to ensure proper functioning. Maintenance should include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g. clay compounds) when necessary and appropriate.
 3. **Staging/storage, equipment maintenance, and trash** - Identify all areas for staging, storage of equipment and materials, trash, equipment maintenance, and other construction related activities on the monitoring exhibits and verify that they are within the development footprint. Comply with the applicable notes on the plans
 - 4 **Barriers** - New development adjacent to the MHPA provides city approved barriers along the MHPA boundaries
 5. **Lighting** - Periodic night inspections are performed to verify that all lighting adjacent to the MHPA is directed away from preserve areas and appropriate placement and shielding is used.
 6. **Invasives** - No invasive plant species are used ~~in or~~ adjacent (within 100 feet) to the MHPA ~~and that within the MHPA, all plant species must be native.~~
 7. **Brush Management** - BMZ1 is within the development footprint and outside of the MHPA, and that maintenance responsibility for the BMZ 2 located within the MHPA is identified as the responsibility of an HOA or other private entity.
 8. **Noise** – For any area of the site that is adjacent to ~~or within~~ the MHPA, construction noise that exceeds the maximum levels allowed, shall be avoided, during the breeding seasons, for protected avian species such as: *California Gnatcatcher* (3/1-8/15); *Least Bell's vireo* (3/15-9/15); and *Southwestern Willow Flycatcher* (5/1-8/30). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys will be required in order to determine species presence/absence. When applicable, adequate noise reduction measures shall

be incorporated.

IV. Post Construction

A. Preparation and Submittal of Monitoring Report

The Qualified Biologist/Owners Representative shall submit a final biological monitoring report to the RE/MMC within 30 days of the completion of construction that requires monitoring. The report shall incorporate the results of the MMRP/MSCP requirements per the construction documents and the BME to the satisfaction of RE/MMC.

B. HISTORICAL RESOURCES (ARCHAEOLOGY)

Prior to Permit Issuance or Bid Opening/Bid Award

A. Entitlements Plan Check

1. Prior to permit issuance or Bid Opening/Bid Award, whichever is applicable, the Assistant Deputy Director (ADD) Environmental designee shall verify that the requirements for Archaeological Monitoring and Native American monitoring have been noted on the applicable construction documents through the plan check process.

B. Letters of Qualification have been submitted to ADD

1. Prior to Bid Award, the applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the project and the names of all persons involved in the archaeological monitoring program, as defined in the City of San Diego Historical Resources Guidelines (HRG). If applicable, individuals involved in the archaeological monitoring program must have completed the 40-hour HAZWOPER training with certification documentation.
2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the archaeological monitoring of the project meet the qualifications established in the HRG.
3. Prior to the start of work, the applicant must obtain written approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search

1. The PI shall provide verification to MMC that a site specific records search (1/4 mile radius) has been completed. Verification includes, but is not limited to a copy of a confirmation letter from South Coastal Information Center, or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.
3. The PI may submit a detailed letter to MMC requesting a reduction to the 1/4 mile radius.

B. PI Shall Attend Precon Meetings

1. Prior to beginning any work that requires monitoring; the Applicant shall arrange a Precon Meeting that shall include the PI, Native American consultant/monitor (where Native American resources may be impacted), Construction Manager (CM)

and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified Archaeologist and Native American Monitor shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Archaeological Monitoring program with the Construction Manager and/or Grading Contractor.

- a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.
2. Acknowledgement of Responsibility for Curation (CIP or Other Public Projects)
The applicant shall submit a letter to MMC acknowledging their responsibility for the cost of curation associated with all phases of the archaeological monitoring program.
 3. Identify Areas to be Monitored
 - b. Prior to the start of any work that requires monitoring, the PI shall submit an Archaeological Monitoring Exhibit (AME) (with verification that the AME has been reviewed and approved by the Native American consultant/monitor when Native American resources may be impacted) based on the appropriate construction documents (reduced to 11x17) to MMC identifying the areas to be monitored including the delineation of grading/excavation limits.
 - c. The AME shall be based on the results of a site specific records search as well as information regarding the age of existing pipelines, laterals and associated appurtenances and/or any known soil conditions (native or formation).
 - d. MMC shall notify the PI that the AME has been approved.
 4. When Monitoring Will Occur
 - a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
 - b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction documents which indicate conditions such as age of existing pipe to be replaced, depth of excavation and/or site graded to bedrock, etc., which may reduce or increase the potential for resources to be present.
 5. Approval of AME and Construction Schedule
After approval of the AME by MMC, the PI shall submit to MMC written authorization of the AME and Construction Schedule from the CM.

III. During Construction

A. Monitor Shall be Present During Grading/Excavation/Trenching

1. The Archaeological Monitor shall be present full-time during all soil disturbing and grading/excavation/trenching activities which could result in impacts to archaeological resources as identified on the AME. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the AME.**
2. The Native American consultant/monitor shall determine the extent of their presence during soil disturbing and grading/excavation/trenching activities based on the AME and provide that information to the PI and MMC. If prehistoric resources are

encountered during the Native American consultant/monitor's absence, work shall stop and the Discovery Notification Process detailed in Section III.B-C and IV.A-D shall commence.

3. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as modern disturbance post-dating the previous grading/trenching activities, presence of fossil formations, or when native soils are encountered that may reduce or increase the potential for resources to be present.
 4. The archaeological and Native American consultant/monitor shall document field activity via the Consultant Site Visit Record (CSV). The CSV's shall be faxed by the CM to the RE the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion**), and in the case of ANY discoveries. The RE shall forward copies to MMC.
- B. Discovery Notification Process
1. In the event of a discovery, the Archaeological Monitor shall direct the contractor to temporarily divert all soil disturbing activities, including but not limited to digging, trenching, excavating or grading activities in the area of discovery and in the area reasonably suspected to overlay adjacent resources and immediately notify the RE or BI, as appropriate.
 2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
 3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.
 4. No soil shall be exported off-site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered.
- C. Determination of Significance
1. The PI and Native American consultant/monitor, where Native American resources are discovered shall evaluate the significance of the resource. If Human Remains are involved, follow protocol in Section IV below.
 - a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required.
 - b. If the resource is significant, the PI shall submit an Archaeological Data Recovery Program (ADRP) and obtain written approval of the program from MMC, CM and RE. ADRP and any mitigation must be approved by MMC, RE and/or CM before ground disturbing activities in the area of discovery will be allowed to resume. **Note: If a unique archaeological site is also an historical resource as defined in CEQA Section 15064.5, then the limits on the amount(s) that a project applicant may be required to pay to cover mitigation costs as indicated in CEQA Section 21083.2 shall not apply.**
 - (1). Note: For pipeline trenching and other linear projects in the public Right-of-Way, the PI shall implement the Discovery Process for Pipeline Trenching projects identified below under "D."
 - c. If the resource is not significant, the PI shall submit a letter to MMC indicating that artifacts will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that that no further work is required.

- (1). Note: For Pipeline Trenching and other linear projects in the public Right-of-Way, if the deposit is limited in size, both in length and depth; the information value is limited and is not associated with any other resource; and there are no unique features/artifacts associated with the deposit, the discovery should be considered not significant.
- (2). Note, for Pipeline Trenching and other linear projects in the public Right-of-Way, if significance cannot be determined, the Final Monitoring Report and Site Record (DPR Form 523A/B) shall identify the discovery as Potentially Significant.

D. Discovery Process for Significant Resources - Pipeline Trenching and other Linear Projects in the Public Right-of-Way

The following procedure constitutes adequate mitigation of a significant discovery encountered during pipeline trenching activities or for other linear project types within the Public Right-of-Way including but not limited to excavation for jacking pits, receiving pits, laterals, and manholes to reduce impacts to below a level of significance:

1. Procedures for documentation, curation and reporting
 - a. One hundred percent of the artifacts within the trench alignment and width shall be documented in-situ, to include photographic records, plan view of the trench and profiles of side walls, recovered, photographed after cleaning and analyzed and curated. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact.
 - b. The PI shall prepare a Draft Monitoring Report and submit to MMC via the RE as indicated in Section VI-A.
 - c. The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) the resource(s) encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines. The DPR forms shall be submitted to the South Coastal Information Center for either a Primary Record or SDI Number and included in the Final Monitoring Report.
 - d. The Final Monitoring Report shall include a recommendation for monitoring of any future work in the vicinity of the resource.

IV. Discovery of Human Remains

If human remains are discovered, work shall halt in that area and no soil shall be exported off-site until a determination can be made regarding the provenance of the human remains; and the following procedures as set forth in CEQA Section 15064.5(e), the California Public Resources Code (Sec. 5097.98) and State Health and Safety Code (Sec. 7050.5) shall be undertaken:

A. Notification

1. Archaeological Monitor shall notify the RE or BI as appropriate, MMC, and the PI, if the Monitor is not qualified as a PI. MMC will notify the appropriate Senior Planner in the Environmental Analysis Section (EAS) of the Development Services Department to assist with the discovery notification process.
2. The PI shall notify the Medical Examiner after consultation with the RE, either in person or via telephone.

B. Isolate discovery site

1. Work shall be directed away from the location of the discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can

- be made by the Medical Examiner in consultation with the PI concerning the provenience of the remains.
2. The Medical Examiner, in consultation with the PI, will determine the need for a field examination to determine the provenience.
 3. If a field examination is not warranted, the Medical Examiner will determine with input from the PI, if the remains are or are most likely to be of Native American origin.
- C. If Human Remains **ARE** determined to be Native American
1. The Medical Examiner will notify the Native American Heritage Commission (NAHC) within 24 hours. By law, **ONLY** the Medical Examiner can make this call.
 2. NAHC will immediately identify the person or persons determined to be the Most Likely Descendent (MLD) and provide contact information.
 3. The MLD will contact the PI within 24 hours or sooner after the Medical Examiner has completed coordination, to begin the consultation process in accordance with CEQA Section 15064.5(e), the California Public Resources and Health & Safety Codes.
 4. The MLD will have 48 hours to make recommendations to the property owner or representative, for the treatment or disposition with proper dignity, of the human remains and associated grave goods.
 5. Disposition of Native American Human Remains will be determined between the MLD and the PI, and, if:
 - a. The NAHC is unable to identify the MLD, OR the MLD failed to make a recommendation within 48 hours after being notified by the Commission, OR;
 - b. The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097.94 (k) by the NAHC fails to provide measures acceptable to the landowner, THEN
 - c. To protect these sites, the landowner shall do one or more of the following:
 - (1) Record the site with the NAHC;
 - (2) Record an open space or conservation easement; or
 - (3) Record a document with the County.
 - d. Upon the discovery of multiple Native American human remains during a ground disturbing land development activity, the landowner may agree that additional conferral with descendants is necessary to consider culturally appropriate treatment of multiple Native American human remains. Culturally appropriate treatment of such a discovery may be ascertained from review of the site utilizing cultural and archaeological standards. Where the parties are unable to agree on the appropriate treatment measures the human remains and items associated and buried with Native American human remains shall be reinterred with appropriate dignity, pursuant to Section 5.c., above.
- D. If Human Remains are **NOT** Native American
1. The PI shall contact the Medical Examiner and notify them of the historic era context of the burial.
 2. The Medical Examiner will determine the appropriate course of action with the PI and City staff (PRC 5097.98).
 3. If the remains are of historic origin, they shall be appropriately removed and conveyed to the San Diego Museum of Man for analysis. The decision for internment of the human remains shall be made in consultation with MMC, EAS, the applicant/landowner, any known descendant group, and the San Diego Museum of Man.

V. Night and/or Weekend Work

- A. If night and/or weekend work is included in the contract
1. When night and/or weekend work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
 2. The following procedures shall be followed.
 - a. No Discoveries
In the event that no discoveries were encountered during night and/or weekend work, the PI shall record the information on the CSVR and submit to MMC via fax by 8AM of the next business day.
 - b. Discoveries
All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction, and IV – Discovery of Human Remains. Discovery of human remains shall always be treated as a significant discovery.
 - c. Potentially Significant Discoveries
If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction and IV-Discovery of Human Remains shall be followed.
 - d. The PI shall immediately contact the RE and MMC, or by 8AM of the next business day to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.
- B. If night and/or weekend work becomes necessary during the course of construction
1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
 2. The RE, or BI, as appropriate, shall notify MMC immediately.
- C. All other procedures described above shall apply, as appropriate.

VI. Post Construction

- A. Submittal of Draft Monitoring Report
1. The PI shall submit two copies of the Draft Monitoring Report (even if negative), prepared in accordance with the Historical Resources Guidelines (Appendix C/D) which describes the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program (with appropriate graphics) to MMC via the RE for review and approval within 90 days following the completion of monitoring. **It should be noted that if the PI is unable to submit the Draft Monitoring Report within the allotted 90-day timeframe as a result of delays with analysis, special study results or other complex issues, a schedule shall be submitted to MMC establishing agreed due dates and the provision for submittal of monthly status reports until this measure can be met.**
 - a. For significant archaeological resources encountered during monitoring, the Archaeological Data Recovery Program or Pipeline Trenching Discovery Process shall be included in the Draft Monitoring Report.
 - b. Recording Sites with State of California Department of Parks and Recreation
The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) any significant or potentially significant resources encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines, and submittal of such forms to the South Coastal Information Center with the Final Monitoring Report.

2. MMC shall return the Draft Monitoring Report to the PI via the RE for revision or, for preparation of the Final Report.
 3. The PI shall submit revised Draft Monitoring Report to MMC via the RE for approval.
 4. MMC shall provide written verification to the PI of the approved report.
 5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.
- B. Handling of Artifacts
1. The PI shall be responsible for ensuring that all cultural remains collected are cleaned and catalogued
 2. The PI shall be responsible for ensuring that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate.
- C. Curation of artifacts: Accession Agreement and Acceptance Verification
1. The PI shall be responsible for ensuring that all artifacts associated with the survey, testing and/or data recovery for this project are permanently curated with an appropriate institution. This shall be completed in consultation with MMC and the Native American representative, as applicable.
 2. When applicable to the situation, the PI shall include written verification from the Native American consultant/monitor indicating that Native American resources were treated in accordance with state law and/or applicable agreements. If the resources were reinterred, verification shall be provided to show what protective measures were taken to ensure no further disturbance occurs in accordance with Section IV – Discovery of Human Remains, Subsection C.
 3. The PI shall submit the Accession Agreement and catalogue record(s) to the RE or BI, as appropriate for donor signature with a copy submitted to MMC.
 4. The RE or BI, as appropriate shall obtain signature on the Accession Agreement and shall return to PI with copy submitted to MMC.
 5. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.
- D. Final Monitoring Report(s)
1. The PI shall submit one copy of the approved Final Monitoring Report to the RE or BI as appropriate, and one copy to MMC (even if negative), within 90 days after notification from MMC of the approved report.
 2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

C. PALEONTOLOGICAL RESOURCES

I. **Prior to Permit Issuance or Bid Opening/Bid Award**

A. Entitlements Plan Check

1. Prior to permit issuance or Bid Opening/Bid Award, whichever is applicable, the Assistant Deputy Director (ADD) Environmental designee shall verify that the requirements for Paleontological Monitoring have been noted on the appropriate construction documents.

B. Letters of Qualification have been submitted to ADD

1. Prior to Bid Award, the applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the

- project and the names of all persons involved in the paleontological monitoring program, as defined in the City of San Diego Paleontology Guidelines.
2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the paleontological monitoring of the project.
 3. Prior to the start of work, the applicant shall obtain approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search

1. The PI shall provide verification to MMC that a site specific records search has been completed. Verification includes, but is not limited to a copy of a confirmation letter from San Diego Natural History Museum, other institution or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.

B. PI Shall Attend Precon Meetings

1. Prior to beginning any work that requires monitoring, the Applicant shall arrange a Precon Meeting that shall include the PI, Construction Manager (CM) and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified paleontologist shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Paleontological Monitoring program with the Construction Manager and/or Grading Contractor.
 - a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.
2. Acknowledgement of Responsibility for Curation (CIP or Other Public Projects)
The applicant shall submit a letter to MMC acknowledging their responsibility for the cost of curation associated with all phases of the paleontological monitoring program.
3. Identify Areas to be Monitored
 - a. a. Prior to the start of any work that requires monitoring, the PI shall submit a Paleontological Monitoring Exhibit (PME) based on the appropriate construction documents (reduced to 11x17) to MMC for approval identifying the areas to be monitored including the delineation of grading/excavation limits. Monitoring shall begin at depths below 10 feet from existing grade or as determined by the PI in consultation with MMC. The determination shall be based on site specific records search data which supports monitoring at depths less than ten feet.
 - b. b. The PME shall be based on the results of a site specific records search as well as information regarding existing known soil conditions (native or formation).
 - c. c. MMC shall notify the PI that the PME has been approved.
- d. 4. When Monitoring Will Occur
 - a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
 - b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction

documents which indicate conditions such as depth of excavation and/or site graded to bedrock, presence or absence of fossil resources, etc., which may reduce or increase the potential for resources to be present.

5. Approval of PME and Construction Schedule
After approval of the PME by MMC, the PI shall submit to MMC written authorization of the PME and Construction Schedule from the CM.

III. During Construction

A. Monitor Shall be Present During Grading/Excavation/Trenching

1. The monitor shall be present full-time during grading/excavation/trenching activities including, but not limited to mainline, laterals, jacking and receiving pits, services and all other appurtenances associated with underground utilities as identified on the PME that could result in impacts to formations with high and/or moderate resource sensitivity. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the PME.**
2. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as trenching activities that do not encounter formational soils as previously assumed, and/or when unique/unusual fossils are encountered, which may reduce or increase the potential for resources to be present.
3. The monitor shall document field activity via the Consultant Site Visit Record (CSV). The CSV's shall be faxed by the CM to the RE the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion**), and in the case of ANY discoveries. The RE shall forward copies to MMC.

B. Discovery Notification Process

1. In the event of a discovery, the Paleontological Monitor shall direct the contractor to temporarily divert trenching activities in the area of discovery and immediately notify the RE or BI, as appropriate.
2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.

C. Determination of Significance

1. The PI shall evaluate the significance of the resource.
 - a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required. The determination of significance for fossil discoveries shall be at the discretion of the PI.
 - b. If the resource is significant, the PI shall submit a Paleontological Recovery Program (PRP) and obtain written approval of the program from MMC, MC and/or RE. PRP and any mitigation must be approved by MMC, RE and/or CM before ground disturbing activities in the area of discovery will be allowed to resume.

- (1). Note: For pipeline trenching projects only, the PI shall implement the Discovery Process for Pipeline Trenching projects identified below under "D."
 - c. If resource is not significant (e.g., small pieces of broken common shell fragments or other scattered common fossils) the PI shall notify the RE, or BI as appropriate, that a non-significant discovery has been made. The Paleontologist shall continue to monitor the area without notification to MMC unless a significant resource is encountered.
 - d. The PI shall submit a letter to MMC indicating that fossil resources will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that no further work is required.
 - (1). Note: For Pipeline Trenching Projects Only. If the fossil discovery is limited in size, both in length and depth; the information value is limited and there are no unique fossil features associated with the discovery area, then the discovery should be considered not significant.
 - (2). Note, for Pipeline Trenching Projects Only: If significance can not be determined, the Final Monitoring Report and Site Record shall identify the discovery as Potentially Significant.
- D. Discovery Process for Significant Resources - Pipeline Trenching Projects
- The following procedure constitutes adequate mitigation of a significant discovery encountered during pipeline trenching activities including but not limited to excavation for jacking pits, receiving pits, laterals, and manholes to reduce impacts to below a level of significance.
- 1. Procedures for documentation, curation and reporting
 - a. One hundred percent of the fossil resources within the trench alignment and width shall be documented in-situ photographically, drawn in plan view (trench and profiles of side walls), recovered from the trench and photographed after cleaning, then analyzed and curated consistent with Society of Invertebrate Paleontology Standards. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact and so documented.
 - b. The PI shall prepare a Draft Monitoring Report and submit to MMC via the RE as indicated in Section VI-A.
 - c. The PI shall be responsible for recording (on the appropriate forms for the San Diego Natural History Museum) the resource(s) encountered during the Paleontological Monitoring Program in accordance with the City's Paleontological Guidelines. The forms shall be submitted to the San Diego Natural History Museum and included in the Final Monitoring Report.
 - d. The Final Monitoring Report shall include a recommendation for monitoring of any future work in the vicinity of the resource.

IV. Night and/or Weekend Work

- A. If night and/or weekend work is included in the contract
 - 1. When night and/or weekend work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
 - 2. The following procedures shall be followed.
 - a. No Discoveries

In the event that no discoveries were encountered during night and/or weekend work, The PI shall record the information on the CSVr and submit to MMC via the RE via fax by 8AM on the next business day.

- b. Discoveries
All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction.
 - c. Potentially Significant Discoveries
If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction shall be followed.
 - d. The PI shall immediately contact the RE and MMC, or by 8AM on the next business day to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.
- B. If night and/or weekend work becomes necessary during the course of construction
 - 1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
 - 2. The RE, or BI, as appropriate, shall notify MMC immediately.
 - C. All other procedures described above shall apply, as appropriate.

V. Post Construction

- A. Preparation and Submittal of Draft Monitoring Report
 - 1. The PI shall submit two copies of the Draft Monitoring Report (even if negative), prepared in accordance with the Paleontological Guidelines which describes the results, analysis, and conclusions of all phases of the Paleontological Monitoring Program (with appropriate graphics) to MMC via the RE for review and approval within 90 days following the completion of monitoring.
 - a. For significant paleontological resources encountered during monitoring, the Paleontological Recovery Program or Pipeline Trenching Discovery Process shall be included in the Draft Monitoring Report.
 - b. Recording Sites with the San Diego Natural History Museum
The PI shall be responsible for recording (on the appropriate forms) any significant or potentially significant fossil resources encountered during the Paleontological Monitoring Program in accordance with the City's Paleontological Guidelines, and submittal of such forms to the San Diego Natural History Museum with the Final Monitoring Report.
 - 2. MMC shall return the Draft Monitoring Report to the PI via the RE for revision or, for preparation of the Final Report.
 - 3. The PI shall submit revised Draft Monitoring Report to MMC via the RE for approval.
 - 4. MMC shall provide written verification to the PI of the approved report.
 - 5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.
- B. Handling of Fossil Remains
 - 1. The PI shall be responsible for ensuring that all fossil remains collected are cleaned and catalogued.
- C. Curation of artifacts: Deed of Gift and Acceptance Verification
 - 1. The PI shall be responsible for ensuring that all fossil remains associated with the monitoring for this project are permanently curated with an appropriate institution.
 - 2. The PI shall submit the Deed of Gift and catalogue record(s) to the RE or BI, as appropriate for donor signature with a copy submitted to MMC.
 - 3. The RE or BI, as appropriate shall obtain signature on the Deed of Gift and shall return to PI with copy submitted to MMC.

4. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.

D. Final Monitoring Report(s)

1. The PI shall submit two copies of the Final Monitoring Report to MMC (even if negative), within 90 days after notification from MMC of the approved report.
2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

D. HISTORICAL RESOURCES (BUILT ENVIRONMENT)

When a future project requires implementation of this mitigation measure, the following paragraph shall be included in the subsequent environmental document and applicable Historic District name, boundary and district guidelines, if applicable shall be inserted as noted below in [brackets]:

The project is located within the [[insert District name]] Historic District, bounded by [[enter District boundary]] All work within the District boundary must be consistent with the City's Historical Resources Regulations, the U.S. Secretary of the Interior's Standards and the [[enter district guidelines if applicable]] District Design Guidelines. The following mitigation measures are required within the District boundary and shall ensure consistency with these regulations, Standards and guidelines.

- A. Prior to beginning any work at the site, a Pre Construction meeting that includes Historic Resources and MMC staff shall be held at the project site to review these mitigation measures and requirements within the District boundary.
- B. A Historic Sidewalk Stamp Inventory prepared by a qualified historic consultant or archaeologist and approved by HRB staff is required prior to the Pre-Construction (Pre-Con) meeting. The Inventory shall include photo documentation of all existing stamps within the project area keyed to a project site plan.
- C. Existing sidewalk stamps shall be preserved in place. Where existing sidewalk stamps must be impacted to accommodate right-of-way improvements, the following actions are required:
 1. A mold of the sidewalk stamp will be made to allow reconstruction of the stamp if destroyed during relocation.
 2. The sidewalk stamp shall be saw-cut to preserve the stamp in its entirety; relocated as near as possible to the original location; and set in the same orientation.
 3. If the sidewalk stamp is destroyed during relocation, a new sidewalk stamp shall be made from the mold taken and relocated as near as possible to the original location and set in the same orientation.
- D. No new sidewalk stamps shall be added by any contactor working on the project.
- E. Existing historic sidewalk, parkway and street widths shall be maintained. Any work that requires alteration of these widths shall be approved by Historic Resources staff.
- F. Existing historic curb heights and appearance shall be maintained. Any work that requires alteration of the existing height or appearance shall be approved by Historic Resources staff.

- G. Sections of sidewalk which may be impacted by the project shall be replaced in-kind to match the historic color, texture and scoring pattern of the original sidewalks. If the original color, scoring pattern or texture is not present at the location of the impact, the historically appropriate color, texture and scoring pattern found throughout the district shall be used.
 - H. Truncated domes used at corner curb ramps shall be dark gray in color.
 - I. Existing historic lighting, such as acorn lighting shall remain. New lighting shall be consistent with existing lighting fixtures, or fixtures specified in any applicable District Design Guidelines.
 - J. Existing mature street trees shall remain. New street trees shall be consistent with the prevalent mature species in the District and/or species specified in any applicable District Design Guidelines.
 - K. Any walls located within the right-of-way or on private property are considered historic and may not be impacted without prior review and approval by Historic Resources staff.
- VI. PUBLIC REVIEW DISTRIBUTION:

Draft copies or notice of this Mitigated Negative Declaration were distributed to:

United States Government

- Fish and Wildlife Service (23)
- MCAS Miramar (13)
- Naval Facilities Engineering Command Southwest (8)

State of California

- Department of Fish and Game (32A)
- State Clearing House (46)
- Resources Agency (43)
- Native American Heritage Commission (56)
- State Historic Preservation Officer (41)
- Regional Water Quality Control Board (44)
- Water Resources (45)
- Water Resources Control Board (55)
- Coastal Commission (48)
- Caltrans District 11 (31)

County of San Diego

- Department of Environmental Health (75)
- Planning and Land Use (68)
- Water Authority (73)

City of San Diego

- Office of the Mayor (91)
- Council President Young, District 4 (MS 10A)
- Councilmember Lightner, District 1 (MS 10A)
- Councilmember Faulconer, District 2 (MS 10A)
- Councilmember Gloria, District 3 (MS 10A)
- Councilmember DeMaio, District 5 (MS 10A)

Councilmember Zapf, District 6 (MS 10A)
 Councilmember Emerald, District 7 (MS 10A)
 Councilmember Alvarez, District 8 (MS 10A)
 Historical Resource Board (87)
 City Attorney (MS 56A)
 Shannon Thomas (MS 93C)
 Engineering and Capital Projects
 Marc Cass (MS 908A)
 Allison Sherwood (MS 908A)
 Matthew DeBeliso (MS 908A)
 Akram Bassyouni (MS 908A)
 Michael Ninh (MS 908A)
 Roman Anissi (MS 908A)
 Daniel Tittle (MS 908A)
 Development Services Department
 Myra Herrmann (MS 501)
 Kristen Forburger (MS 401)
 Jeanne Krosch (MS 401)
 Kelley Stanco (MS 501)
 Library Dept.-Gov. Documents MS 17 (81)
 Balboa Branch Library (81B)
 Beckwourth Branch Library (81C)
 Benjamin Branch Library (81D)
 Carmel Mountain Ranch Branch (81E)
 Carmel Valley Branch Library (81F)
 City Heights/Weingart Branch Library (81G)
 Clairemont Branch Library (81H)
 College-Rolando Branch Library (81I)
 Kensington-Normal Heights Branch Library (81K)
 La Jolla/Riford branch Library (81L)
 Linda Vista Branch Library (81M)
 Logan Heights Branch Library (81N)
 Malcolm X Library & Performing Arts Center (81O)
 Mira Mesa Branch Library (81P)
 Mission Hills Branch Library (81Q)
 Mission Valley Branch Library (81R)
 North Clairemont Branch Library (81S)
 North Park Branch Library (81T)
 Oak Park Branch Library (81U)
 Ocean Beach Branch Library (81V)
 Otay Mesa-Nestor Branch Library (81W)
 Pacific Beach/Taylor Branch Library (81X)
 Paradise Hills Branch Library (81Y)
 Point Loma/Hervey Branch Library (81Z)
 Rancho Bernardo Branch Library (81AA)
 Rancho Peñasquitos Branch Library (81BB)
 San Carlos Branch Library (81DD)
 San Ysidro Branch Library (81EE)
 Scripps Miramar Ranch Branch Library (81FF)

Serra Mesa Branch Library (81GG)
 Skyline Hills Branch Library (81HH)
 Tierrasanta Branch Library (81II)
 University Community Branch Library (81JJ)
 University Heights Branch Library (81KK)
 Malcolm A. Love Library (457)

Other Interested Individuals or Groups

Community Planning Groups

Community Planners Committee (194)
 Balboa Park Committee (226 + 226A)
 Black Mountain Ranch –Subarea I (226C)
 Otay Mesa - Nestor Planning Committee (228)
 Otay Mesa Planning Committee (235)
 Clairemont Mesa Planning Committee (248)
 Greater Golden Hill Planning Committee (259)
 Serra Mesa Planning Group (263A)
 Kearny Mesa Community Planning Group (265)
 Linda Vista Community Planning Committee (267)
 La Jolla Community Planning Association (275)
 City Heights Area Planning Committee (287)
 Kensington-Talmadge Planning Committee (290)
 Normal Heights Community Planning Committee (291)
 Eastern Area Planning Committee (302)
 North Bay Community Planning Group (307)
 Mira Mesa Community Planning Group (310)
 Mission Beach Precise Planning Board (325)
 Mission Valley Unified Planning Organization (331)
 Navajo Community Planners Inc. (336)
 Carmel Valley Community Planning Board (350)
 Del Mar Mesa Community Planning Board (361)
 Greater North Park Planning Committee (363)
 Ocean Beach Planning Board (367)
 Old Town Community Planning Committee (368)
 Pacific Beach Community Planning Committee (375)
 Pacific Highlands Ranch – Subarea III (377A)
 Rancho Peñasquitos Planning Board (380)
 Peninsula Community Planning Board (390)
 Rancho Bernardo Community Planning Board (400)
 Sabre Springs Community Planning Group (406B)
 Sabre Springs Community Planning Group (407)
 San Pasqual - Lake Hodges Planning Group (426)
 San Ysidro Planning and Development Group (433)
 Scripps Ranch Community Planning Group (437)
 Miramar Ranch North Planning Committee (439)
 Skyline - Paradise Hills Planning Committee (443)
 Torrey Hills Community Planning Board (444A)
 Southeastern San Diego Planning Committee (449)
 Encanto Neighborhoods Community Planning Group (449A)

College Area Community Council (456)
 Tierrasanta Community Council (462)
 Torrey Highlands – Subarea IV (467)
 Torrey Pines Community Planning Group (469)
 University City Community Planning Group (480)
 Uptown Planners (498)

Town/Community Councils - PUBLIC NOTICE ONLY

Town Council Presidents Association (197)
 Harborview Community Council (246)
 Carmel Mountain Ranch Community Council (344)
 Clairemont Town Council (257)
 Serra Mesa Community Council (264)
 Rolando Community Council (288)
 Oak Park Community Council (298)
 Webster Community Council (301)
 Darnell Community Council (306)
 La Jolla Town Council (273)
 Mission Beach Town Council (326)
 Mission Valley Community Council (328 C)
 San Carlos Area Council (338)
 Ocean Beach Town Council, Inc. (367 A)
 Pacific Beach Town Council (374)
 Rancho Penasquitos Community Council (378)
 Rancho Bernardo Community Council, Inc. (398)
 Rancho Penasquitos Town Council (383)
 United Border Community Town Council (434)
 San Dieguito Planning Group (412)
 Murphy Canyon Community Council (463)

Other Interested Individuals or Groups

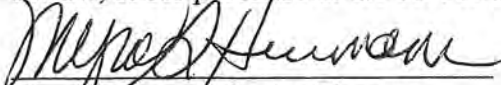
San Diego Unified Port District (109)
 San Diego County Regional Airport Authority (110)
 San Diego transit Corporation (112)
 San Diego Gas & Electric (114)
 Metropolitan Transit Systems (115)
 San Diego Unified School District (125/132)
 San Ysidro Unified School District (127)
 San Diego Community College District (133)
 The Beach and Bay Beacon News (137)
 Sierra Club (165)
 San Diego Canyonlands (165A)
 San Diego Natural History Museum (166)
 San Diego Audubon Society (167)
 Jim Peugh (167A)
 California Native Plant Society (170)
 San Diego Coastkeeper (173)
 Endangered Habitat League (182 and 182A)
 South Coastal Information Center @ San Diego State University (210)

San Diego Historical Society (211)
Carmen Lucas (206)
Clint Linton (215b)
San Diego Archaeological Center (212)
Save Our Heritage Organization (214)
Ron Christman (215)
Louie Guassac (215A)
San Diego County Archaeological Society (218)
Kumeyaay Cultural Heritage Preservation (223)
Kumeyaay Cultural Repatriation Committee (225)
Native American Distribution (NOTICE ONLY 225A-T)
San Diego Historical Society (211)
Theresa Acerro (230)
Unified Port of San Diego (240)
Centre City Development Corporation (242)
Centre City Advisory Committee (243)
Balboa Avenue CAC (246)
Theresa Quiros (294)
Fairmount Park Neighborhood Association (303)
John Stump (304)
San Diego Baykeeper (319)
Debbie Knight (320)
Mission Hills Heritage (497)

VII. RESULTS OF PUBLIC REVIEW:

- () No comments were received during the public input period.
- () Comments were received but did not address the draft Mitigated Negative Declaration finding or the accuracy/completeness of the Initial Study. No response is necessary. The letters are attached.
- (x) Comments addressing the findings of the draft Mitigated Negative Declaration and/or accuracy or completeness of the Initial Study were received during the public input period. The letters and responses follow.

Copies of the draft Mitigated Negative Declaration, the Mitigation, Monitoring and Reporting Program and any Initial Study material are available in the office of the Entitlements Division for review, or for purchase at the cost of reproduction.


Myra Herrmann, Senior Planner
Development Services Department

September 14, 2011
Date of Draft Report

October 24, 2011
Date of Final Report

Analysts: J. Szymanski/M. Herrmann

Attachments:

- Figure 1 - Harbor Drive Pipeline Location Map
 - Figure 2 - Water Group 949 Site 1 Location Map
 - Figure 3- Water Group 949 Site 2 Location Map
 - Figure 4- Water Group 949 Site 3 Location Map
 - Figure 5- Sewer Group 787 Location Map
 - Figure 6- Water Group 914 Location Map
 - Figure 7- Sewer and Water Group 732 Location Map
 - Figure 8- Water Group 949-Site 2 with the MHPA
- Initial Study Checklist

WATER GROUP 939 PROJECT
ADDENDUM TO MITIGATED NEGATIVE DECLARATION NO. 255100
(Project No. 492114)
AND
MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

ADOPTED ON OCTOBER 4, 2016

WHEREAS, on May 31, 2016, The City of San Diego Public Works Department submitted an application to the Development Services Department of a Public Project Assessment (PPA) for the WATER GROUP 939 (Project), for approval of minor technical changes or additions to the Citywide Pipeline Projects scope that was analyzed by adopted Mitigated Negative Declaration No. 255100; and

WHEREAS, the matter was considered without a public hearing by the Deputy Director of the Development Services Department as designated by the City Manager of the City of San Diego on October 4, 2016; and

WHEREAS, on October 4, 2016, the Deputy Director of the Development Services considered the issues discussed in Addendum to Mitigated Negative Declaration No. 255100 (Declaration), a copy of which is on file in the Development Services Department, in accordance with the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code Section 21000 et seq.), as amended, and the State CEQA Guidelines thereto (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq.); and

WHEREAS, State CEQA Guidelines section 15164(a) allows a lead agency to prepare an Addendum to a final Mitigated Negative Declaration if such Addendum meets the requirements of CEQA; NOW, THEREFORE,

BE IT RESOLVED, by the Deputy Director of the Development Services Department of the City of San Diego as follows:

1. That the information contained in the final Mitigated Negative Declaration No. 255100 along with the Addendum thereto, including any comments received during the public review process, has been reviewed and considered by this Deputy Director of the Development Services Department prior to making a decision on the Project.
2. That there are no substantial changes proposed to the Project and no substantial changes with respect to the circumstances under which the Project is to be undertaken that would require major revisions in the Mitigated Negative Declaration for the Project.
3. That no new information of substantial importance has become available showing that the Project would have any significant effects not discussed previously in Mitigated Negative

Declaration or that any significant effects previously examined will be substantially more severe than shown in the Mitigated Negative Declaration.

4. That no new information of substantial importance has become available showing that mitigation measures or alternatives previously found not to be feasible are in fact feasible which would substantially reduce any significant effects, but that the Project proponents decline to adopt, or that there are any considerably different mitigation measures or alternatives not previously considered which would substantially reduce any significant effects, but that the Project proponents decline to adopt.
5. That pursuant to State CEQA Guidelines Section 15164, only minor technical changes or additions are necessary, and therefore, the Deputy Director of the Development Services Department adopts Addendum to Mitigated Negative Declaration No. 255100 with respect to the Project, a copy of which is on file in the office of the Development Services Department.
6. That pursuant to CEQA Section 21081.6, the Deputy Director of the Development Services Department adopts the Mitigation Monitoring and Reporting Program, or alterations to implement the changes to the project as required by this Deputy Director of the Development Services Department in order to mitigate or avoid significant effects on the environment, which is attached hereto as Exhibit A.
7. That DEVELOPMENT SERVICES STAFF is directed to file a Notice of Determination with the Clerk of the Board of Supervisors for the County of San Diego regarding the Project.

APPROVED: Kerry Santoro, Deputy Director, Development Services Department

By:  _____

Date: 10/4/16

ATTACHMENT: EXHIBIT A – MITIGATION MONITORING AND REPORTING PROGRAM

EXHIBIT A

MITIGATION MONITORING AND REPORTING PROGRAM CANYONSIDE RECYCLED WATER PUMP STATION DRAIN RELOCATION PROJECT PROJECT NO. 492114

This Mitigation Monitoring and Reporting Program is designed to ensure compliance with Public Resources Code Section 21081.6 during implementation of mitigation measures. This program identifies at a minimum: the department responsible for the monitoring, what is to be monitored, how the monitoring shall be accomplished, the monitoring and reporting schedule, and completion requirements. A record of the Mitigation Monitoring and Reporting Program will be maintained at the offices of the Entitlements Division, 1222 First Avenue, Fifth Floor, San Diego, CA, 92101.

HISTORICAL RESOURCES (ARCHAEOLOGY)

I. Prior to Permit Issuance or Bid Opening/Bid Award

A. Entitlements Plan Check

1. Prior to permit issuance or Bid Opening/Bid Award, whichever is applicable, the Assistant Deputy Director (ADD) Environmental designee shall verify that the requirements for Archaeological Monitoring and Native American monitoring have been noted on the applicable construction documents through the plan check process.

B. Letters of Qualification have been submitted to ADD

1. Prior to Bid Award, the applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the project and the names of all persons involved in the archaeological monitoring program, as defined in the City of San Diego Historical Resources Guidelines (HRG). If applicable, individuals involved in the archaeological monitoring program must have completed the 40-hour HAZWOPER training with certification documentation.
2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the archaeological monitoring of the project meet the qualifications established in the HRG.
3. Prior to the start of work, the applicant must obtain written approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search

1. The PI shall provide verification to MMC that a site specific records search (1/4 mile radius) has been completed. Verification includes, but is not limited to a copy of a confirmation letter from South Coastal Information Center, or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.
3. The PI may submit a detailed letter to MMC requesting a reduction to the ¼ mile radius.

B. PI Shall Attend Precon Meetings

1. Prior to beginning any work that requires monitoring; the Applicant shall arrange a Precon Meeting that shall include the PI, Native American consultant/monitor (where Native American resources may be impacted), Construction Manager (CM) and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified Archaeologist and Native American Monitor shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Archaeological Monitoring program with the Construction Manager and/or Grading Contractor.
 - a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.
2. Acknowledgement of Responsibility for Curation (CIP or Other Public Projects)
The applicant shall submit a letter to MMC acknowledging their responsibility for the cost of curation associated with all phases of the archaeological monitoring program.
3. Identify Areas to be Monitored
 - a. Prior to the start of any work that requires monitoring, the PI shall submit an Archaeological Monitoring Exhibit (AME) (with verification that the AME has been reviewed and approved by the Native American consultant/monitor when Native American resources may be impacted) based on the appropriate construction documents (reduced to 11x17) to MMC identifying the areas to be monitored including the delineation of grading/excavation limits.
 - b. The AME shall be based on the results of a site specific records search as well as information regarding the age of existing pipelines, laterals and associated appurtenances and/or any known soil conditions (native or formation).
 - c. MMC shall notify the PI that the AME has been approved.

4. When Monitoring Will Occur
 - a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
 - b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction documents which indicate conditions such as age of existing pipe to be replaced, depth of excavation and/or site graded to bedrock, etc., which may reduce or increase the potential for resources to be present.
5. Approval of AME and Construction Schedule
After approval of the AME by MMC, the PI shall submit to MMC written authorization of the AME and Construction Schedule from the CM.

III. During Construction

- A. Monitor Shall be Present During Grading/Excavation/Trenching
 1. The Archaeological Monitor shall be present full-time during all soil disturbing and grading/excavation/trenching activities which could result in impacts to archaeological resources as identified on the AME. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the AME.**
 2. The Native American consultant/monitor shall determine the extent of their presence during soil disturbing and grading/excavation/trenching activities based on the AME and provide that information to the PI and MMC. If prehistoric resources are encountered during the Native American consultant/monitor's absence, work shall stop and the Discovery Notification Process detailed in Section III.B-C and IV.A-D shall commence.
 3. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as modern disturbance post-dating the previous grading/trenching activities, presence of fossil formations, or when native soils are encountered that may reduce or increase the potential for resources to be present.
 4. The archaeological and Native American consultant/monitor shall document field activity via the Consultant Site Visit Record (CSVr). The CSVr's shall be faxed by the

CM to the RE the first day of monitoring, the last day of monitoring, monthly **(Notification of Monitoring Completion)**, and in the case of ANY discoveries. The RE shall forward copies to MMC.

B. Discovery Notification Process

1. In the event of a discovery, the Archaeological Monitor shall direct the contractor to temporarily divert all soil disturbing activities, including but not limited to digging, trenching, excavating or grading activities in the area of discovery and in the area reasonably suspected to overlay adjacent resources and immediately notify the RE or BI, as appropriate.
2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.
4. No soil shall be exported off-site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered.

C. Determination of Significance

1. The PI and Native American consultant/monitor, where Native American resources are discovered shall evaluate the significance of the resource. If Human Remains are involved, follow protocol in Section IV below.
 - a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required.
 - b. If the resource is significant, the PI shall submit an Archaeological Data Recovery Program (ADRP) and obtain written approval of the program from MMC, CM and RE. ADRP and any mitigation must be approved by MMC, RE and/or CM before ground disturbing activities in the area of discovery will be allowed to resume. **Note: If a unique archaeological site is also an historical resource as defined in CEQA Section 15064.5, then the limits on the amount(s) that a project applicant may be required to pay to cover mitigation costs as indicated in CEQA Section 21083.2 shall not apply.**

- (1). Note: For pipeline trenching and other linear projects in the public Right-of-Way, the PI shall implement the Discovery Process for Pipeline Trenching projects identified below under "D."
- c. If the resource is not significant, the PI shall submit a letter to MMC indicating that artifacts will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that that no further work is required.
 - (1). Note: For Pipeline Trenching and other linear projects in the public Right-of-Way, if the deposit is limited in size, both in length and depth; the information value is limited and is not associated with any other resource; and there are no unique features/artifacts associated with the deposit, the discovery should be considered not significant.
 - (2). Note, for Pipeline Trenching and other linear projects in the public Right-of-Way, if significance cannot be determined, the Final Monitoring Report and Site Record (DPR Form 523A/B) shall identify the discovery as Potentially Significant.
- D. Discovery Process for Significant Resources - Pipeline Trenching and other Linear Projects in the Public Right-of-Way

The following procedure constitutes adequate mitigation of a significant discovery encountered during pipeline trenching activities or for other linear project types within the Public Right-of-Way including but not limited to excavation for jacking pits, receiving pits, laterals, and manholes to reduce impacts to below a level of significance:

- 1. Procedures for documentation, curation and reporting
 - a. One hundred percent of the artifacts within the trench alignment and width shall be documented in-situ, to include photographic records, plan view of the trench and profiles of side walls, recovered, photographed after cleaning and analyzed and curated. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact.
 - b. The PI shall prepare a Draft Monitoring Report and submit to MMC via the RE as indicated in Section VI-A.
 - c. The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) the resource(s) encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines. The DPR forms shall be submitted to the South Coastal Information Center for either a Primary Record or SDI Number and included in the Final Monitoring Report.

- d. The Final Monitoring Report shall include a recommendation for monitoring of any future work in the vicinity of the resource.

IV. Discovery of Human Remains

If human remains are discovered, work shall halt in that area and no soil shall be exported off-site until a determination can be made regarding the provenance of the human remains; and the following procedures as set forth in CEQA Section 15064.5(e), the California Public Resources Code (Sec. 5097.98) and State Health and Safety Code (Sec. 7050.5) shall be undertaken:

A. Notification

1. Archaeological Monitor shall notify the RE or BI as appropriate, MMC, and the PI, if the Monitor is not qualified as a PI. MMC will notify the appropriate Senior Planner in the Environmental Analysis Section (EAS) of the Development Services Department to assist with the discovery notification process.
2. The PI shall notify the Medical Examiner after consultation with the RE, either in person or via telephone.

B. Isolate discovery site

1. Work shall be directed away from the location of the discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can be made by the Medical Examiner in consultation with the PI concerning the provenience of the remains.
2. The Medical Examiner, in consultation with the PI, will determine the need for a field examination to determine the provenience.
3. If a field examination is not warranted, the Medical Examiner will determine with input from the PI, if the remains are or are most likely to be of Native American origin.

C. If Human Remains **ARE** determined to be Native American

1. The Medical Examiner will notify the Native American Heritage Commission (NAHC) within 24 hours. By law, **ONLY** the Medical Examiner can make this call.
2. NAHC will immediately identify the person or persons determined to be the Most Likely Descendent (MLD) and provide contact information.

3. The MLD will contact the PI within 24 hours or sooner after the Medical Examiner has completed coordination, to begin the consultation process in accordance with CEQA Section 15064.5(e), the California Public Resources and Health & Safety Codes.
4. The MLD will have 48 hours to make recommendations to the property owner or representative, for the treatment or disposition with proper dignity, of the human remains and associated grave goods.
5. Disposition of Native American Human Remains will be determined between the MLD and the PI, and, if:
 - a. The NAHC is unable to identify the MLD, OR the MLD failed to make a recommendation within 48 hours after being notified by the Commission, OR;
 - b. The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097.94 (k) by the NAHC fails to provide measures acceptable to the landowner, THEN
 - c. To protect these sites, the landowner shall do one or more of the following:
 - (1) Record the site with the NAHC;
 - (2) Record an open space or conservation easement; or
 - (3) Record a document with the County.
 - d. Upon the discovery of multiple Native American human remains during a ground disturbing land development activity, the landowner may agree that additional conferral with descendants is necessary to consider culturally appropriate treatment of multiple Native American human remains. Culturally appropriate treatment of such a discovery may be ascertained from review of the site utilizing cultural and archaeological standards. Where the parties are unable to agree on the appropriate treatment measures the human remains and items associated and buried with Native American human remains shall be reinterred with appropriate dignity, pursuant to Section 5.c., above.

D. If Human Remains are **NOT** Native American

1. The PI shall contact the Medical Examiner and notify them of the historic era context of the burial.
2. The Medical Examiner will determine the appropriate course of action with the PI and City staff (PRC 5097.98).

3. If the remains are of historic origin, they shall be appropriately removed and conveyed to the San Diego Museum of Man for analysis. The decision for internment of the human remains shall be made in consultation with MMC, EAS, the applicant/landowner, any known descendant group, and the San Diego Museum of Man.

V. Night and/or Weekend Work

A. If night and/or weekend work is included in the contract

1. When night and/or weekend work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
2. The following procedures shall be followed.
 - a. No Discoveries
In the event that no discoveries were encountered during night and/or weekend work, the PI shall record the information on the CSV and submit to MMC via fax by 8AM of the next business day.
 - b. Discoveries

All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction, and IV – Discovery of Human Remains. Discovery of human remains shall always be treated as a significant discovery.
 - c. Potentially Significant Discoveries

If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction and IV-Discovery of Human Remains shall be followed.
 - d. The PI shall immediately contact the RE and MMC, or by 8AM of the next business day to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.

B. If night and/or weekend work becomes necessary during the course of construction

1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
2. The RE, or BI, as appropriate, shall notify MMC immediately.

C. All other procedures described above shall apply, as appropriate.

VI. Post Construction

A. Submittal of Draft Monitoring Report

1. The PI shall submit two copies of the Draft Monitoring Report (even if negative), prepared in accordance with the Historical Resources Guidelines (Appendix C/D) which describes the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program (with appropriate graphics) to MMC via the RE for review and approval within 90 days following the completion of monitoring. **It should be noted that if the PI is unable to submit the Draft Monitoring Report within the allotted 90-day timeframe as a result of delays with analysis, special study results or other complex issues, a schedule shall be submitted to MMC establishing agreed due dates and the provision for submittal of monthly status reports until this measure can be met.**
 - a. For significant archaeological resources encountered during monitoring, the Archaeological Data Recovery Program or Pipeline Trenching Discovery Process shall be included in the Draft Monitoring Report.
 - b. Recording Sites with State of California Department of Parks and Recreation
The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) any significant or potentially significant resources encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines, and submittal of such forms to the South Coastal Information Center with the Final Monitoring Report.
2. MMC shall return the Draft Monitoring Report to the PI via the RE for revision or, for preparation of the Final Report.
3. The PI shall submit revised Draft Monitoring Report to MMC via the RE for approval.
4. MMC shall provide written verification to the PI of the approved report.
5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.

B. Handling of Artifacts

1. The PI shall be responsible for ensuring that all cultural remains collected are cleaned and catalogued.

2. The PI shall be responsible for ensuring that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate.
- C. Curation of artifacts: Accession Agreement and Acceptance Verification
1. The PI shall be responsible for ensuring that all artifacts associated with the survey, testing and/or data recovery for this project are permanently curated with an appropriate institution. This shall be completed in consultation with MMC and the Native American representative, as applicable.
 2. When applicable to the situation, the PI shall include written verification from the Native American consultant/monitor indicating that Native American resources were treated in accordance with state law and/or applicable agreements. If the resources were reinterred, verification shall be provided to show what protective measures were taken to ensure no further disturbance occurs in accordance with Section IV – Discovery of Human Remains, Subsection C.
 3. The PI shall submit the Accession Agreement and catalogue record(s) to the RE or BI, as appropriate for donor signature with a copy submitted to MMC.
 4. The RE or BI, as appropriate shall obtain signature on the Accession Agreement and shall return to PI with copy submitted to MMC.
 5. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.
- D. Final Monitoring Report(s)
1. The PI shall submit one copy of the approved Final Monitoring Report to the RE or BI as appropriate, and one copy to MMC (even if negative), within 90 days after notification from MMC of the approved report.
 2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

BIOLOGICAL RESOURCE PROTECTION DURING CONSTRUCTION

In the event that unanticipated biological impacts occur, the impacts shall be reported to DSD/MSCP staff and mitigated as appropriate in accordance with City Biology Guidelines, ESL and MSCP, State CEQA, and other applicable local, state and federal law.

MSCP SUBAREA PLAN -LAND USE ADJACENCY GUIDELINES – AUGUST 2013

Prior to issuance of any construction permit or notice to proceed, DSD/ LDR, and/or MSCP staff shall verify the Applicant has accurately represented the project's design in or on the Construction Documents (CD's/CD's consist of Construction Plan Sets for Private Projects and Contract Specifications for Public Projects) are in conformance with the associated discretionary permit conditions and Exhibit "A", and also the City's Multi-Species Conservation Program (MSCP) Multi-Habitat Planning Area (MHPA) Land Use Adjacency Guidelines. The applicant shall provide an implementing plan and include references on/in CD's of the following:

- A. Grading/Land Development/MHPA Boundaries - MHPA boundaries on-site and adjacent properties shall be delineated on the CDs. DSD Planning and/or MSCP staff shall ensure that all grading is included within the development footprint, specifically manufactured slopes, disturbance, and development within or adjacent to the MHPA. For projects within or adjacent to the MHPA, all manufactured slopes associated with site development shall be included within the development footprint.
- B. Drainage - All new and proposed parking lots and developed areas in and adjacent to the MHPA shall be designed so they do not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials prior to release by incorporating the use of filtration devices, planted swales and/or planted detention/desiltation basins, or other approved permanent methods that are designed to minimize negative impacts, such as excessive water and toxins into the ecosystems of the MHPA.
- C. Toxics/Project Staging Areas/Equipment Storage - Projects that use chemicals or generate by-products such as pesticides, herbicides, and animal waste, and other substances that are potentially toxic or impactful to native habitats/flora/fauna (including water) shall incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. No trash, oil, parking, or other construction/development-related material/activities shall be allowed outside any approved construction limits. Where applicable, this requirement shall be incorporated into leases on publicly-owned property when applications for renewal occur. Provide a note in/on the CD's that states: "All construction related activity that may have potential for leakage or intrusion shall be monitored by the Qualified Biologist/Owners Representative or Resident Engineer to ensure there is no impact to the MHPA."
- D. Lighting - Lighting within or adjacent to the MHPA shall be directed away/shielded from the MHPA and be subject to City Outdoor Lighting Regulations per LDC Section 142.0740.
- E. Barriers - New development within or adjacent to the MHPA shall be required to provide barriers (e.g., non-invasive vegetation; rocks/boulders; 6-foot high, vinyl-coated chain link or equivalent fences/walls; and/or signage) along the MHPA boundaries to direct public access to appropriate locations, reduce domestic animal predation, protect wildlife in the preserve, and provide adequate noise reduction where needed.

- F. Invasives- No invasive non-native plant species shall be introduced into areas within or adjacent to the MHPA.
- G. Brush Management - New development adjacent to the MHPA shall be set back from the MHPA to provide required Brush Management Zone 1 area on the building pad outside of the MHPA. Zone 2 may be located within the MHPA provided the Zone 2 management will be the responsibility of an HOA or other private entity except where narrow wildlife corridors require it to be located outside of the MHPA. Brush management zones will not be greater in size than currently required by the City's regulations, the amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done and vegetation clearing shall be prohibited within native coastal sage scrub and chaparral habitats from March 1-August 15 except where the City ADD/MMC has documented the thinning would be consist with the City's MSCP Subarea Plan. Existing and approved projects are subject to current requirements of Municipal Code Section 142.0412.
- H. Noise - Due to the site's location adjacent to or within the MHPA where the Qualified Biologist has identified potential nesting habitat for listed avian species, construction noise that exceeds the maximum levels allowed shall be avoided during the breeding seasons for the following: California Gnatcatcher (3/1-8/15); Least Bell's vireo (3/15-9/15); and Southwestern Willow Flycatcher (5/1-8/30) (select only the species that apply). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys shall be required in order to determine species presence/absence. If protocol surveys are not conducted in suitable habitat during the breeding season for the aforementioned listed species, presence shall be assumed with implementation of noise attenuation and biological monitoring.

When applicable (i.e., habitat is occupied or if presence of the covered species is assumed), adequate noise reduction measures shall be incorporated as follows:

GENERAL NOISE - BIRDS

To cover all potentially sensitive bird species in the area, if work is to be performed from Feb. 1- Sept 15 where the construction noise would be greater than 60 dB at the nearest native upland or wetland habitat boundary, then presence should be assumed and that work should avoided until after the breeding season or noise barriers should be erected outside the habitat so that noise impacts are reduced to below 60 dB during construction.

COASTAL CALIFORNIA GNATCATCHER (Federally Threatened)

- 1. Prior to the preconstruction meeting, the City Manager (or appointed designee) shall verify that the Multi-Habitat Planning Area (MHPA) boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 1 AND AUGUST 15, THE BREEDING SEASON OF THE COASTAL CALIFORNIA GNATCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE HABITAT AREAS WITHIN THE MHPA THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE COASTAL CALIFORNIA GNATCATCHER. SURVEYS FOR THE COASTAL CALIFORNIA GNATCATCHER SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF GNATCATCHERS ARE PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:
 - I. BETWEEN MARCH 1 AND AUGUST 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED GNATCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND
 - II. BETWEEN MARCH 1 AND AUGUST 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED GNATCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR
 - III. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE COASTAL CALIFORNIA GNATCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED

HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (AUGUST 16).

LEAST BELL'S VIREO (State Endangered/Federally Endangered)

2. Prior to the issuance of any grading permit (FOR PUBLIC UTILITY PROJECTS: prior to the preconstruction meeting), the City Manager (or appointed designee) shall verify that the following project requirements regarding the least Bell's vireo are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 15 AND SEPTEMBER 15, THE BREEDING SEASON OF THE LEAST BELL'S VIREO, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE LEAST BELL'S VIREO. SURVEYS FOR THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF THE LEAST BELL'S VIREO IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MARCH 15 AND SEPTEMBER 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED LEAST BELL'S VIREO HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

BETWEEN MARCH 15 AND SEPTEMBER 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED LEAST BELL'S VIREO OR HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE

COMMENCEMENT OF ANY OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE LEAST BELL'S VIREO. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 16).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF LEAST BELL'S VIREO ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MARCH 15 AND SEPTEMBER 15 AS FOLLOWS:
 - I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR LEAST BELL'S VIREO TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

SOUTHWESTERN WILLOW FLYCATCHER (Federally Endangered)

3. Prior to the issuance of any grading permit (FOR PUBLIC UTILITY PROJECTS: prior to the preconstruction meeting), the City Manager (or appointed designee) shall verify that the following project requirements regarding the southwestern willow flycatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MAY 1 AND SEPTEMBER 1, THE BREEDING SEASON OF THE SOUTHWESTERN WILLOW FLYCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE SOUTHWESTERN WILLOW FLYCATCHER. SURVEYS FOR THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF THE SOUTHWESTERN WILLOW FLYCATCHER IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MAY 1 AND SEPTEMBER 1, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

BETWEEN MAY 1 AND SEPTEMBER 1, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMES, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE SOUTHWESTERN WILLOW FLYCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 1).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF SOUTHWESTERN WILLOW FLYCATCHER ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MAY 1 AND SEPTEMBER 1 AS FOLLOWS:
 - I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR SOUTHWESTERN WILLOW FLYCATCHER TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

The above Mitigation Monitoring and Reporting Program will require additional fees and/or deposits to be collected prior to the issuance of building permits, certificates or occupancy and/or final maps to ensure the successful completion of the monitoring program.

APPENDIX B
FIRE HYDRANT METER PROGRAM

CITY OF SAN DIEGO CALIFORNIA DEPARTMENT INSTRUCTIONS	NUMBER DI 55.27	DEPARTMENT Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 1 OF 10	EFFECTIVE DATE October 15, 2002
	SUPERSEDES DI 55.27	DATED April 21, 2000

1. **PURPOSE**

- 1.1 To establish a Departmental policy and procedure for issuance, proper usage and charges for fire hydrant meters.

2. **AUTHORITY**

- 2.1 All authorities and references shall be current versions and revisions.
- 2.2 San Diego Municipal Code (NC) Chapter VI, Article 7, Sections 67.14 and 67.15
- 2.3 Code of Federal Regulations, Safe Drinking Water Act of 1986
- 2.4 California Code of Regulations, Titles 17 and 22
- 2.5 California State Penal Code, Section 498B.0
- 2.6 State of California Water Code, Section 110, 500-6, and 520-23
- 2.7 Water Department Director

Reference

- 2.8 State of California Guidance Manual for Cross Connection Programs
- 2.9 American Water Works Association Manual M-14, Recommended Practice for Backflow Prevention
- 2.10 American Water Works Association Standards for Water Meters
- 2.11 U.S.C. Foundation for Cross Connection Control and Hydraulic Research Manual

3. **DEFINITIONS**

- 3.1 **Fire Hydrant Meter:** A portable water meter which is connected to a fire hydrant for the purpose of temporary use. (These meters are sometimes referred to as Construction Meters.)

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- 3.2 **Temporary Water Use:** Water provided to the customer for no longer than twelve (12) months.
- 3.3 **Backflow Preventor:** A Reduced Pressure Principal Assembly connected to the outlet side of a Fire Hydrant Meter.

4. **POLICY**

- 4.1 The Water Department shall collect a deposit from every customer requiring a fire hydrant meter and appurtenances prior to providing the meter and appurtenances (see Section 7.1 regarding the Fees and Deposit Schedule). The deposit is refundable upon the termination of use and return of equipment and appurtenances in good working condition.
- 4.2 Fire hydrant meters will have a 2 ½" swivel connection between the meter and fire hydrant. The meter shall not be connected to the 4" port on the hydrant. All Fire Hydrant Meters issued shall have a Reduced Pressure Principle Assembly (RP) as part of the installation. Spanner wrenches are the only tool allowed to turn on water at the fire hydrant.
- 4.3 The use of private hydrant meters on City hydrants is prohibited, with exceptions as noted below. All private fire hydrant meters are to be phased out of the City of San Diego. All customers who wish to continue to use their own fire hydrant meters must adhere to the following conditions:
 - a. Meters shall meet all City specifications and American Water Works Association (AWWA) standards.
 - b. Customers currently using private fire hydrant meters in the City of San Diego water system will be allowed to continue using the meter under the following conditions:
 - 1. The customer must submit a current certificate of accuracy and calibration results for private meters and private backflows annually to the City of San Diego, Water Department, Meter Shop.

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2. The meter must be properly identifiable with a clearly labeled serial number on the body of the fire hydrant meter. The serial number shall be plainly stamped on the register lid and the main casing. Serial numbers shall be visible from the top of the meter casing and the numbers shall be stamped on the top of the inlet casing flange.
3. All meters shall be locked to the fire hydrant by the Water Department, Meter Section (see Section 4.7).
4. All meters shall be read by the Water Department, Meter Section (see Section 4.7).
5. All meters shall be relocated by the Water Department, Meter Section (see Section 4.7).
6. These meters shall be tested on the anniversary of the original test date and proof of testing will be submitted to the Water Department, Meter Shop, on a yearly basis. If not tested, the meter will not be allowed for use in the City of San Diego.
7. All private fire hydrant meters shall have backflow devices attached when installed.
8. The customer must maintain and repair their own private meters and private backflows.
9. The customer must provide current test and calibration results to the Water Department, Meter Shop after any repairs.
10. When private meters are damaged beyond repair, these private meters will be replaced by City owned fire hydrant meters.

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11. When a private meter malfunctions, the customer will be notified and the meter will be removed by the City and returned to the customer for repairs. Testing and calibration results shall be given to the City prior to any re-installation.
 12. The register shall be hermetically sealed straight reading and shall be readable from the inlet side. Registration shall be in hundred cubic feet.
 13. The outlet shall have a 2 ½ “National Standards Tested (NST) fire hydrant male coupling.
 14. Private fire hydrant meters shall not be transferable from one contracting company to another (i.e. if a company goes out of business or is bought out by another company).
- 4.4 All fire hydrant meters and appurtenances shall be installed, relocated and removed by the City of San Diego, Water Department. All City owned fire hydrant meters and appurtenances shall be maintained by the City of San Diego, Water Department, Meter Services.
- 4.5 If any fire hydrant meter is used in violation of this Department Instruction, the violation will be reported to the Code Compliance Section for investigation and appropriate action. Any customer using a fire hydrant meter in violation of the requirements set forth above is subject to fines or penalties pursuant to the Municipal Code, Section 67.15 and Section 67.37.
- 4.6 Conditions and Processes for Issuance of a Fire Hydrant Meter**
- Process for Issuance
- a. Fire hydrant meters shall only be used for the following purposes:
 1. Temporary irrigation purposes not to exceed one year.

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2. Construction and maintenance related activities (see Tab 2).
 - b. No customer inside or outside the boundaries of the City of San Diego Water Department shall resell any portion of the water delivered through a fire hydrant by the City of San Diego Water Department.
 - c. The City of San Diego allows for the issuance of a temporary fire hydrant meter for a period not to exceed 12 months (365 days). An extension can only be granted in writing from the Water Department Director for up to 90 additional days. A written request for an extension by the consumer must be submitted at least 30 days prior to the 12 month period ending. No extension shall be granted to any customer with a delinquent account with the Water Department. No further extensions shall be granted.
 - d. Any customer requesting the issuance of a fire hydrant meter shall file an application with the Meter Section. The customer must complete a "Fire Hydrant Meter Application" (Tab 1) which includes the name of the company, the party responsible for payment, Social Security number and/or California ID, requested location of the meter (a detailed map signifying an exact location), local contact person, local phone number, a contractor's license (or a business license), description of specific water use, duration of use at the site and full name and address of the person responsible for payment.
 - e. At the time of the application the customer will pay their fees according to the schedule set forth in the Rate Book of Fees and Charges, located in the City Clerk's Office. All fees must be paid by check, money order or cashiers check, made payable to the City Treasurer. Cash will not be accepted.
 - f. No fire hydrant meters shall be furnished or relocated for any customer with a delinquent account with the Water Department.
 - g. After the fees have been paid and an account has been created, the

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meter shall be installed within 48 hours (by the second business day). For an additional fee, at overtime rates, meters can be installed within 24 hours (within one business day).

4.7 Relocation of Existing Fire Hydrant Meters

- a. The customer shall call the Fire Hydrant Meter Hotline (herein referred to as “Hotline”), a minimum of 24 hours in advance, to request the relocation of a meter. A fee will be charged to the existing account, which must be current before a work order is generated for the meter’s relocation.
- b. The customer will supply in writing the address where the meter is to be relocated (map page, cross street, etc). The customer must update the original Fire Hydrant Meter Application with any changes as it applies to the new location.
- c. Fire hydrant meters shall be read on a monthly basis. While fire hydrant meters and backflow devices are in service, commodity, base fee and damage charges, if applicable, will be billed to the customer on a monthly basis. If the account becomes delinquent, the meter will be removed.

4.8 Disconnection of Fire Hydrant Meter

- a. After ten (10) months a “Notice of Discontinuation of Service” (Tab 3) will be issued to the site and the address of record to notify the customer of the date of discontinuance of service. An extension can only be granted in writing from the Water Department Director for up to 90 additional days (as stated in Section 4.6C) and a copy of the extension shall be forwarded to the Meter Shop Supervisor. If an extension has not been approved, the meter will be removed after twelve (12) months of use.
- b. Upon completion of the project the customer will notify the Meter Services office via the Hotline to request the removal of the fire hydrant meter and appurtenances. A work order will be generated

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for removal of the meter.

- c. Meter Section staff will remove the meter and backflow prevention assembly and return it to the Meter Shop. Once returned to the Meter Shop the meter and backflow will be tested for accuracy and functionality.
- d. Meter Section Staff will contact and notify Customer Services of the final read and any charges resulting from damages to the meter and backflow or its appurtenance. These charges will be added on the customer's final bill and will be sent to the address of record. Any customer who has an outstanding balance will not receive additional meters.
- e. Outstanding balances due may be deducted from deposits and any balances refunded to the customer. Any outstanding balances will be turned over to the City Treasurer for collection. Outstanding balances may also be transferred to any other existing accounts.

5. **EXCEPTIONS**

- 5.1 Any request for exceptions to this policy shall be presented, in writing, to the Customer Support Deputy Director, or his/her designee for consideration.

6. **MOBILE METER**

- 6.1 Mobile meters will be allowed on a case by case basis. All mobile meters will be protected by an approved backflow assembly and the minimum requirement will be a Reduced Pressure Principal Assembly. The two types of Mobile Meters are vehicle mounted and floating meters. Each style of meters has separate guidelines that shall be followed for the customer to retain service and are described below:

- a) **Vehicle Mounted Meters:** Customer applies for and receives a City owned Fire Hydrant Meter from the Meter Shop. The customer mounts the meter on the vehicle and brings it to the Meter Shop for

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inspection. After installation is approved by the Meter Shop the vehicle and meter shall be brought to the Meter Shop on a monthly basis for meter reading and on a quarterly basis for testing of the backflow assembly. Meters mounted at the owner's expense shall have the one year contract expiration waived and shall have meter or backflow changed if either fails.

b) **Floating Meters:** Floating Meters are meters that are not mounted to a vehicle. **(Note: All floating meters shall have an approved backflow assembly attached.)** The customer shall submit an application and a letter explaining the need for a floating meter to the Meter Shop. The Fire Hydrant Meter Administrator, after a thorough review of the needs of the customer, (i.e. number of jobsites per day, City contract work, lack of mounting area on work vehicle, etc.), may issue a floating meter. At the time of issue, it will be necessary for the customer to complete and sign the "Floating Fire Hydrant Meter Agreement" which states the following:

- 1) The meter will be brought to the Meter Shop at 2797 Caminito Chollas, San Diego on the third week of each month for the monthly read by Meter Shop personnel.
- 2) Every other month the meter will be read and the backflow will be tested. This date will be determined by the start date of the agreement.

If any of the conditions stated above are not met the Meter Shop has the right to cancel the contract for floating meter use and close the account associated with the meter. The Meter Shop will also exercise the right to refuse the issuance of another floating meter to the company in question.

Any Fire Hydrant Meter using reclaimed water shall not be allowed use again with any potable water supply. The customer shall incur the cost of replacing the meter and backflow device in this instance.

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7. **FEE AND DEPOSIT SCHEDULES**

7.1 **Fees and Deposit Schedules:** The fees and deposits, as listed in the Rate Book of Fees and Charges, on file with the Office of the City Clerk, are based on actual reimbursement of costs of services performed, equipment and materials. These deposits and fees will be amended, as needed, based on actual costs. Deposits, will be refunded at the end of the use of the fire hydrant meter, upon return of equipment in good working condition and all outstanding balances on account are paid. Deposits can also be used to cover outstanding balances.

All fees for equipment, installation, testing, relocation and other costs related to this program are subject to change without prior notification. The Mayor and Council will be notified of any future changes.

8. **UNAUTHORIZED USE OF WATER FROM A HYDRANT**

8.1 Use of water from any fire hydrant without a properly issued and installed fire hydrant meter is theft of City property. Customers who use water for unauthorized purposes or without a City of San Diego issued meter will be prosecuted.

8.2 If any unauthorized connection, disconnection or relocation of a fire hydrant meter, or other connection device is made by anyone other than authorized Water Department personnel, the person making the connection will be prosecuted for a violation of San Diego Municipal Code, Section 67.15. In the case of a second offense, the customer's fire hydrant meter shall be confiscated and/or the deposit will be forfeited.

8.3 Unauthorized water use shall be billed to the responsible party. Water use charges shall be based on meter readings, or estimates when meter readings are not available.

8.4 In case of unauthorized water use, the customer shall be billed for all applicable charges as if proper authorization for the water use had been obtained, including but not limited to bi-monthly service charges, installation charges and removal charges.

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- 8.5 If damage occurs to Water Department property (i.e. fire hydrant meter, backflow, various appurtenances), the cost of repairs or replacements will be charged to the customer of record (applicant).

**Larry Gardner
Water Department Director**

- Tabs: 1. Fire Hydrant Meter Application
2. Construction & Maintenance Related Activities With No Return To Sewer
3. Notice of Discontinuation of Service

APPENDIX

Administering Division: Customer Support Division

Subject Index: Construction Meters
Fire Hydrant
Fire Hydrant Meter Program
Meters, Floating or Vehicle Mounted
Mobile Meter
Program, Fire Hydrant Meter

Distribution: DI Manual Holders



Application for Fire Hydrant Meter (EXHIBIT A)

(For Office Use Only)

NS REQ	FAC#
DATE	BY

METER SHOP (619) 527-7449

Meter Information

Application Date	Requested Install Date:
------------------	-------------------------

Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) Zip:	T.B.	G.B. (CITY USE)
Specific Use of Water:		
Any Return to Sewer or Storm Drain, if so, explain:		
Estimated Duration of Meter Use:		Check Box if Reclaimed Water

Company Information

Company Name:			
Mailing Address:			
City:	State:	Zip:	Phone: ()
*Business license#		*Contractor license#	
A Copy of the Contractor's license OR Business License is required at the time of meter issuance.			
Name and Title of Billing Agent: <small>(PERSON IN ACCOUNTS PAYABLE)</small>			Phone: ()
Site Contact Name and Title:			Phone: ()
Responsible Party Name:			Title:
Cal ID#			Phone: ()
Signature:		Date:	
<small>Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter</small>			

Fire Hydrant Meter Removal Request	Requested Removal Date:
Provide Current Meter Location if Different from Above:	
Signature:	Title: Date:
Phone: ()	Pager: ()

<input type="checkbox"/> City Meter	<input type="checkbox"/> Private Meter
Contract Acct #:	Deposit Amount: \$ 936.00 Fees Amount: \$ 62.00
Meter Serial #	Meter Size: 05 Meter Make and Style: 6-7
Backflow #	Backflow Size: Backflow Make and Style:
Name:	Signature: Date:

WATER USES WITHOUT ANTICIPATED CHARGES FOR RETURN TO SEWER

Auto Detailing
Backfilling
Combination Cleaners (Vactors)
Compaction
Concrete Cutters
Construction Trailers
Cross Connection Testing
Dust Control
Flushing Water Mains
Hydro Blasting
Hydro Seeing
Irrigation (for establishing irrigation only; not continuing irrigation)
Mixing Concrete
Mobile Car Washing
Special Events
Street Sweeping
Water Tanks
Water Trucks
Window Washing

Note:

1. If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charges.

Date

Name of Responsible Party
Company Name and Address
Account Number: _____

Subject: Discontinuation of Fire Hydrant Meter Service

Dear Water Department Customer:

The authorization for use of Fire Hydrant Meter # _____, located at *(Meter Location Address)* ends in 60 days and will be removed on or after *(Date Authorization Expires)*. Extension requests for an additional 90 days must be submitted in writing for consideration 30 days prior to the discontinuation date. If you require an extension, please contact the Water Department, or mail your request for an extension to:

City of San Diego
Water Department
Attention: Meter Services
2797 Caminito Chollas
San Diego, CA 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant Hotline at (619) _____ - _____.

Sincerely,

Water Department

APPENDIX C

MATERIALS TYPICALLY ACCEPTED BY CERTIFICATE OF COMPLIANCE

MATERIALS TYPICALLY ACCEPTED BY CERTIFICATE OF COMPLIANCE

1. Soil amendment
2. Fiber mulch
3. PVC or PE pipe up to 16 inch diameter
4. Stabilizing emulsion
5. Lime
6. Preformed elastomeric joint seal
7. Plain and fabric reinforced elastomeric bearing pads
8. Steel reinforced elastomeric bearing pads
9. Waterstops (Special Condition)
10. Epoxy coated bar reinforcement
11. Plain and reinforcing steel
12. Structural steel
13. Structural timber and lumber
14. Treated timber and lumber
15. Lumber and timber
16. Aluminum pipe and aluminum pipe arch
17. Corrugated steel pipe and corrugated steel pipe arch
18. Structural metal plate pipe arches and pipe arches
19. Perforated steel pipe
20. Aluminum underdrain pipe
21. Aluminum or steel entrance tapers, pipe downdrains, reducers, coupling bands and slip joints
22. Metal target plates
23. Paint (traffic striping)
24. Conductors
25. Painting of electrical equipment
26. Electrical components
27. Engineering fabric
28. Portland Cement
29. PCC admixtures
30. Minor concrete, asphalt
31. Asphalt (oil)
32. Liquid asphalt emulsion
33. Epoxy

APPENDIX D

SAMPLE CITY INVOICE WITH SPEND CURVE

City of San Diego, Field Engineering Div., 9485 Aero Drive, SD CA 92123		Contractor's Name:	
Project Name:		Contractor's Address:	
Work Order No or Job Order No.			
City Purchase Order No.		Contractor's Phone #:	Invoice No.
Resident Engineer (RE):		Contractor's fax #:	Invoice Date:
RE Phone#:	Fax#:	Contact Name:	Billing Period: (to

Item #	Item Description	Contract Authorization				Previous Totals To Date		This Estimate		Totals to Date	
		Unit	Price	Qty	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount
1					\$ -		\$ -		\$ -	0.00%	\$ -
2					\$ -		\$ -		\$ -	0.00%	\$ -
3					\$ -		\$ -		\$ -	0.00%	\$ -
4					\$ -		\$ -		\$ -	0.00%	\$ -
5					\$ -		\$ -		\$ -	0.00%	\$ -
6					\$ -		\$ -		\$ -	0.00%	\$ -
7					\$ -		\$ -		\$ -	0.00%	\$ -
8					\$ -		\$ -		\$ -	0.00%	\$ -
9					\$ -		\$ -		\$ -	0.00%	\$ -
10					\$ -		\$ -		\$ -	0.00%	\$ -
11					\$ -		\$ -		\$ -	0.00%	\$ -
12					\$ -		\$ -		\$ -	0.00%	\$ -
13					\$ -		\$ -		\$ -	0.00%	\$ -
14					\$ -		\$ -		\$ -	0.00%	\$ -
15					\$ -		\$ -		\$ -	0.00%	\$ -
16					\$ -		\$ -		\$ -	0.00%	\$ -
17	Field Orders				\$ -		\$ -		\$ -	0.00%	\$ -
18					\$ -		\$ -		\$ -	0.00%	\$ -
	CHANGE ORDER No.				\$ -		\$ -		\$ -	0.00%	\$ -
					\$ -		\$ -		\$ -	0.00%	\$ -
Total Authorized Amount (including approved Change Order)					\$ -		\$ -		\$ -	Total Billed	\$ -

SUMMARY

A. Original Contract Amount	\$ -
B. Approved Change Order #00 Thru #00	\$ -
C. Total Authorized Amount (A+B)	\$ -
D. Total Billed to Date	\$ -
E. Less Total Retention (5% of D)	\$ -
F. Less Total Previous Payments	\$ -
G. Payment Due Less Retention	\$0.00
H. Remaining Authorized Amount	\$0.00

**I certify that the materials
have been received by me in
the quality and quantity specified**

Resident Engineer

Construction Engineer

Retention and/or Escrow Payment Schedule

Total Retention Required as of this billing (Item E)	\$0.00
Previous Retention Withheld in PO or in Escrow	\$0.00
Add'l Amt to Withhold in PO/Transfer in Escrow:	\$0.00
Amt to Release to Contractor from PO/Escrow:	

Contractor Signature and Date: _____

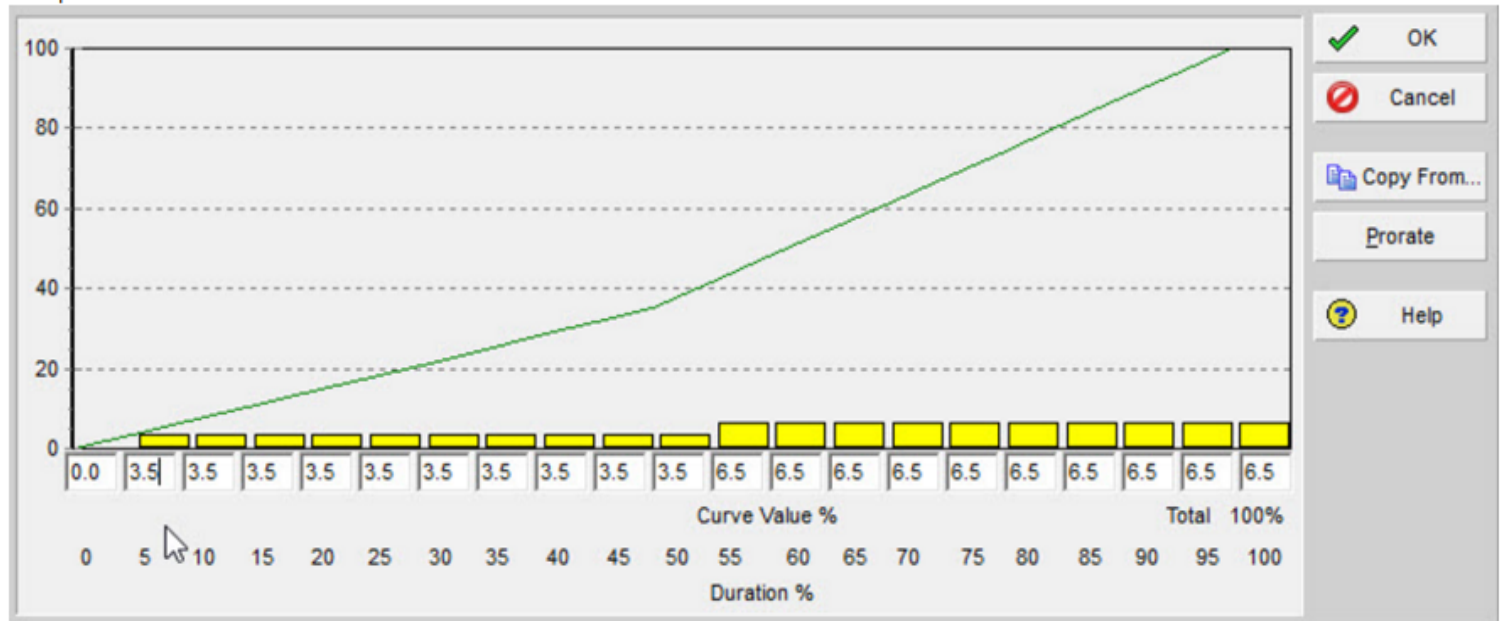
Sample Project Spend Curve

Sample Date Entries Required

Incremental Curve Value
Duration % Increment

0.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%

Sample Screenshot from Primavera P6



APPENDIX E
LOCATION MAP

WATER GROUP 939

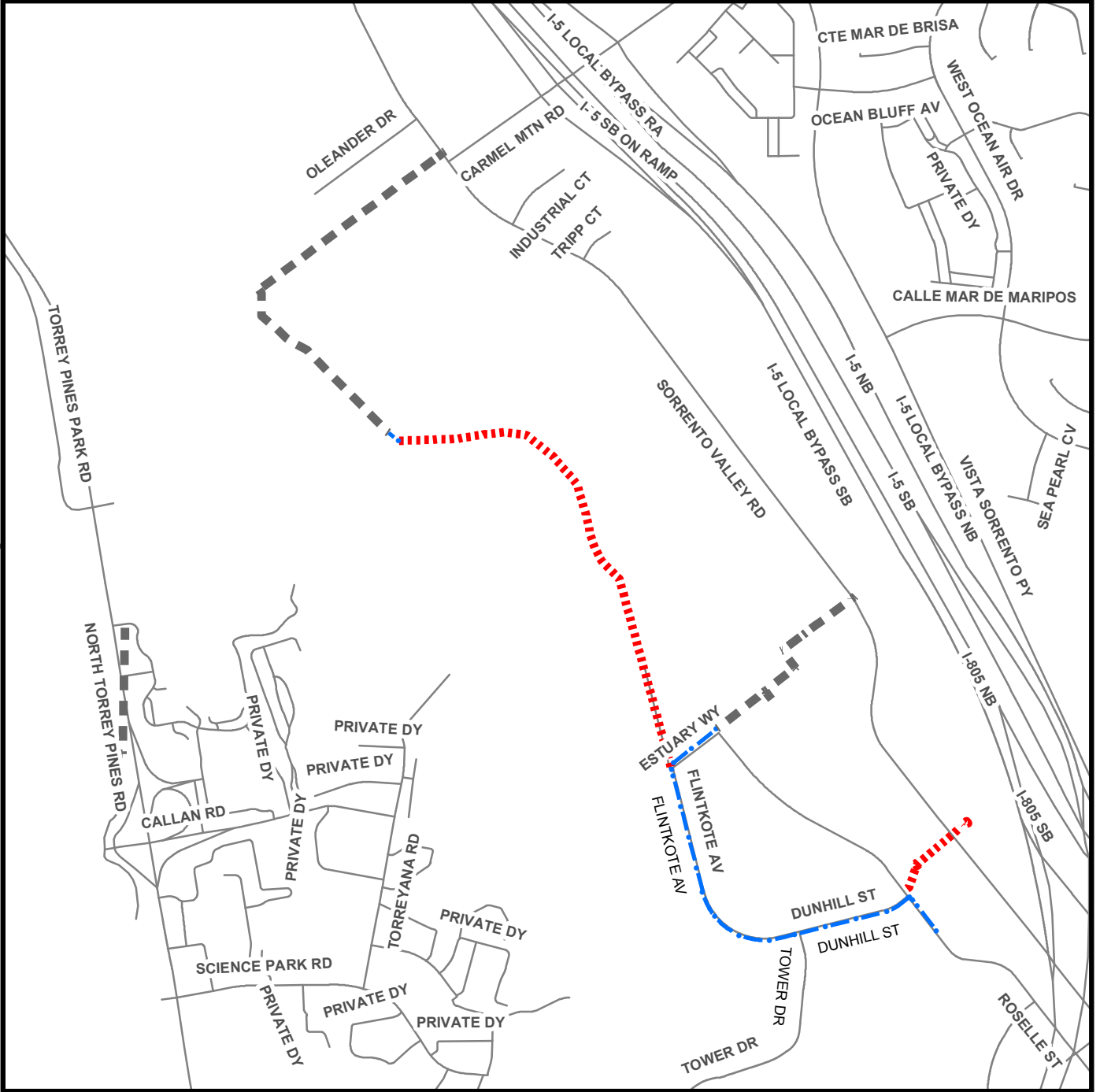
Location Map

SENIOR ENGINEER
SHEILA, BOSE
619-533-4698

PROJECT MANAGER
CASEY, CROWN
619-533-5485

PROJECT ENGINEER
DUNN, ELIZABETH
619-533-7461

CONSTRUCTION PROJECT
INFORMATION LINE
(619) 533-4207



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APPENDIX F
ADJACENT PROJECTS

WATER GROUP 939

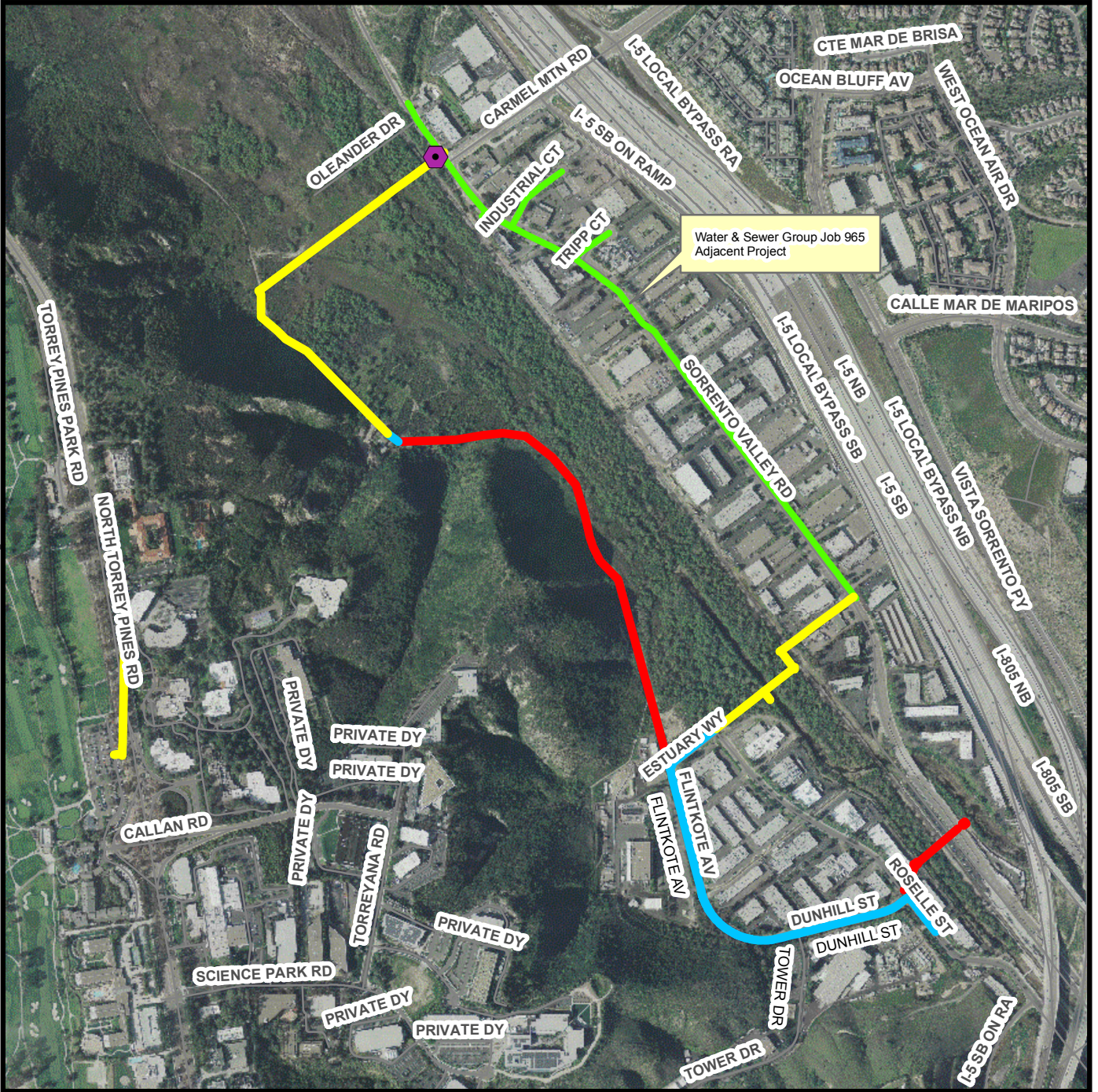
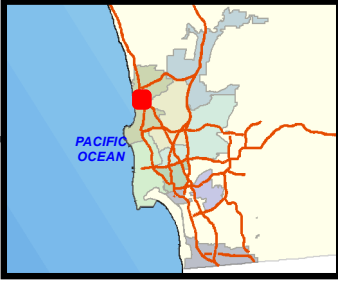
Adjacent Project Location Map

SENIOR ENGINEER
SHEILA, BOSE
619-533-4698

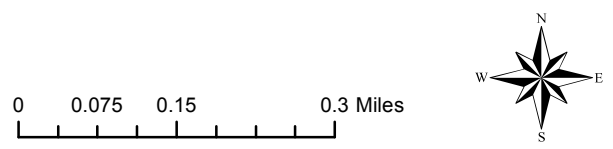
PROJECT MANAGER
CASEY, CROWN
619-533-5485

PROJECT ENGINEER
DUNN, ELIZABETH
619-533-7461

CONSTRUCTION PROJECT
INFORMATION LINE
(619) 533-4207



- Legend**
- B12057, Water and Sewer Group 965 PRS (W)
 - Water_939_Abandon_Ex_Pipe
 - Water_939_Replace_in_Place
 - New Water Main
 - B12048, Water and Sewer Group 965 (S)



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APPENDIX G
HYDROSTATIC DISCHARGE FORM

Hydrostatic Discharge Requirements Certification (Discharge Events ≥ 325,850 gpd)

All discharge activities related to this project comply with the Regional Water Quality Control Board (RWQCB) Order No. R9-2010-0003, General Permit for Discharges of Hydrostatic Test Water and Potable Water to Surface Water and Storm Drains as referenced by (http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2010/R9-2010-0003.pdf), and as follows:

Discharged water has been dechlorinated to below 0.1 (mg/l) level; and effluent has been maintained between 6 and 9 (pH) based on:

Is Discharge Within Limits?

Comment/Action Taken

Event #	Discharge Date	Item Tested	Duration	Amount (gpd)	Description of the Proposed Discharge	Method and Test Result	Is Discharge Within Limits?		Comment/Action Taken
							YES	NO	
		Chlorine							
		pH							
		Chlorine							
		pH							
		Chlorine							
		pH							
		Chlorine							
		pH							

Qualified Personnel Conducting Tests (Print Name):

SAP No.(s):

***Signed:**

Project Name:

* By signing, I hereby certify and affirm under penalty of perjury that all of the statements and conditions for hydrostatic discharge events are correct.

Have any thresholds been exceeded? Per Order No. R9-2010-0003, would this be a reportable discharge and must be reported **within 24 hours** of the event? [Reportable discharge would include violation of maximum gallons per day, any upset which exceeds any effluent limit]

APPENDIX H
REPORT OF GEOTECHNICAL INVESTIGATION - WATER GROUP 939
CITY OF SAN DIEGO

**REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO**

Submitted to:

RICK ENGINEERING COMPANY
5620 Friars Road
San Diego, CA 92110

Prepared By:

ALLIED GEOTECHNICAL ENGINEERS, INC.
9500 Cuyamaca Street, Suite 102
Santee, California 92071-2685

March 29, 2016



March 29, 2016

Mr. Kevin Gibson, P.E.
Project Manager
Rick Engineering Company
5620 Friars Road
San Diego, CA 92110

**Subject: REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO
AGE Project No. 164 GS-14-E**

Dear Kevin:

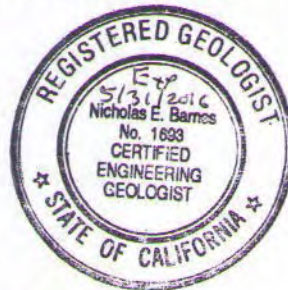
Allied Geotechnical Engineers, Inc. is pleased to submit the accompanying report to present the findings, opinions, and recommendations of a geotechnical investigation that was performed for the design of the proposed trenchless construction between Sorrento Valley Road and the intersection of Roselle Street and Dunhill Street.

If you have any questions regarding the contents of this report or if we may be of further assistance, please give us a call. We greatly appreciate the opportunity to be of service on this important project.

Respectfully submitted,

ALLIED GEOTECHNICAL ENGINEERS, INC.

Nicholas E. Barnes, P.G., C.E.G.
Senior Geologist



Sani Sutanto, P.E.
Project Manager



SS/TJL:sem
Distr. (1 electronic copy) Addressee

**REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO**

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Appendix A	Drilling and Sampling Activities
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1.0 INTRODUCTION

Allied Geotechnical Engineers, Inc. (AGE) is pleased to submit this report to present the findings, conclusions and recommendations of a geotechnical investigation conducted in connection with the design of the City of San Diego (City) Water Group 939 Project. This report has been prepared for the exclusive use of Rick Engineering Company (Rick Engineering), the City and their design subconsultants in their design of the project as described herein. The information presented in this report is not sufficient for any other uses or the purposes of other parties

2.0 PROJECT DESCRIPTION

The project site is located in the Sorrento Valley area of San Diego, California (Figure 1 - Location Map). The Water Group 939 Project consists of the replacement of approximately 3,080 linear feet of cast iron water pipe and 1,330 linear feet of A.C. water pipe, and abandonment of approximately 3,800 linear feet of cast iron water pipe. The scope of the proposed project includes a proposed trenchless crossing which extends from the intersection of Roselle Street and Dunhill Street on the west and Sorrento Valley Road on the east. The approximately 550-foot long trenchless segment crosses beneath a business park on the east side of Roselle Street, railroad tracks and an existing drainage channel located between Roselle Street and Sorrento Valley Road, and the parking lot facility for the Metropolitan Transit System (MTS) station on the west side of Sorrento Valley Road. Surface elevation along the trenchless crossing ranges from a high of +35 feet above the mean sea level (msl) at Roselle Street to a low of +25 feet msl at the drainage channel. The subsurface geotechnical investigation was performed for the design of the trenchless crossing.

3.0 OBJECTIVE AND SCOPE OF INVESTIGATION

The objective of this investigation is to characterize the subsurface conditions beneath the proposed trenchless crossing segment in order to develop recommendations pertaining to the geotechnical aspects of the currently proposed project. The scope of our investigation included several tasks as described in more detail below.

3.1 Information Review

This task involved a review of readily available information pertaining to the project site, including published geologic literature and maps, topographic maps, and historical aerial photographs. A listing of the references that were reviewed as part of this geotechnical investigation is presented in Section 8.0.

3.2 Geotechnical Field Exploration

The field exploration program for this project was performed on March 11, 2016. A total of two (2) soil borings were performed at the approximate locations shown on the Site Plan (Figure 2). The borings were advanced using conventional hollow-stem auger drilling methods to depths of 30 feet and 32 feet below the existing ground surface (bgs). A more detailed description of the drilling and sampling activities, and logs of the borings are presented in Appendix A.

Prior to commencement of the field exploration activities, several site reconnaissance visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. Existing buried utilities in the vicinity of the project alignment and alternative include: potable water and sanitary sewer pipelines; storm drains; natural gas and electrical transmission lines; and cable, telephone, and fiber optic lines. Traffic control permits were obtained from the City of San Diego to perform the borings. In addition, AGE also obtained soil boring permit from the County of San Diego Department of Environmental Health.

3.3 Geotechnical Laboratory Testing

Selected soil samples obtained from the borings were tested in the laboratory to verify field classifications and evaluate certain engineering characteristics. The geotechnical laboratory tests were performed in general conformance with the American Society for Testing and Materials (ASTM) or other generally accepted testing procedures.

The laboratory tests included: in-place density and moisture content, maximum density and optimum moisture content, sieve (wash) analysis, shear strength, and consolidation. In addition, representative samples of the onsite soil materials were collected and delivered to Clarkson Laboratories and Supply, Inc. for chemical (analytical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A brief description of the tests that were performed and the final test results are presented in Appendix B.

4.0 GEOLOGIC CONDITIONS

4.1 Geologic Setting

The project site lies within the lower reaches of a broad and relatively flat to gently sloping, northwest-trending drainage valley of the Los Penasquitos, Carroll Canyon and Soledad Canyon drainage system. The valley is known as Soledad Valley, and is bounded by the Del Mar Mesa on the east and the Torrey Pines Mesa on the west. The valley floor is underlain by undifferentiated fluvial and colluvial sediments and estuary deposits of Holocene age. Older sedimentary formations are mapped in the valley walls which rise moderately to steeply from the valley floor. These sedimentary formations include the old paralic deposits of Holocene to late Pleistocene age, units of the La Jolla Group of Eocene age, and the very old paralic deposits of mid to early Pleistocene age which forms a cap on top of the mesas.

4.2 Geologic Units

Based on a review of the published geologic maps and compositional characteristics, the soil types anticipated to be encountered in the project study area can be categorized into four (4) distinct geologic units which include, in order of increasing age: fill materials; undifferentiated alluvium, slope wash and estuary deposits; old paralic deposits; and Ardath Shale. Brief descriptions of these units are presented below.

4.2.1 Fill Soils

Variable amounts of fill materials were placed during development of the areas along the proposed trenchless crossing segment. Areas where significant amounts of fill can be expected to occur

include the western edge of Sorrento Valley Road, and along the channel embankments and Roselle Street.

The depth of fill materials encountered in the borings range from 14 feet bgs in boring B-1 (Roselle Street) to 6 feet bgs in boring B-2 (Sorrento Valley Road). The fill materials encountered in the exploratory soil borings consist predominantly of silty sand.

4.2.2 Undifferentiated Alluvium, Slopewash and Estuary Deposits

Undifferentiated alluvial, slopewash and estuary deposits of Holocene to late Pleistocene age lie beneath the valley floor. The soils encountered in the borings consist of interbedded layers of loose/soft, brown to grayish brown and dark gray, silty sand, clayey sand, and lean sandy clay, which are interpreted as interfingering alluvial and estuary deposits.

Kennedy & Tan (2009) mapped the estuary deposits along the valley floor north of the proposed trenchless crossing. These deposits were encountered in the borings performed by Woodward-Clyde Consultants (1991) for the Carmel Valley Trunk Sewer project along Sorrento Valley Road and Roselle Street. These sediments were reportedly encountered beneath alluvial soils at depths ranging from 7 to 32 feet below the ground surface, and were described as soft, gray, lean to fat clay and loose silt to poorly graded sand.

4.2.3 Old Paralic Deposits

The old paralic deposits are mapped at the lower elevations along the base of the valley walls. This formation is typically composed of gray brown to brown, medium dense to dense silty, clayey, and poorly graded sands with interbedded gravel and cobble lenses or beds. It is not considered likely that the proposed trenchless crossing will encounter this unit.

4.2.4 Ardath Shale

The Ardath Shale is mapped along the western walls of the valley, generally above an elevation of about 60 feet above the mean sea level (MSL). It is not considered likely that the proposed trenchless crossing will encounter this unit.

4.3 **Groundwater**

Groundwater was encountered in both borings at the time of our field investigation at a depth of 8 feet in boring B-1 (+22 feet MSL) and 10 feet in boring B-2 (+15 feet MSL). In AGE borings and Cone Penetrometer Soundings (AGE, 1999) which were performed for the Sorrento Valley Trunk Sewer Replacement Project and Woodward-Clyde Consultants (1988 and 1991) borings, groundwater in the general area of the proposed trenchless crossing was measured at elevations ranging from +18 feet to +28 feet MSL.

5.0 DISCUSSIONS, OPINIONS, AND RECOMMENDATIONS**5.1 Potential Geologic Hazards****5.1.1 Faulting and Seismicity**

The published geologic maps show the presence of a mapped fault in the vicinity of the project site. An unnamed branch of the Salk and Torrey Pines faults is mapped about 2,000 feet west of the proposed trenchless crossing segment (Kennedy & Tan, 2008 & City of San Diego, 2008). The fault is mapped as offsetting Pleistocene age and older units, and may be considered potentially active based on the fault classification criteria adopted by the California Geological Survey. This fault is not considered to pose a seismic risk to the subject project.

For the purpose of this project, we consider the Rose Canyon fault zone (RCFZ) to represent the most significant seismic hazard. The RCFZ is a complex set of anastomosing and en-echelon, predominantly strike slip faults that extend from off the coast near Carlsbad to offshore south of downtown San Diego (Treiman, 1993). Previous geologic investigations on the RCFZ in the Rose Creek area (Rockwell et. al., 1991) and in downtown San Diego (Patterson et. al., 1986) found evidence of multiple Holocene earthquakes. Based on these studies, several fault strands within the RCFZ have been classified as active faults, and are included in Alquist-Priolo Special Studies Zones. In San Diego Bay, this fault zone is believed to splay into multiple, subparallel strands; the most pronounced of which are the Silver Strand, Spanish Bight and Coronado Bank faults. The project site is not located within an Alquist-Priolo Earthquake Study Zone.

The location of the project alignment in relation to the active faults in the region is shown on the Regional Fault Map (Figure 3). The computer program EQFAULT (Blake, 2000, updated 2004) was used to approximate the distance of known faults to the project alignment. Seven (7) known active faults are identified within a search radius of 50 miles from the alignment. A summary of seismic source characteristics for faults that present the most significant seismic hazard potential to the alignment are presented in Table 1 below.

Table 1
Summary of Seismic Source Characteristics

Fault	Maximum Magnitude (Mw)	Peak Site Acceleration (g)	Closest Distance to Site (miles)
Rose Canyon	6.8	0.437	3.5
Coronado Bank	7.4	0.216	15.9
Newport-Inglewood (offshore)	6.9	0.121	21.1
Elsinore - Julian	7.7	0.086	33.6
Elsinore - Temecula	7.7	0.068	35.0
Earthquake Valley	6.5	0.045	42.1
Palos Verdes	7.1	0.059	48.9

5.1.2 Historical Seismicity

EQSEARCH is a program that performs automated searches of a catalog of historical Southern California earthquakes. As the program searches the catalog, it computes and prints the epicentral distance from a selected site to each of the earthquakes within a specified radius (100 kilometers). From the computed distance, the program also estimates (using an appropriate attenuation relation) the peak horizontal ground acceleration that may have occurred at the site due to each earthquake.

V_{s30} along the project at the project site was estimated to be on the order of 200 m/s. The shear wave velocity was calculated based on the corrected blow counts in AGE's borings, and using the correlation method developed by Ohta and Gotto (1978) for cohesive soil and David Boore (2004) extrapolation equation.

$$V_s = 86.9 (N_{60})^{0.333} \quad (\text{Ohta \& Goto, 1978})$$

$$V_{s30} = [1.45 - (0.015 \times d)] \times V_{s(d)} \quad (\text{David Boore, 2004})$$

Based on the estimated shear wave velocities and our visual classification of the geologic units encountered in the soil borings, site Class D attenuation was used for all of our analysis. We used a combined earthquake catalog for magnitude 5.0 or larger events which occur within 100 miles from the site between 1800 and December 1999. The earthquake catalog for events prior to about 1933 is limited to the higher magnitude events.

The search results indicate that the nearest earthquake of magnitude 6.5 occurred on November 22, 1800 located about 4.1 miles from the project site. This earthquake resulted in a calculated ground acceleration of 0.327 g which is also the largest calculated seismic ground acceleration from this search. The largest magnitude earthquake reported was a magnitude 7.0 event on December 16, 1858, located 77.3 miles from the project study area on the San Jacinto fault which resulted in a calculated ground acceleration of 0.048 g.

It is our opinion that the major seismic hazard affecting the project alignment would be seismic-induced ground shaking. The alignment will likely be subject to moderate to severe ground shaking in response to a local or more distant large magnitude earthquake occurring during the life of the proposed facilities. For project design purposes, we recommend that the RCFZ be considered as the dominant seismic source.

5.1.3 Fault Ground Rupture & Ground Lurching

There are no known (mapped) active or potentially active faults crossing the proposed trenchless crossing (Kennedy, 1975; City of San Diego, 2008). Therefore, the potential for fault ground rupture and ground lurching at the project site is considered insignificant.

5.1.4 Soil Liquefaction

Seismically-induced soil liquefaction is a phenomenon during which loose, saturated granular materials undergo matrix rearrangement, develop high pore water pressure, and lose shear strength due to cyclic ground vibrations induced by earthquakes. Manifestations of soil liquefaction at the project site can include loss of soil bearing capacity, ground subsidence and differential settlement, ground lurching and tilting in level ground, and instabilities in areas of sloping ground. Soil liquefaction can also result in increased lateral and uplift pressures on buried structures. Light-weight or unrestrained buried structures may float upward to the ground surface. Based on the blow counts, laboratory particle size analysis test results and depth to known groundwater, it is anticipated that the project site is underlain by liquefiable soil materials.

AGE previous performed an evaluation of liquefaction potential for the Sorrento Valley Trunk Sewer Replacement Project. The evaluation was performed based upon the results of the CPT soundings, the simplified procedure outlined by Seed, et al. (1983), and the modified procedure presented in NCEER Summary Report (1998). These procedures empirically correlate in-situ soil resistance with intensity of ground shaking from documented earthquake events to evaluate susceptibility to liquefaction. The liquefaction analysis was performed using a ground acceleration of 0.5g based on a magnitude 7 earthquake on the Rose Canyon fault. The results of the analysis indicate that the alluvial and estuary deposits below the groundwater table have a moderate to very high potential for liquefaction. An estimated maximum cumulative ground surface settlement of 13 inches was estimated at the project site. Liquefaction at the project site most likely would manifest itself as local ground subsidence and settlement. Due to the relatively level ground surface elevation, lateral flow is not likely to occur.

5.1.5 Landslides

The project site is not located on or near any known (mapped) ancient landslides. Landslides have been mapped in the hillsides on both sides of the valley (Kennedy, 1975; City of San Diego Seismic Safety Study, 2008). These landslides appear to be confined to areas that are underlain by the Ardath Shale, and are not considered to pose a significant hazard to the project as they are not located near the project site.

5.1.6 Differential Seismic-Induced Settlement

Differential seismic settlement occurs when seismic shaking causes one type of soil to settle more than another type. It may also occur within a soil deposit with largely homogeneous properties if the seismic shaking is uneven due to variable geometry or thickness of the soil deposit. Based on the results of our investigation, it is our opinion that the alluvial deposits possess a moderate to high potential of differential settlement.

5.1.7 Secondary Hazards

A review of the State of California Tsunami Inundation Map for Emergency Planning (2009) indicates that the project site is not located within the tsunami inundation area. It is our opinion that the potential of property damage from a seismic-induced tsunami at the project site is considered remote. The project site is located within the 100- and 500-year flood zone (FEMA Flood Insurance Rate Map, 2012). It is our opinion that the potential of property damage due to flooding is considered high.

5.2 Soil Corrosivity

In accordance with the City of San Diego Water Facility Design Guidelines, Book 2, Chapter 7, soil is generally considered aggressive to concrete if its chloride concentration is greater than 300 parts per million (ppm) or sulfate concentration is greater than 1,000 ppm, or if the pH is 5.5 or less.

Analytical testing was performed on a representative sample of the onsite soil materials to determine pH, resistivity, soluble sulfate, chlorides and bicarbonates content. The tests were performed in accordance with California Test Method Nos. 643, 417 and 422. A summary of the test results is presented in Table 5 below. Copies of the analytical laboratory test data reports are included in Appendix B.

Table 2
Summary of Corrosivity Test Results

	pH	Resistivity (ohm-cm)	Sulfate Conc. (ppm)	Chloride Conc. (ppm)	Bicarbonates Conc. (ppm)
B-1 Sample No. 8 @ 29'-30'	8.3	250	5,100	910	N/A
B-2 Sample No. 8 @27'-28'	8.1	630	160	190	N/A

The test results indicate that the onsite soil is considered highly aggressive toward concrete. Therefore, we recommend that Type V Portland Cement Concrete (high sulfate resistance) be used for proposed facilities at the project site. It should be noted here that the most effective way to prevent sulfate attack is to keep the sulfate ions from entering the concrete in the first place. This can be done by using mix designs that give a low permeability (mainly by keeping the water/cement ratio low) and, if practical, by placing moisture barriers between the concrete and the soil.

AGE does not practice in the field of corrosion engineering. In the event that corrosion sensitive facilities are planned, we recommend that a corrosion engineer be retained to perform the necessary corrosion protection evaluation and design.

5.3 Expansive Soil

Based on visual observations and the laboratory test results, the on-site materials are considered non-expansive.

5.4 Trenchless Construction

Since no changes to the existing ground surface along the proposed pipeline crossing are planned, the net stress change in the underlying soils is considered negligible. The native alluvial soil materials within the tunnel zone are not expected to pose a problem for the trenchless construction.

5.4.1 Excavation Characteristics

The existing fill materials and alluvial deposits can generally be readily excavated with conventional heavy-duty construction equipment.

5.4.2 Fill Materials

Fill materials should be free of biodegradable materials, hazardous substance contamination, other deleterious debris, and or rocks or hard lumps greater than 6 inches. If the fill materials contain rocks or hard lumps, at least 70 percent (by weight) of its particles shall pass a U.S. Standard $3/4$ -inch sieve. Fill materials should consist of predominantly granular soil (less than 40 percent passing the U.S. Standard #200 sieve) with Expansion Index of less than 50.

5.4.3 Placement and Compaction of Backfill

Prior to placement, all backfill materials should be moisture-conditioned, spread and placed in lifts (layers) not-to-exceed 6 inches in loose (uncompacted) thickness, and uniformly compacted to at least 90 percent relative compaction. During backfilling, the soil moisture content should be maintained at or within 2 to 3 percent above the optimum moisture content of the backfill materials. It is recommended that the upper 24 inches directly beneath the roadway pavement and the base materials be compacted to at least 95 percent relative compaction. The maximum dry density and optimum moisture content of the backfill materials should be determined in the laboratory in accordance with the ASTM D1557 testing procedures.

Small hand-operated compacting equipment should be used for compaction of the backfill materials to an elevation of at least 4 feet above the top (crown) of the pipes. Flooding or jetting should not be used to densify the backfill.

5.4.4 Trenchless Construction Considerations

Based on the conditions encountered in the borings, it is anticipated that the trenchless construction operation will encounter alluvial deposits which can be classified as flowing - saturated sand as described by the Tunnelman's Ground Classification System (Bickel & Kuesel, 1995). For assessing the stability of the trenchless tunnel, the alluvial deposits may be modeled as having an undrained shear strength of 1,500 psf (waiting for shear test results).

For following formula may be used to estimate ground deformation due to the trenchless operations.

$$d_{\max} = (2.5i/V_s)$$

d_{\max} is maximum ground settlement;

i is equal to K times the depth to the center of the pipe; and

V_s is the volume loss due to the excavation per foot of pipe.

For the formational units at the project site, we recommend using a K of 0.4 and a V_s equal to 2.5 percent of the excavated face. Ground settlement adjacent to the tunnel alignment may be estimated using the following equation.

$$d = d_{\max} \exp(-x^2/2i^2)$$

x is the distance from the centerline of the pipe (feet);

i is defined as Kz where z is the depth to the center of the pipe (feet); and

d is the ground displacement at x .

We recommend using a coefficient of 0.45 for steel casing against soil and 0.8 for concrete against soil. We further recommend using a unit weight of 130 pcf for calculating the normal pressure acting on the casing.

5.5 Buried Structures

It is recommended that any proposed buried structures be founded on firm native soils or approved compacted materials. In areas where loose or soft soils are encountered at the bottom of the box structure excavations, it is recommended that the loose/soft materials be removed to a minimum depth of 24 inches below the bottom of the excavation and replaced with 3/4-inch crushed rock materials wrapped in geotextile fabric such as Mirafi 600X or equivalent. The actual extent of over-excavation of any loose/soft soil materials should be evaluated and determined by the City's Resident Engineer during construction.

5.5.1 Placement and Compaction of Backfill

Fill materials used around buried structures should meet the criteria for “Fill Materials” presented in Section 5.4.2. Placement and compaction of backfill materials around the buried structures should be performed in accordance with the recommendations presented in Section 5.4.3 of this report.

5.5.2 Seismically-Induced Settlement

The project site is be subject to seismically-induced liquefaction settlement. Pipeline connections to buried structures be designed to accommodate as much as 4 inches of differential settlement.

5.5.3 Foundations

Bearing Capacity

An allowable soil bearing capacity of 1,000 psf should be used for buried structures supported on soft and loose estuary and alluvial deposits. This allowable soil bearing value is for total dead and live loads, and may be increased by one third when considering seismic loads.

Anticipated Settlement

Under static condition, total settlement of the slab foundation is estimated to be less than 0.5 inch. Differential settlement between the center and the edge of the slab foundation is expected to be within tolerable limits. No permanent deformation and/or post-construction settlement is anticipated, provided that backfill around the structures is properly compacted in accordance with the project specifications.

Resistance to Lateral Loads

Resistance to lateral loads may be developed by a combination of friction acting at the base of the slab foundation and passive earth pressure developed against the sides of the foundations below grade. Passive pressure and friction may be used in combination, without reduction, in determining the total resistance to lateral loads.

An allowable passive earth pressure of 300 and 200 psf per foot of foundation embedment below grade may be used for the sides of foundations placed against properly compacted fill materials, for above and below the groundwater level, respectively. The maximum recommended allowable passive pressure is 3,000 and 2,000 psf, respectively, for above and below the groundwater level. A coefficient of friction of 0.35 may be used for foundation cast directly on approved compacted materials or wrapped crushed rock as described above. An allowable passive earth pressure of 80 psf per foot of foundation embedment below grade should be used for sides of foundations placed against soft alluvial/estuary deposits. The maximum recommended allowable passive pressure in soft alluvial/estuary deposits should be limited to 800 psf.

5.5.3 Walls Below Grade

Lateral earth pressures for walls below grade for structures less than 48 inches in horizontal dimensions may be treated as a shaft structure. Walls below grade for structures larger than 48 inches in horizontal dimensions should be designed to resist the lateral earth pressures presented on the next page.

The following values may be used for preliminary design purposes.

Groundwater Depth:	10 feet bgs
Active Pressure:	35 pcf equivalent fluid weight (above GW level) and 20 pcf equivalent fluid weight (below GW level)
Restrained Additive Term:	10H psf uniform load (above GW level) and 5H psf uniform load (below GW level)
Hydrostatic Pressure:	62.4 pcf equivalent fluid weight

The following equation may be used to estimate the pseudostatic force ($P_{Eactive}$) acting on the wall under active loading conditions:

$$P_{Eactive} = 0.30 * (a_{max}/g) * H^2 * \tilde{a}_t$$

The following equation may be used to estimate the pseudostatic force ($P_{Eat-rest}$) acting on the wall under at-rest loading conditions:

$$P_{Eat-rest} = 0.45 * (a_{max}/g) * H^2 * \tilde{a}_t$$

$P_{Eactive}$ = horizontal pseudostatic force acting on active condition walls (lb)

$P_{Eat-rest}$ = horizontal pseudostatic force acting on at-rest condition walls (lb)

a_{max} = ground motion as a decimal (g).

H = height of the retaining wall (ft)

$\tilde{\alpha}_t$ = total unit weight of backfill soil (pcf)

The location of the pseudostatic force can be assumed to act at a distance of 0.6H above the base of the wall for active conditions and 0.65H above the base of the wall for at-rest conditions. We recommend that $a_{\max} = 0.29$ g and $\tilde{\alpha}_t = 120$ pcf be used for preliminary design purposes. It must be noted that actual seismic load will depend on the method of construction and how the excavation is shored.

Surcharge and foundation loads occurring within a horizontal distance equal to the wall height should be added to the lateral pressures as presented in Figures 4 and 5.

5.5.4 Uplift Resistance

Buried structures located below the groundwater table will be subject to buoyant uplift forces. Geotechnical parameters for use in calculating uplift resistance of the surrounding backfill soil materials is presented in Figure 6 and 7.

6.0 CONSTRUCTION-RELATED CONSIDERATIONS**6.1 Temporary Shoring**

Since excavations for the proposed project will be more than 5 feet below the ground surface, prevailing Federal and Cal OSHA safety regulations require that the excavations be either sloped (if sufficient construction space or easement is available), shored, braced, or protected with approved sliding trench shield. Limited construction space, the presence of other buried utilities, and the need to avoid excessive community disruption dictate that a shored excavation will be needed. For design of excavation which extend below the groundwater table, it is recommended that a continuous shoring system or solid sheet piles system be utilized to minimize water intrusion into the trench excavation. Design and construction of temporary shoring shall be the sole responsibility of the Contractor.

It must be noted that the contractor for the construction of the Sorrento Valley Trunk Sewer Replacement project experienced great difficulties in keeping the trenched excavations open due to very loose soil and high groundwater. It is anticipated that proposed excavations for this project will encounter similar conditions.

6.1.1 Settlement

Settlement of existing street improvements and/or utilities adjacent to the shoring may occur in proportion to both the distance between shoring system and adjacent structures or utilities and the amount of horizontal deflection of the shoring system. Vertical settlement will be maximum directly adjacent to the shoring system, and decreases as the distance from the shoring increases. At a

distance equal to the height of the shoring, settlement is expected to be negligible. Maximum vertical settlement is estimated to be on the order of 75 percent of the horizontal deflection of the shoring system. It is recommended that shoring be designed to limit the maximum horizontal deflection to 1/2-inch or less where existing structures or utilities are to be supported.

6.1.2 Lateral Earth Pressures

Temporary shoring should be designed to resist the pressure exerted by the retained soils and any additional lateral forces due to loads placed near the top of the excavation. For design of braced shorings supporting fill materials and/or bay deposits, the recommended lateral earth pressure should be $32H$ psf, where H is equal to the height of the retained earth in feet. Any surcharge loads would impose uniform lateral pressure of $0.3q$, where " q " equals the uniform surcharge pressure. The surcharge pressure should be applied starting at a depth equal to the distance of the surcharge load from the top of the excavation.

The above lateral earth pressures have been estimated based on the assumption that the shored earth is level at the surface, there are no hydrostatic pressures above the bottom of the excavation, and that the shoring system is temporary in nature.

6.1.3 Lateral Bearing Capacity

Resistance to lateral loads will be provided by passive soil resistance. An allowable passive earth pressure of 300 and 200 psf per foot may be used for properly compacted fill materials, for above and below the groundwater level, respectively. The maximum recommended allowable passive pressure is 3,000 and 2,000 psf, respectively, for above and below the groundwater level. An allowable passive earth pressure of 80 psf per foot should be used for soft alluvial/estuary deposits. The maximum recommended allowable passive pressure in soft alluvial/estuary deposits should be limited to 800 psf.

5.2 **Construction Dewatering**

It is anticipated that construction dewatering will be required for the construction of the proposed project. It is recommended that the selection, design, and construction of the specific dewatering system be performed by a qualified contractor specializing in construction dewatering.

5.3 **Unusual Subsurface Conditions**

The scope of AGE's investigation did not include the performance of a Phase I Environmental Site Assessment (Phase I ESA) to evaluate the possible presence of soil and/or groundwater contamination beneath the project alignment. During our subsurface investigation soil samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The field screening did not reveal elevated levels of volatile organics in the samples.

In the event that hazardous or toxic materials are encountered during the construction phase, the contractor should immediately notify the City and be prepared to handle and dispose of such materials in accordance with current industry practices and applicable Local, State and Federal regulations.

7.0 GENERAL CONDITIONS**7.1 Post-Investigation Services**

Post-investigation geotechnical services are an important continuation of this investigation, and we recommend that the City's Construction Inspection Division performs the necessary geotechnical observation and testing services during construction. In the event that the City is unable to perform said services, it is recommended that our firm be retained to provide the services.

Sufficient and timely observation and testing should be performed during excavation, pipeline installation, backfilling and other related earthwork operations. The purpose of the geotechnical observation and testing is to correlate findings of this investigation with the actual subsurface conditions encountered during construction and to provide supplemental recommendations, if necessary.

7.2 Uncertainties and Limitations

The information presented in this report is intended for the sole use of Rick Engineering and other members of the project design team and the City for project design purposes only and may not provide sufficient data to prepare an accurate bid. The contractor should be required to perform an independent evaluation of the subsurface conditions at the project site prior to submitting his/her bid.

AGE has observed and investigated the subsurface conditions only at selected locations along the project alignment. The findings and recommendations presented in this report are based on the assumption that the subsurface conditions beneath all project alignments do not deviate substantially from those encountered in the exploratory soil borings. Consequently, modifications or changes to the recommendations presented herein may be necessary based on the actual subsurface conditions encountered during construction.

California, including San Diego County, is in an area of high seismic risk. It is generally considered economically unfeasible to build a totally earthquake-resistant project and it is, therefore, possible that a nearby large magnitude earthquake could cause damage at the project site.

Geotechnical engineering and geologic sciences are characterized by uncertainty. Professional judgments and opinions presented in this report are based partly on our evaluation and analysis of the technical data gathered during our present study, partly on our understanding of the scope of the proposed project, and partly on our general experience in geotechnical engineering.

In the performance of our professional services, we have complied with that level of care and skill ordinarily exercised by other members of the geotechnical engineering profession currently practicing under similar circumstances in southern California. Our services consist of professional consultation only, and no warranty of any kind whatsoever, expressed or implied, is made or intended in connection with the work performed. Furthermore, our firm does not guarantee the performance of the project in any respect.

AGE does not practice or consult in the field of safety engineering. The contractor will be responsible for the health and safety of his/her personnel and all subcontractors at the construction site. The contractor should notify the City if he or she considers any of the recommendations presented in this report to be unsafe.

8.0 REFERENCES

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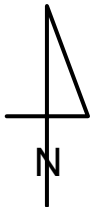
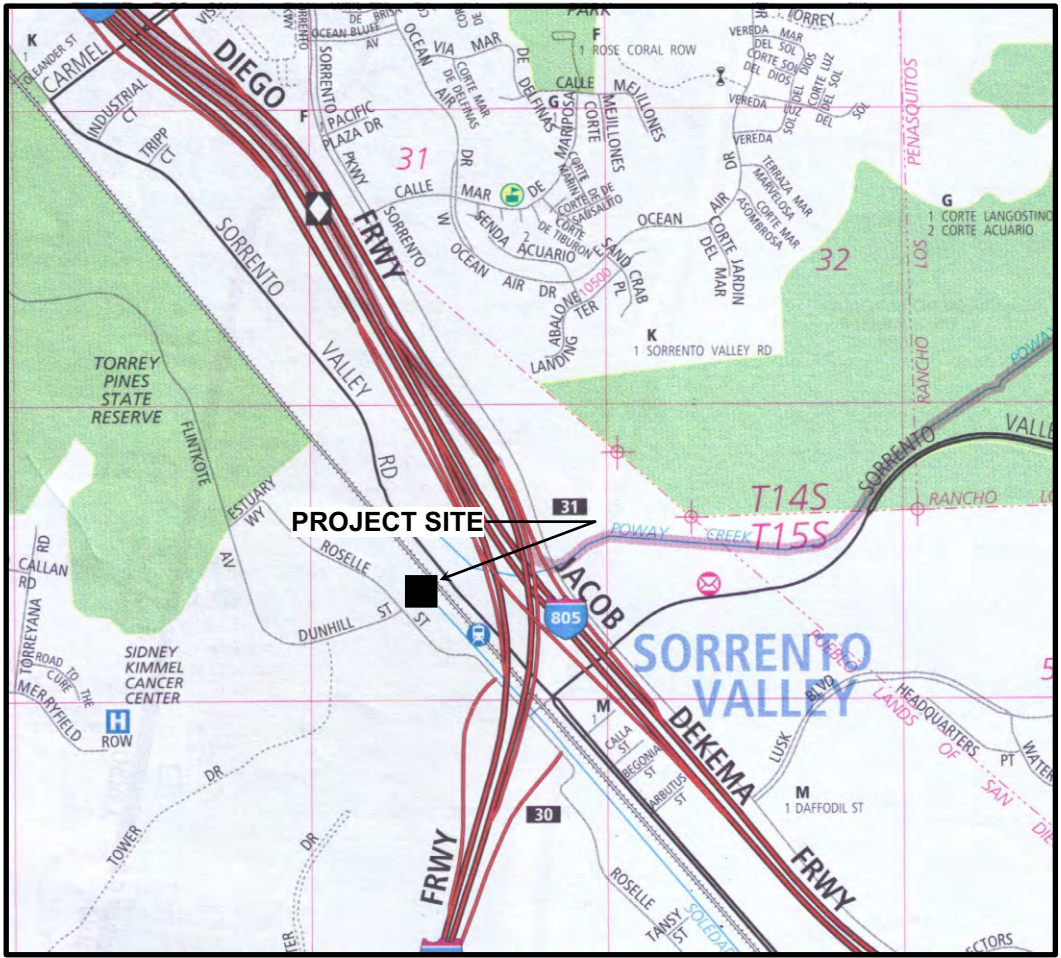
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FIGURES



NOT TO SCALE

SOURCE:

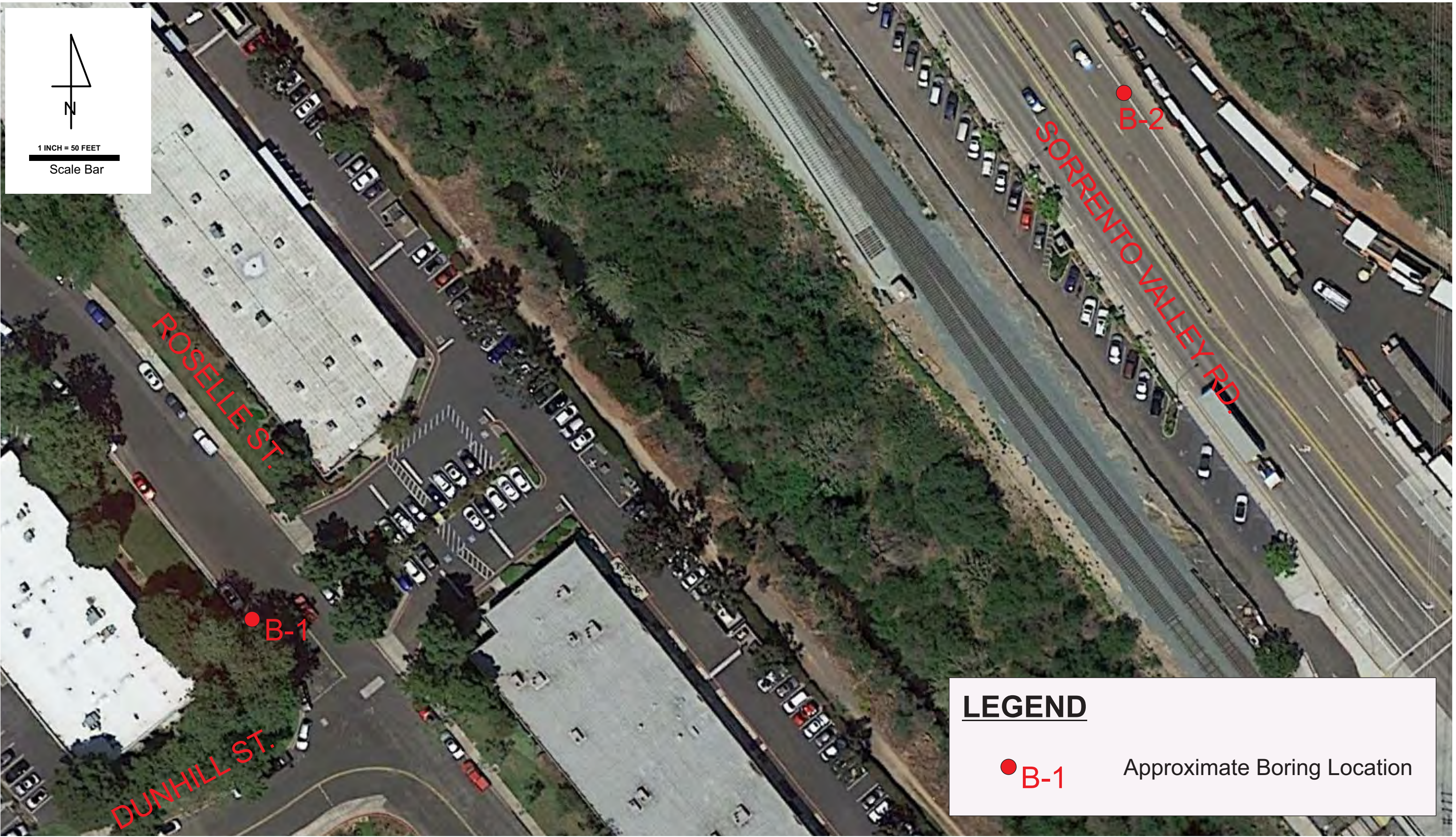
SAN DIEGO & IMPERIAL
COUNTY THOMAS GUIDE, 2016

**LOCATION MAP
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 1



LEGEND

● B-1 Approximate Boring Location

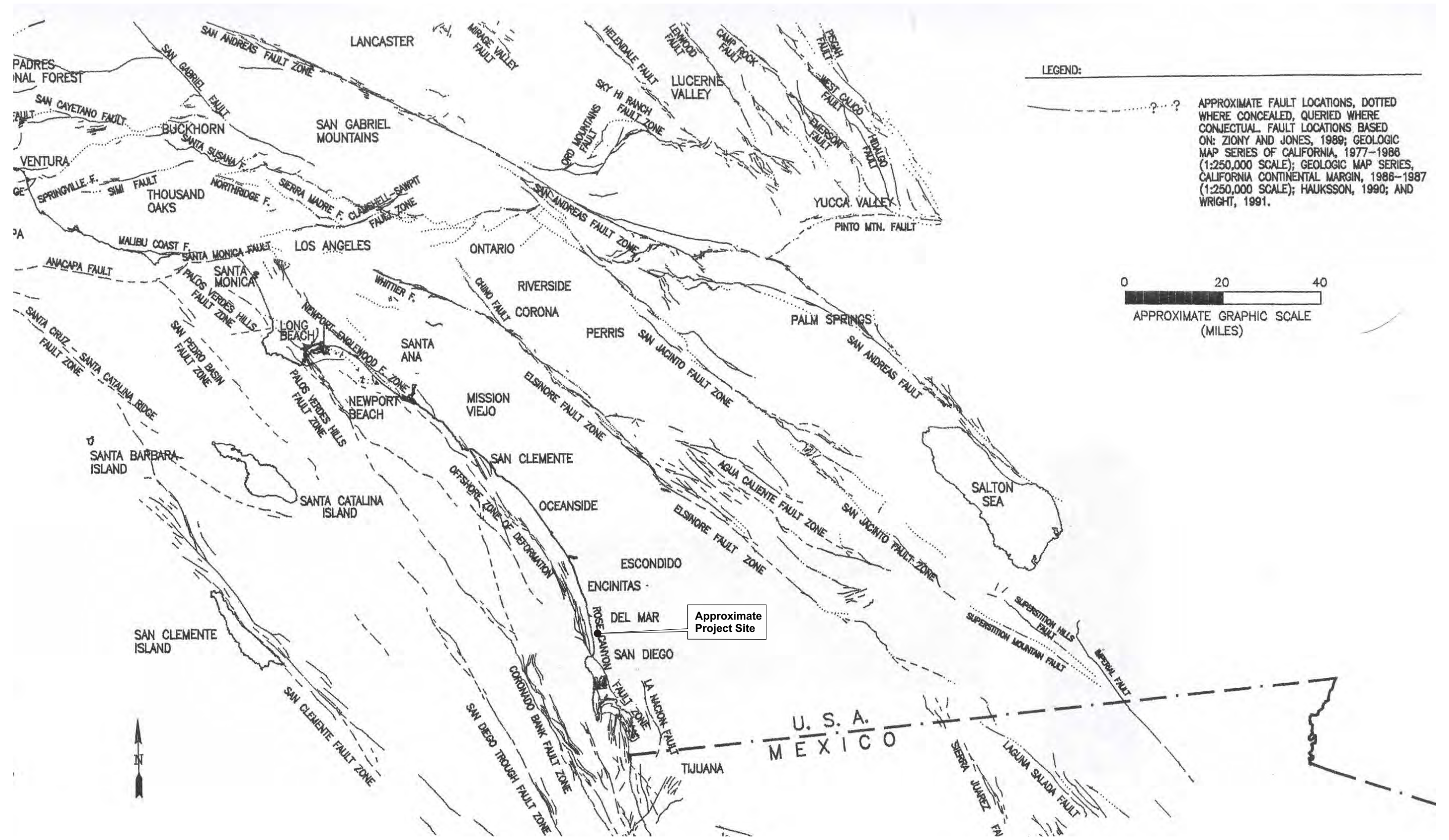
WATER GROUP 939

SITE PLAN

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 2



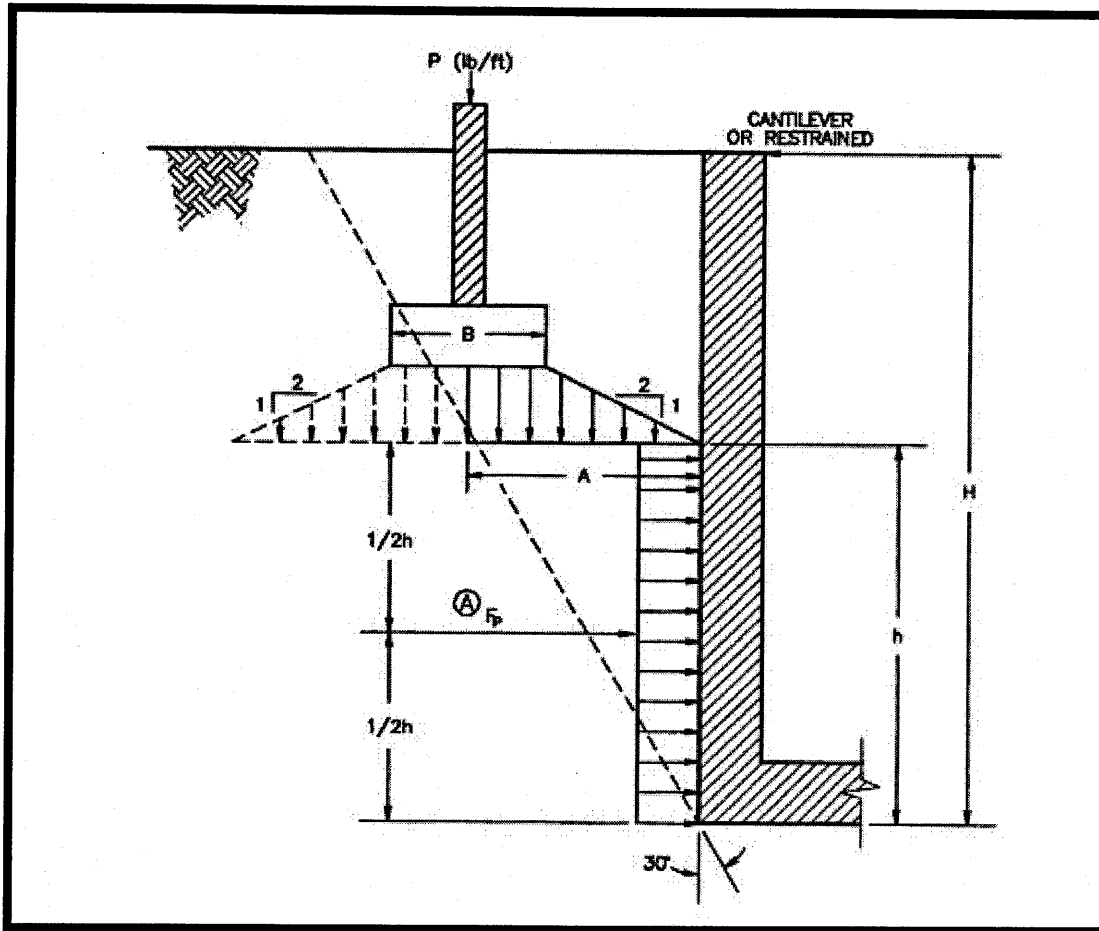
WATER GROUP 939

REGIONAL FAULT MAP

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 3



NON-EXPANSIVE BACKFILL

$$F_p = M (A/B) P, \text{ lb/ft}$$

$$A = h \tan 30^\circ, \text{ ft}$$

$$M = 0.3 \text{ for cantilever wall}$$

$$M = 0.4 \text{ for restrained wall}$$

NOTES:

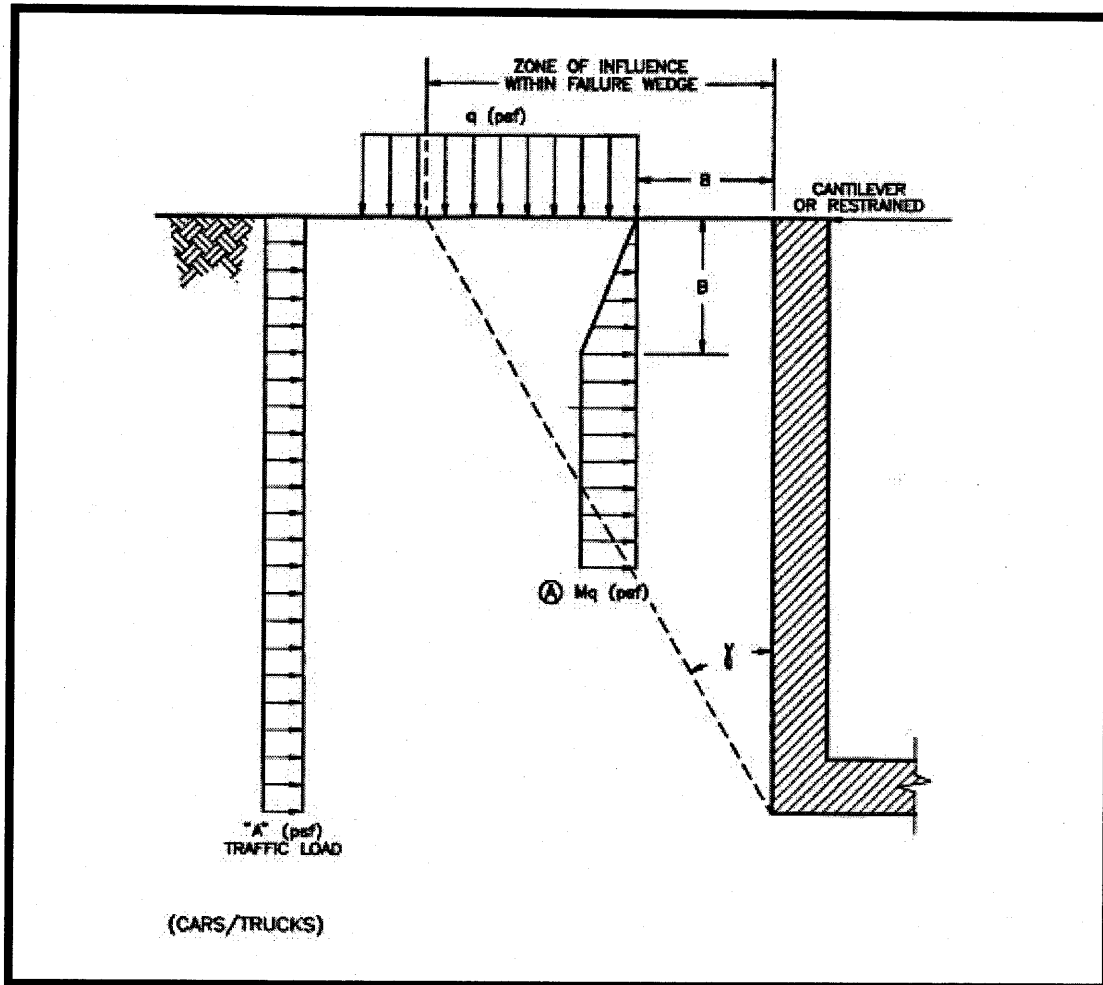
1. Surcharge pressure acting on wall is not affected by groundwater elevation.
2. Surcharge pressures shown are applicable for continuous footing only. Spread footings need to be evaluated individually.

**FOUNDATION INDUCED WALL PRESSURES
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 4



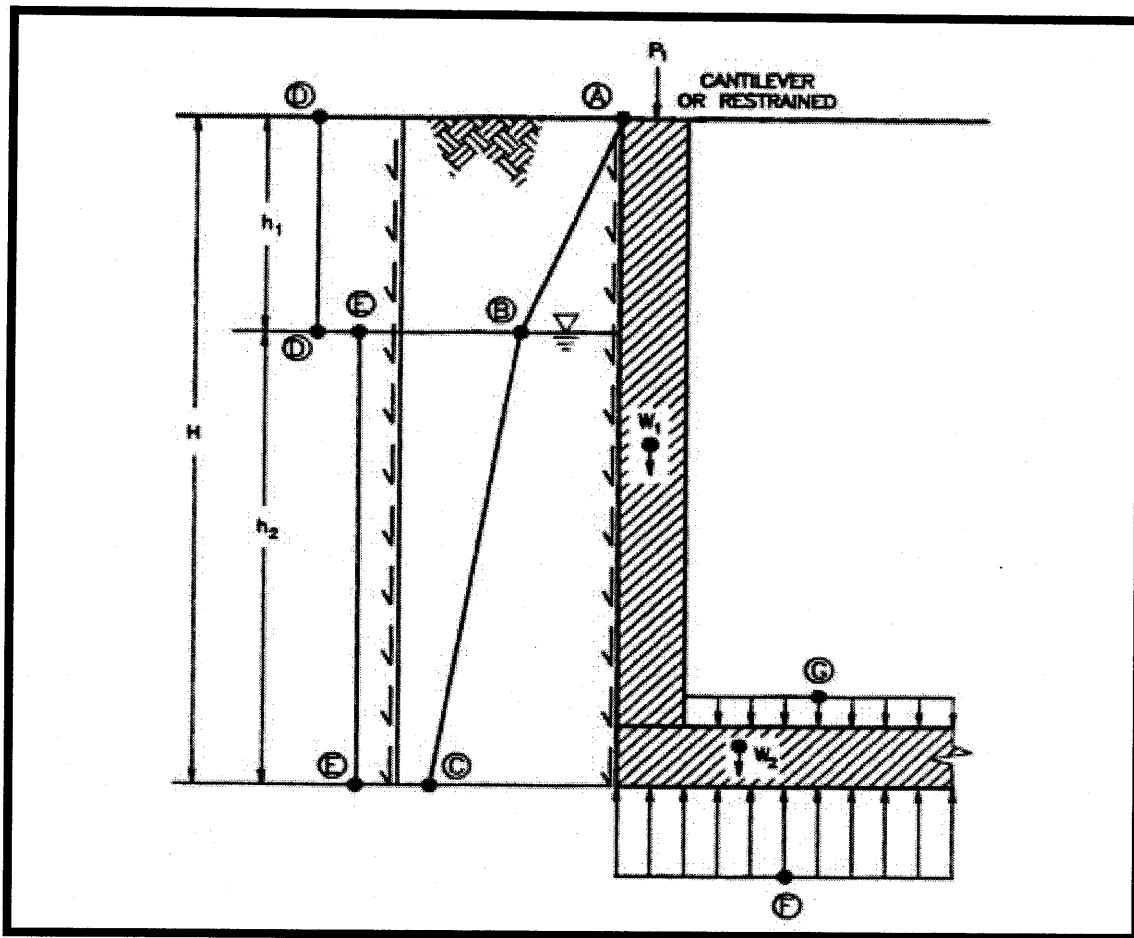
NON-EXPANSIVE BACKFILL

- q = surcharge load (psf)
- B = distance between wall and surcharge load, ft
- $M = 0.3$ for cantilever wall
- $M = 0.4$ for restrained wall
- $\textcircled{A} = Mq$, psf
- "A" = 75 psf
- $\gamma = 30^\circ$

NOTE: Surcharge pressure acting on wall is not affected by groundwater elevation.

**TRAFFIC AND SURCHARGE PRESSURES
WATER GROUP 939**

PROJECT NO. 164 GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE 5
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**PROPERLY COMPACTED
BACKFILL**

Soil Friction, psf

- Ⓐ = 0
- Ⓑ = $22h_1$
- Ⓒ = $22h_1 + 11h_2$
- Ⓓ = $7H^*$
- Ⓔ = $4H^*$

Hydrostatic Pressure, psf

- Ⓕ = $62.4 h_2$

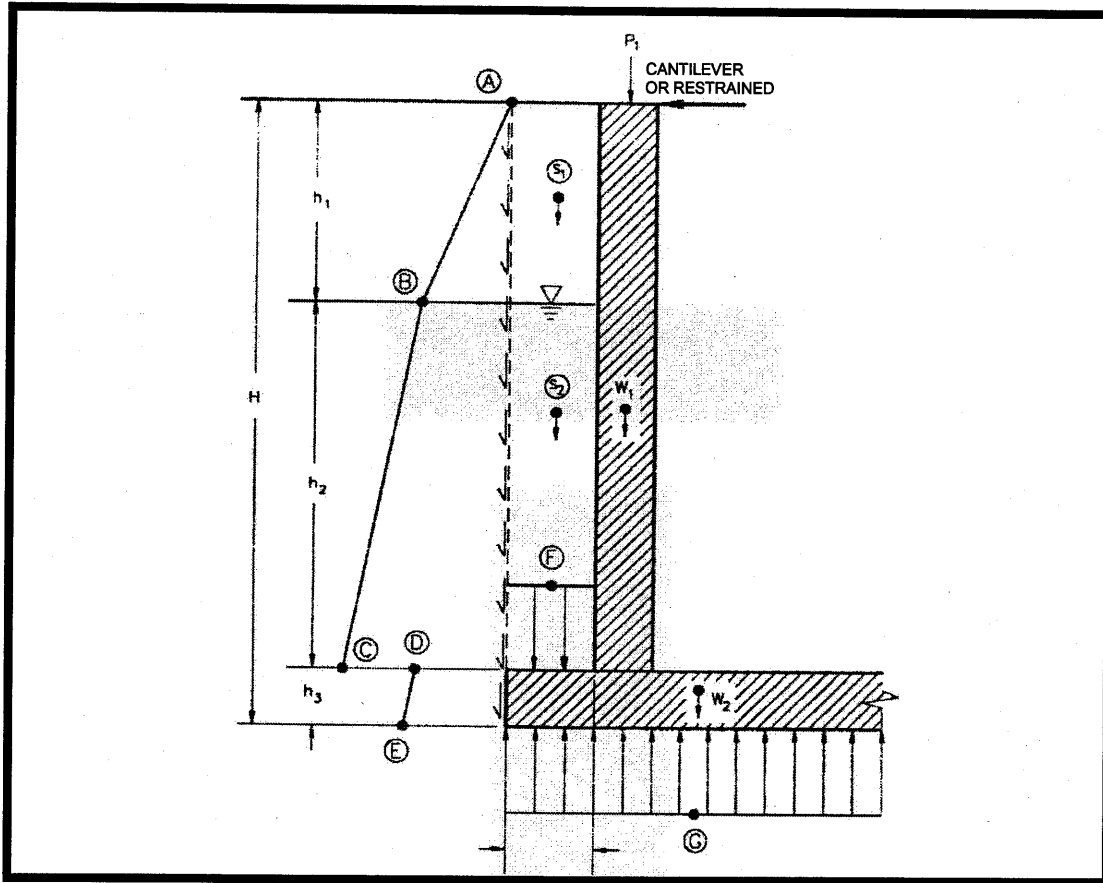
NOTE: * Ⓓ and Ⓔ are only applicable for restrained walls and should be ignored if walls are to be designed as simple cantilever

**UPLIFT RESISTANCE FOR WALLS WITHOUT EXTENSION
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 6



**PROPERLY COMPACTED
BACKFILL**

Soil Friction, psf

- Ⓐ = 0
- Ⓑ = $40h_1$
- Ⓒ = $40h_1 + 20 h_2$
- Ⓓ = $24h_1 + 12 h_2$
- Ⓔ = $24h_1 + 12 h_2 + 12 h_3$

Soil Weights - Within Vertical Prism, pcf

- Ⓐ₁ = 130 (above groundwater)
- Ⓐ₂ = 62 (below groundwater)

Hydrostatic Pressure, psf

- Ⓕ = $62.4 h_2$
- Ⓖ = $62.4 (h_2 + h_3)$

**UPLIFT RESISTANCE FOR WALLS WITH EXTENSION
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 7

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

The field exploration program for this project was performed on March 11, 2016. Two (2) soil borings were performed at the approximate locations shown on Figure 2. The borings were advanced using conventional hollow-stem auger drilling methods to depths ranging from 30 feet to 32 feet below the existing ground surface (bgs) using conventional hollow-stem auger drilling methods. The borings were performed with a CME 95 truck-mounted drill rig or equivalent. The soils encountered in the borings were visually classified and logged. A Key to Logs is presented on Figure Nos. A-1 and A-2 and the logs of borings are included as Figure Nos. A-3 and A-4.

Prior to commencement of the field exploration activities, several site visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. Traffic control permits were obtained from the City of San Diego to perform the boring located on public right-of-way. In addition, we obtained soil boring permit from the County of San Diego Department of Environmental Health (DEH).

During drilling, Standard Penetration Tests (SPT) were performed at selected depth intervals. The SPT tests involve the use of a specially manufactured "split spoon" sampler which is driven into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. The number of blows required to penetrate each 6-inch increment was counted and recorded on the field logs, and have been used to evaluate the relative density and consistency of the materials. The blow counts were subsequently corrected for sample type, hammer model, groundwater and surcharge. The corrected blow counts are shown on the boring logs.

Relatively undisturbed samples were obtained by driving a 3-inch (OD) diameter standard California sampler with a special cutting tip and inside lining of thin brass rings into the soils at the bottom of the borehole. The sampler is driven a distance of 12 inches into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. A 6-inch long section of the soil samples that were retained in the brass rings were extracted from the sampling tube and transported to our laboratory in close-fitting, waterproof containers. The samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The OVM readings are indicated on the boring logs.

Following completion of the drilling and sampling activities, the borings were backfilled using bentonite grout to approximately 12 inches below the ground surface, and capped with rapid-set concrete to match the adjacent pavement surface.

KEY T G F B RING

DEPTH (FEET)	M P E	B W C U N T (B W / F T)	V M R E D I N G (PPM)	G R P H I C G	SOIL D E S I T I O N	F I E L D M O I S T U R E (D R Y W T.)	D R Y D E N S I T Y (PCF)	R E M A R K S
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<p>The borehole log shows soil profile with blow counts and groundwater level. The log is divided into sections with blow counts: 2 (from 3 to 4.5 feet), 6 (from 7 to 8.5 feet), and 8 (from 11 to 12.5 feet). A groundwater level is indicated by a downward-pointing triangle at approximately 3.8 feet depth.</p>				<p>Sampling identification number</p> <p>Approximate interval of bulk sample</p> <p>Approximate interval of Standard California Sampler (S.S).</p> <p>Number of blows required to advance sampler for the last foot, or distance indicated. Blow counts shown on boring logs have been corrected for dimensions of sampler, sampler and ground water depth, and hammer type.</p> <p>Approximate interval of Standard Penetration Test (S.T).</p> <p> Groundwater level at the time of drilling</p> <p style="text-align: center;">(KEY T G F B RING CONTINUED IN FIGURE -2)</p>			
PROJECT N . 164 G -14-E					IED GE TECHNICAL ENGINEER , INC.			FIGURE -1

KEY T G F B RING (C NTINUED)

DEPTH (FEET)	SAMPLES	B W C UNIT (B W / F T)	VM RE DING (PPM)	GR PHIC G	SOIL DES I TION	FIE D M I TURE (DRY WT.)	DRY DEN ITY (PCF)	REM RKS	
2					-? - -? - A OXIMATE GEOLOGI O TA T				
3					FILL				
4				[Pattern: Dotted]	SA D				
5				[Pattern: Horizontal Lines]	SILT				
6				[Pattern: Diagonal Lines]	LAY				
7				[Pattern: Circles]	G AVELS & OBBLES				
8									
9									
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
<u>GENERAL NOTE</u>									
<p>1. Approximate elevations and locations of borings are based on Google Earth, 2016.</p> <p>2. Soil descriptions are based on visual classification made during the field exploration and, where deemed appropriate, have been modified based on the results of laboratory tests.</p> <p>3. Descriptions on the boring logs apply only at the specific boring locations and at the time the borings were performed. They are not warranted to be representative of subsurface conditions at other locations or times.</p>									
PROJECT NO. 164 G -14-E					FIELD GEOTECHNICAL ENGINEER, INC.		FIGURE -2		

B R I N G N . B-1

DATE OF D I L L I G : M A H , 20 0 6

TOTAL B O I L D E T H : 3 0 . 5 F E E T

G E O L O G I C A L S I T E : S O U T H W E S T S I D E O F O S E L L E S T E E T A P P R O X I M A T E L Y 7 5 F E E T W E S T O F D U H I L L S T E E T

A S S U M E D S U R F A C E E L E V . : + 3 0 F E E T M S L

D I L L I G O T A T O : T I O U T Y D I L L I G . I . .

D I L L I G M E T H O D : 8 I N C H S A

L O G G E D B Y : I K B A E S

DEPTH (FEET)	MP E	B W C U N T B W / F T	V M R E D I N G (P P M)	G R P H I C G	SOIL D E S C R I P T I O N	F I E L D M O I S T U R E D R Y W T.	D R Y D E N S I T Y B / C U . F T.	R E M A R K S
					EX I T I N G P L A N T : 6" A . . o v e r 0" m i s c . b a s			
2					F I L L : Y e l l o w i s h b r o w n , d a m p t o w e t , s i l t y s a n d (S M) w i t h t r a c e s o f g r a v e l u p t o 1 / 2" i n m a x i m u m d i m e n s i o n			
5	2		0.4			7.	09.7	
6								
8					▼			
10	3	6	0.5			5.3		
12								
13								
14					? - - - - - ? - - - - - ? - - - - - ? - - - - - ?			
15					U N D I F F E R E N T I A T E D U N S A T U R A T E D P E W H N D E T U R Y D E P O S I T			
16	4	9	0.2		D a r k g r a y t o d a r k g r a y i s h b r o w n , w e t , m e d i u m s t i f f , s a n d y c l a y (C L) i n t e r l a y e r e d w i t h y e l l o w b r o w n , f i n - g r a i n e d s i l t y s a n d (S M) .	26.2	95.7	
17								
18								
20	5	8						o s a m p l e r c o v e r y
22								
23								
24								
25	6	9	0.		D a r k g r a y i s h b r o w n t o d a r k b l u i s h g r a y , w e t , m e d i u m s t i f f , f i n - g r a i n e d , m i c a c e o u s , s a n d y s i l t (M L) .	27.4	96.2	
26								
27	7							
28								
29	8				N O T E :			
30					Bottom of bor hole at 32'			
31	9	2			Groundwater measured at 8.5' at completion of drilling operations	36.4		
32								

P R O J E C T N O . 164G -14-E

I E D G E O T E C H N I C E N G I N E E R , I N C .

FIGURE -3

B R I N G N . B-2

DATE OF DRILLING: MAY 12, 2016	TOTAL BORING DEPTH: 30 FEET
GENERAL LOCATION: EAST SIDE OF SOUTHWEST VALLEY ROAD, APPROXIMATELY 475 FEET SOUTH OF SOUTHWEST VALLEY BOULEVARD	
APPROXIMATE SURFACE ELEVATION: +25 FEET MSL	DRILLING CONTRACTOR: TROTTER DRILLING, INC.
DRILLING METHOD: RIGGING	LOGGED BY: IKB/ES

DEPTH (FEET)	SAMPLE	WATER CONTENT (%)	MOISTURE DENSITY CORRECTION (PPM)	GRAVIMETRIC WATER	SOIL DESCRIPTION	FIELD MOISTURE DRY WT.	DRY DENSITY (G/CC)	REMARKS
1					EXISTING PAVEMENT: 5" Asphalt, 2" misc. base			
2					FIELD NOTES: Yellow brown, damp, silty sand (SM) with sub-round to sub-angular gravel up to 1/4" maximum dimension.	7.4	1.8	
3								
4		8	0.0	?	UNDIFFERENTIATED UVI, PEW HND ENTIRE DEPTH Olivaceous brown to grayish gray, w/t, medium stiff to stiff, sandy silt (ML).			
5	2				Soils become dark grayish brown to dark olive gray, and soft.	33.2		
6	3	2	0.4					
7					Dark gray brown, w/t, medium dense, fine-grained, slightly micaceous silty sand (SM) and sandy silt (ML).	22.2	103.9	no sample recovery
8	4							
9					Dark grayish brown, w/t, medium dense, fine-grained, micaceous, silty sand (SM).	8.3		
10	5	7						
11								
12	6	10	0.0					
13								
14								
15								
16								
17								
18	7	3	0.5					
19								
20								
21								
22								
23								
24								
25								
26	8							
27								
28								
29								
30								

NOTE:
 Bottom of boring at 30 feet
 Groundwater measured at 9'-0" at completion of drilling operations

APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Selected soil samples were tested in the laboratory to verify visual field classifications and to evaluate certain engineering characteristics. The testing was performed in accordance with the American Society for Testing and Materials (ASTM) or other generally accepted test methods, and included the following:

- Determination of in-place moisture content (ASTM D2216). The final test results are presented on the boring logs;
- Determination of in-place dry density and moisture content (ASTM D2937) based on relatively undisturbed drive samples. The final test results are presented on the boring logs;
- Sieve and hydrometer analyses (ASTM D422), and the final test results are plotted as gradation curves on Figure B-1;
- Direct shear test (ASTM D3080). The test results are presented on Figures B-2 and B-3;
- Expansion index (ASTM D4829). The final test results are presented in Table B-1; and
- Atterberg Limits (ASTM D4318) and the test results are presented in Table B-2.

In addition, representative samples of the onsite soil materials were delivered to Clarkson Laboratory and Supply, Inc. for analytical (chemical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. Copies of Clarkson's laboratory test data reports are included herein.

Table B-1

Summary of Expansion Index Test Results

Sample ID.	Expansion Index
B-1 #7 @ 25'-28'	26

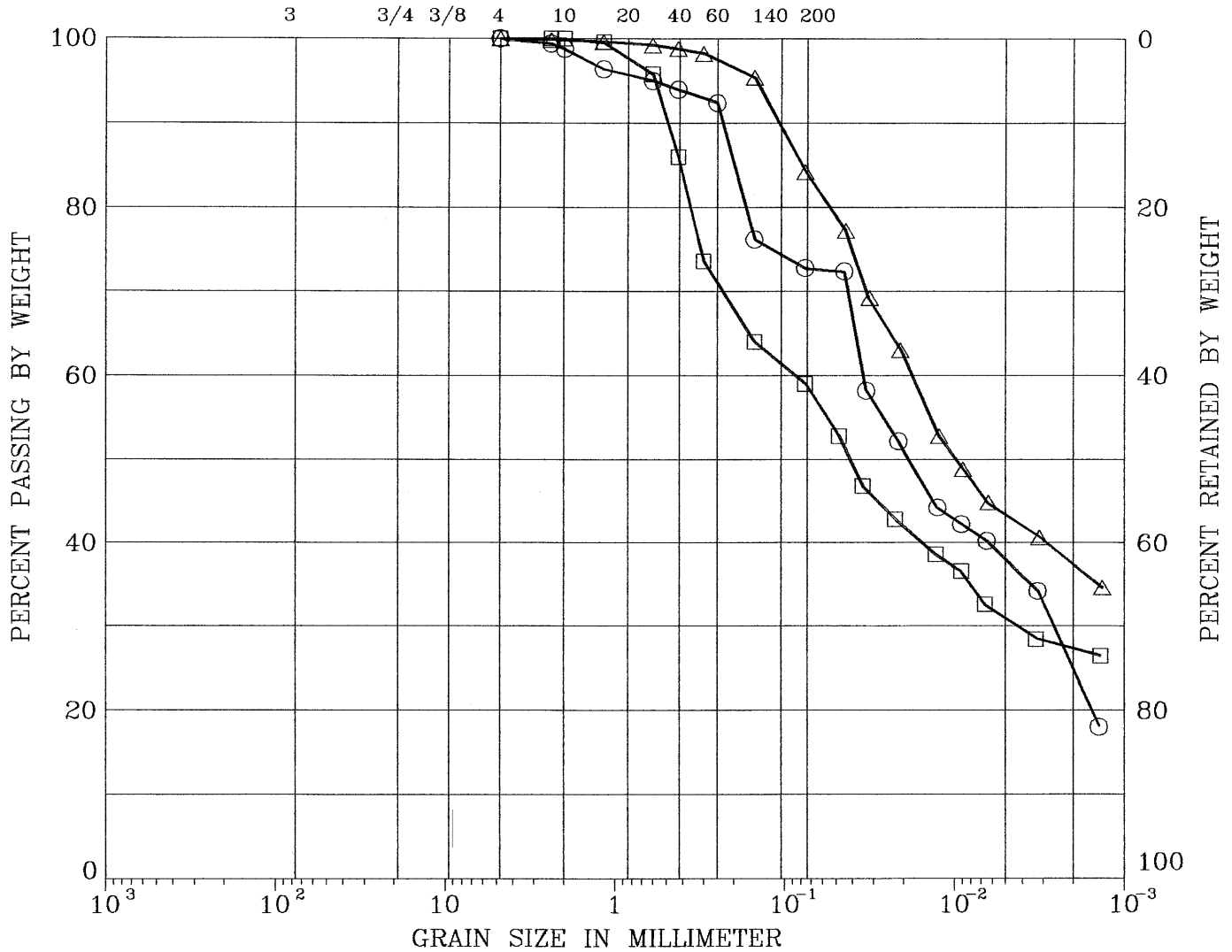
Table B-2

Summary of Atterberg Test Results

Sample ID.	LL (%)	PL (%)	PI (%)
B-2 #6 @ 21'-21.5'	28	21	7
B-1 #6 @ 26'-26.5'	40	23	17
B-2 #3 @ 11'-11.5'	39	20	19

UNIFIED SOIL CLASSIFICATION

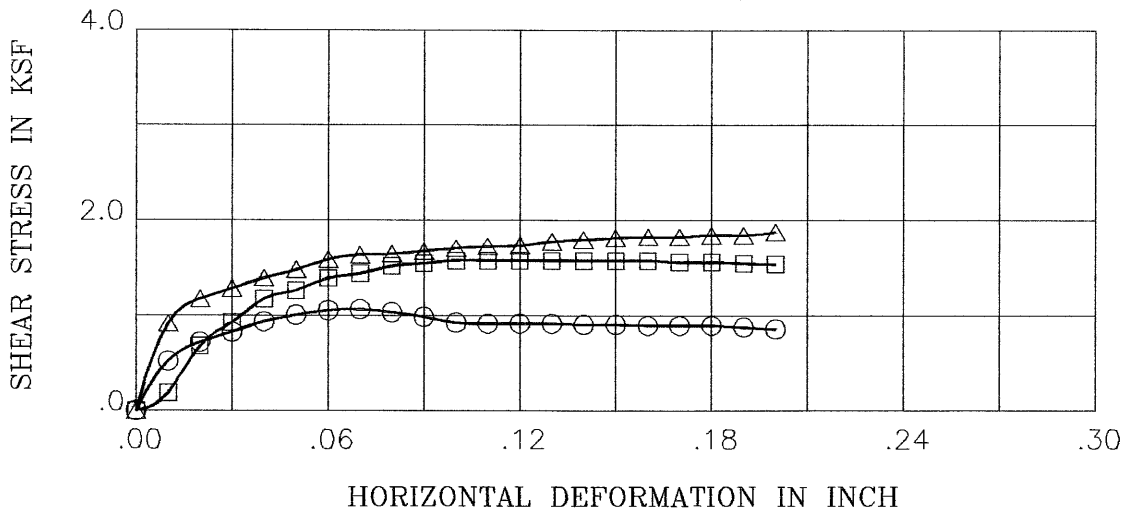
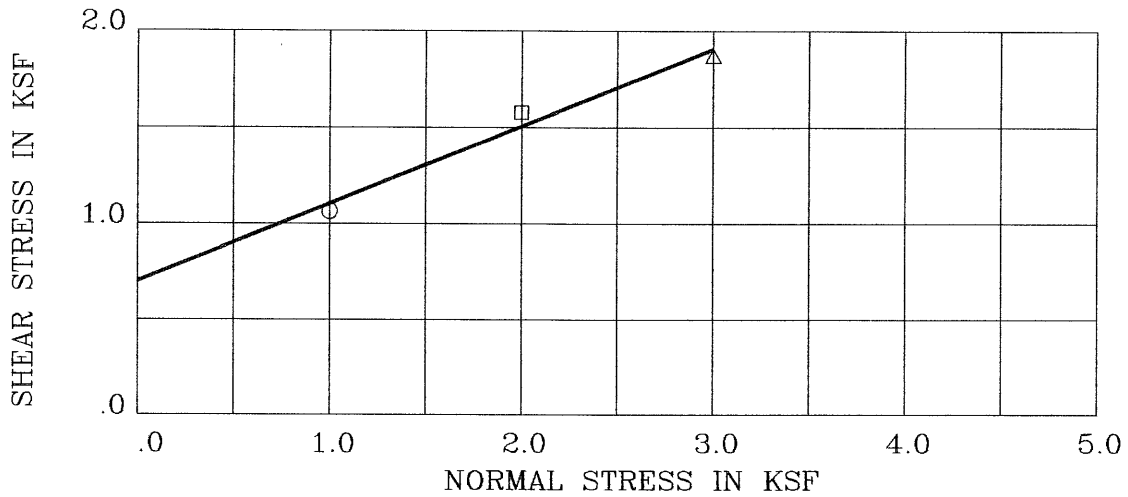
<i>COBBLES</i>	<i>GRAVEL</i>		<i>SAND</i>			<i>SILT OR CLAY</i>
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B-1 #6	26-26.5	40	17	CLAY (CL)
□	B-2 36	21-21.5	28	7	CLAY (CL)
△	B-2 #3	11-11.5	39	19	CLAY (CL)

Remark :

Project 164 GS-14E	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC.	GRAIN SIZE DISTRIBUTION Figure B-1 271 Page

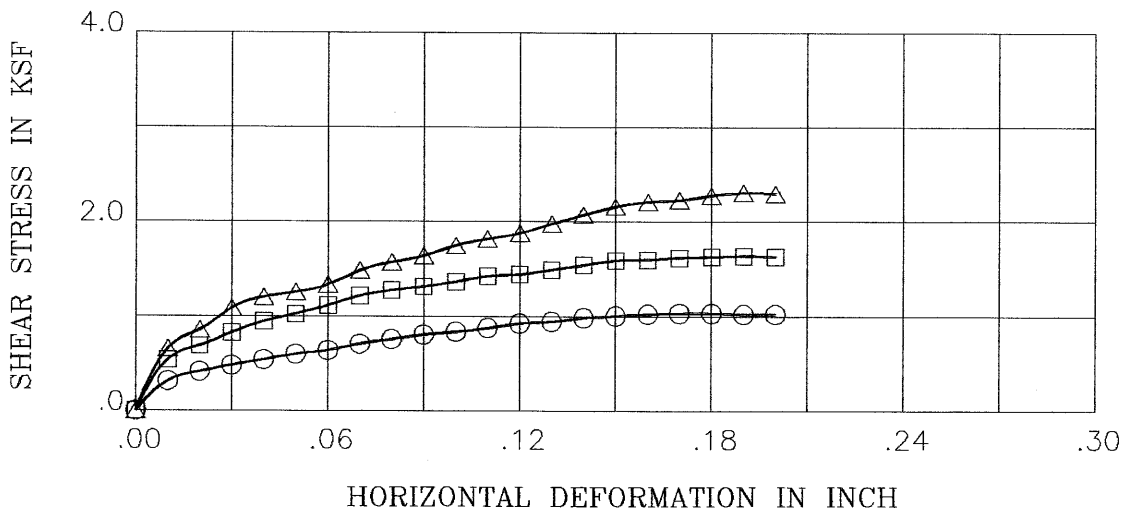
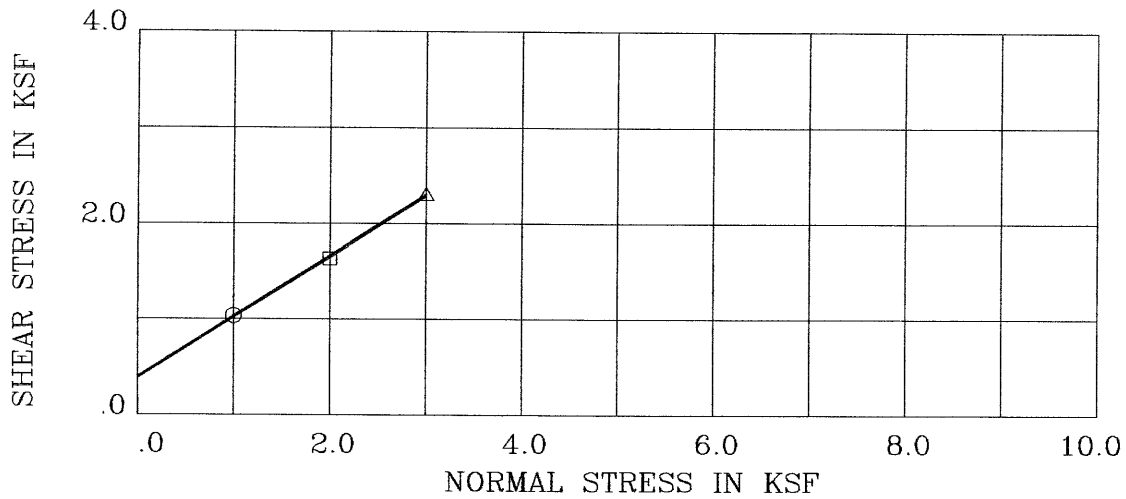


BORING/SAMPLE : B-1#6 DEPTH (ft) : 26-26.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .700 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 22.0 DEG

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	31.0	93.4	.804	1.00	1.07	.86
□	27.5	94.6	.781	2.00	1.58	1.54
△	29.4	92.2	.828	3.00	1.87	1.87

Remark :

Project 164 GS-14B	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC.	DIRECT SHEAR TEST Figure B-2 272 Page



BORING/SAMPLE : B-2#6 DEPTH (ft) : 21-21.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .389 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 32.4 DEG

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	21.9	103.4	.629	1.00	1.04	1.02
□	22.3	103.4	.630	2.00	1.64	1.63
△	22.3	105.4	.598	3.00	2.31	2.30

Remark :

Project 164 GS-14B	WATER GROUP 939	
ALLIED GEOTECHNICAL ENGINEERS, INC.	DIRECT SHEAR TEST	Figure B-3 273 Page

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993

Fax 425-7917

Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
 350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
 A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 31, 2016

Purchase Order Number: 164 GS-14-E

Sales Order Number: 30727

Account Number: ALLG

To:

 Allied Geotechnical Engineers
 1810 Gillespie Way Ste 104
 El Cajon, CA 92020
 Attention: Sani Sutanto

Laboratory Number: S05955-1

Customers Phone: 449-5900

Fax: 449-5902

Sample Designation:

 One soil sample received on 03/24/16 at 11:26am,
 taken on 03/24/16 from Water Group 939 Project# 164-GS-14-E
 marked as B-1#8@29'-30'.

Analysis By California Test 643, 1999, Department of Transportation
 Division of Construction, Method for Estimating the Service Life of
 Steel Culverts.

pH 8.3

Water Added (ml)

Resistivity (ohm-cm)

15	860
5	520
5	360
5	310
5	290
5	260
5	250
5	310
5	350

- 17 years to perforation for a 16 gauge metal culvert.
- 23 years to perforation for a 14 gauge metal culvert.
- 31 years to perforation for a 12 gauge metal culvert.
- 40 years to perforation for a 10 gauge metal culvert.
- 48 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417

0.510% (5100ppm)

Water Soluble Chloride Calif. Test 422

0.091% (910ppm)

Bicarbonate (as CaCO₃)

N/A

(In a saturated soil paste extract)

Note: N/A = Unable to determine due to the texture of the soil (Clay).



Laura Torres

LT/dbb

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 31, 2016
Purchase Order Number: 164 GS-14-E
Sales Order Number: 30727
Account Number: ALLG
To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S05955-2 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 03/24/16 at 11:26am,
taken on 03/24/16 from Water Group 939 Project#164-GS-14-E
marked as B-2#8@27'-28'

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.1

Water Added (ml)	Resistivity (ohm-cm)
10	4100
5	1600
5	1200
5	770
5	640
5	630
5	650
5	670

25 years to perforation for a 16 gauge metal culvert.
33 years to perforation for a 14 gauge metal culvert.
46 years to perforation for a 12 gauge metal culvert.
58 years to perforation for a 10 gauge metal culvert.
71 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.016% (160ppm)
Water Soluble Chloride Calif. Test 422	0.019% (190ppm)
Bicarbonate (as CaCO ₃) (In a saturated soil paste extract)	N/A

Note: N/A = Unable to determine due to the texture of the soil (Clay).


Laura Torres
LT/dbb



March 7, 2017

Mr. Kevin Gibson, P.E.
Project Manager
Rick Engineering Company
5620 Friars Road
San Diego, CA 92110

**Subject: REPORT OF GEOLOGIC LOGGING AND
LABORATORY TESTING FOR
WATER GROUP 939
CITY OF SAN DIEGO
AGE Project No. 164 GS-14-E**

Dear Kevin,

Reference is made to our "Report of Geotechnical Investigation Water Group 939" dated March 29, 2016 in which we presented our findings, opinions and recommendations with regard to the design of the subject project. The scope of work included the advancement of two soil borings (borings B-1 and B-2).

In accordance with our proposal dated June 22, 2016, Allied Geotechnical Engineers, Inc. (AGE) has performed drilling, logging and sampling operations of two additional borings (borings B-3 and B-4) at the approximate locations shown on Figure 1. The borings were advanced to a depth of 51.5 feet below the existing ground surface (bgs) on February 17 and 18, 2017 using conventional hollow-stem auger drilling methods. A more detailed description of the drilling and sampling activities, and logs of the borings are presented in Appendix A.

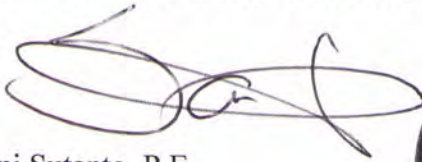
Selected soil samples obtained from the borings were tested in the laboratory to verify field classifications and evaluate certain engineering characteristics. The geotechnical laboratory tests were performed in general conformance with the American Society for Testing and Materials (ASTM) or other generally accepted testing procedures.

The laboratory tests included: in-place density and moisture content, maximum density and optimum moisture content, sieve (wash) analysis, Atterberg limits, shear strength, expansion index and consolidation. In addition, representative samples of the onsite soil materials were collected and delivered to Clarkson Laboratories and Supply, Inc. for chemical (analytical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A brief description of the tests that were performed and the final test results are presented in Appendix B.

We appreciate the opportunity to be of service on this project. If you have any questions regarding the content of this report or need further assistance, please feel free to contact our office.

Sincerely,

ALLIED GEOTECHNICAL ENGINEERS, INC.



Sani Sutanto, P.E.
Senior Engineer



SS/TJL:cal
Distr. (1 electronic copy) Addressee



WATER GROUP 939

SITE PLAN

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 1
278 | Page

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

The field exploration program for this project was performed on February 17 and 18, 2017. Two (2) soil borings were performed at the approximate locations shown on Figure 1. The borings were advanced using conventional hollow-stem auger drilling methods to a depth of 51.5 feet below the existing ground surface (bgs) using conventional hollow-stem auger drilling methods. The borings were performed with a Diedrich D-120HT/HS truck-mounted drill rig. The soils encountered in the borings were visually classified and logged. A Key to Logs is presented on Figure Nos. A-1 and A-2 and the logs of borings are included as Figure Nos. A-3 and A-6.

Prior to commencement of the field exploration activities, several site visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. A traffic control permit was obtained from the City of San Diego to perform the boring located on Sorrento Valley Road. An Access Agreement was obtained from ARE-11025/11075 Roselle Street, LLC for the boring located behind the office building located at 11045 Roselle Street. In addition, AGE also obtained soil boring permit from the County of San Diego Department of Environmental Health (DEH).

During drilling, Standard Penetration Tests (SPT) were performed at selected depth intervals. The SPT tests involve the use of a specially manufactured "split spoon" sampler which is driven into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. The number of blows required to penetrate each 6-inch increment was counted and recorded on the field logs, and have been used to evaluate the relative density and consistency of the materials. The blow counts were subsequently corrected for sample type, hammer model, groundwater and surcharge. The corrected blow counts are shown on the boring logs.

Relatively undisturbed samples were obtained by driving a 3-inch (OD) diameter standard California sampler with a special cutting tip and inside lining of thin brass rings into the soils at the bottom of the borehole. The sampler is driven a distance of 12 inches into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. A 6-inch long section of the soil samples that were retained in the brass rings were extracted from the sampling tube and transported to our laboratory in close-fitting, waterproof containers. The samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The OVM readings are indicated on the boring logs.

Following completion of the drilling and sampling activities, the borings were backfilled using bentonite grout to approximately 12 inches below the ground surface, and capped with rapid-set concrete to match the adjacent pavement surface.

KEY T G F B RING

DEPTH (FEET)	M P E	B W C U N T (B W / F T)	V M R E D I N G (PPM)	G R P H I C G	SOIL D E S I T I O N	F I E L D M O I S T U R E (D R Y W T.)	D R Y D E N S I T Y (PCF)	R E M R K S
<p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p>	<p>2</p> <p>3</p> <p>8</p> <p>13</p>				<p>→ Sample identification number</p> <p>Approximate interval of bulk sample</p> <p>Approximate interval of Standard California Sampler (S S).</p> <p>Number of blows required to advance sampler for the last foot, or distance indicated. Blow counts shown on boring logs have been corrected for dimensions of sampler, sampler and ground water depth, and hammer type.</p> <p>Approximate interval of Standard Penetration Test (S T).</p> <p>▼ Groundwater level at the time of drilling</p> <p style="text-align: center;">(KEY T G F B RING CONTINUED ON FIGURE -2)</p>			
PROJECT N . 164 G -14-E					IED GE TECHNIC ENGINEER , INC.			FIGURE -1

KEY TO GFB RING (CONTINUED)

DEPTH (FEET)	SAMPLES	BWC UNIT (BWF/T)	VIBRE DING (PPM)	GRAPHIC	SOIL DESCRIPTION	FIELD MOISTURE (% DRYWT.)	DRY DENSITY (PCF)	REMARKS	
2				-? - -? -	APPROXIMATE GEOLOGICAL OUTCROPPING				
3				[Pattern: Dotted]	FILL				
4				[Pattern: Horizontal Lines]	SAND				
5				[Pattern: Vertical Lines]	SILT				
6				[Pattern: Diagonal Lines /]	CLAY				
7				[Pattern: Random Symbols]	GRAVELS				
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
GENERAL NOTE									
					<p>1. Approximate elevations and locations of borings are based on Google Earth, 2016.</p> <p>2. Soil descriptions are based on visual classification made during the field exploration and, where deemed appropriate, have been modified based on the results of laboratory tests.</p> <p>3. Descriptions on the boring logs apply only at the specific boring locations and at the time the borings were performed. They are not warranted to be representative of subsurface conditions at other locations or times.</p>				
PROJECT NO. 164 G-14-E					FIELD GEOTECHNICAL ENGINEER, INC.			FIGURE -2	

B R I N G N . B-3

DATE OF D I L L I G : FEB UA Y 7, 20 7 TOTAL BO I G D E TH: 5 .5 FEET
 GE E AL LO AT IO : WEST SIDE OF SO E TO VALLEY OAD A OXIMATELY ,500 FEET O TH OF SO E TO VALLEY BOULEVA D
 A OXIMATE SU FA E ELEV.: +35 FEET MSL D I L L I G O T A TO : T I - O U TY D I L L I G . I ..
 D I L L I G M E T H O D : 8 I H S A LOGGED BY: I K B A E S

DEPTH (FEET)	MP E	B W C U N T B W / F T	V N R E D I N G (PPM)	G R P H I C G	SOIL D E S I T I O N	F I E D M I T U R E D R Y W T.	D R Y D E N I T Y B . / C U . F T.	R E M R K S
1					EXI T I N G P V E M E N T : 5" A . . o v r 2" m i s c . b a s .			
2					FI			
3					Y l l o w b r o w n , d a m p t o w t , s i l t y s a n d (S M) w i t h s u b - a n g u l a r t o s u b - r o u n d d g r a v l s u p t o 2" i n m a x i m u m d i m n s i o n .			
4								
5		26	0.0			2.5	3.2	
6	2							
7								
8					- - - - - ? - - - - - ? - - - - - ?			
9					U N D I F F E R E N T I A T E D U V I , P E W H N D E T U R I N E D E P I T			
10					Dark gray to black, w t , s o f t t o m e d i u m s t i f f , s a n d y c l a y (L) c o n t a i n i n g t r a c e a m o u n t s o f o r g a n i c s a n d d i s p l a y i n g a f a i n t o d o r o f d c o m p o s d v g t a t i o n .	26.5		
11		6	0.2		o o d o r o f d c o m p o s d v g t a t i o n o d o r s n o t d b l o w d p t h o f 2' .			
12								
13								
14								
15								
16					Dark oliv gray to black, slightly micac ous, low plasticity sandy clay (L) .	33.	92.3	
17	5	6	0.0					
18					▼			
19								
20					V r y d a r k g r a y i s h b r o w n t o d a r k o l i v g r a y , w t , m i c a c o u s , s a n d y c l a y / s a n d y s i l t (L / M L) w i t h t r a c e s o f s u b - a n g u l a r g r a v l s u p t o 1 / 4" i n m a x i m u m d i m n s i o n .	22.9		
21		6	0.					Drill r adding b ntonit grout insid aug r to maintain stability of hol bottom
22								
23								
24								
25								
26								
27		7	0.0		Grayish brown to dark gray, w t , m e d i u m d n s , s l i g h t l y m i c a c o u s , f i n - g r a i n e d , s i l t y s a n d (S M) .	9.9	.3	
28								
29	8							

B RING N . B-3(Continued)

DEPTH (FEET)	MP E	B W C UNIT B W / F T	VM RE DING (PPM)	GR PHIC G	SOIL DES I TION	FILE D M I TURE DRYWT.	DRY DEN I T Y B . / CU . FT.	REM RK
3	9	8	0.2		UNDIFFERENTIATED UVI , PEW H ND E TU RINE DEP IT	22.2		
32					At 3 ', soil grad s into grayish brown, w t, m dium d ns , fin -grain d, poorly grad d sand with silt (S -SM).			
33								
34								
35	0	6	0.0		Soil b com s v ry d ns , m dium grain d.	20.0	06.	
36								
37								
38								
39								
40		8	0.		At 4 ', soil mak s a sharp transition to grayish brown, w t, m dium stiff, sandy clay (L).	25.8		
41								
42								
43								
44								
45	2	5	0.0		Grayish brown to oliv gray, w t, stiff, sandy silt (ML).	24.6	03.5	
46								
47								
48	3							
49								
50					Grayish brown to dark oliv gray, w t, soft, sandy silt (ML).			
51	4	2	0.			25.9		

NOTE :
 Bottom of bor hol at 5 .5 f t.
 Groundwat r ncount rd at 8 f t during drilling op rations.

B R I N G N . B-4

DATE OF D I L L I G : FEB UA Y 8, 20 7 TOTAL BO I G D E TH: 5 .5 FEET
 GE E ALLO ATIO : A KI GA EA LO ATED BEHI D THE OFFI E BUILDI G AT 045 OSELLE ST EET
 A OXIMATE SU FA E ELEV.: +35 FEET MSL D I L L I G O T A TO : T I - O U TY D I L L I G . I ..
 D I L L I G METHOD: 8 I H HSA LOGGED BY: I K BA ES

DEPTH (FEET)	MP E	B W C UN T B W / F T	VN RE DING (PPM)	GR PHIC G	SOIL DES I TION	FI E D M I TURE DRY WT.	DRY DEN ITY B ./CU. FT.	REM RKS
					EXI TING P VEMENT: 4" A. ., no bas .			
2					FI			
3					Y llow brown to r ddish y llow, damp, fin to m dium-grain d silty sand (SM) with scatt r d sub-angular to sub-round d grav ls, up to 3" in maximum dim nsion.			
4		7	0.			.7		
5								
6								
7								
8								
9								
10	2	9	0.	?	UNDIFFERENTI ED UVI , PEW H ND E TU RINE DEP IT	29.9	9.4	?
11					Oliv to dark oliv gray, w t, m dium stiff, sandy silt (ML).			
12					▼			
13	3	3	0.0		Dark gr nish brown, w t, loos , fin to m dium-grain d, slightly micac ous, silty sand (SM).	26.3		
14	4							
15								
16								
17								
18	5	8	0.		V ry dark gray, w t, m dium stiff, slightly micac ous, low plasticity sandy silt (ML) grading into sandy clay (L).	23.3	08.8	
19								
20								
21								
22								
23	6							
24								
25								
26	7	3	0.5		Soil b coming soft/loos sandy clay/clay y sand (L/S).	23.9		
27	8							
28								
29								

PR JECT N . 164G -14-E IED GE TECHNIC ENGINEER , INC. FIGURE -5

B RING N . B-4(Continued)

DEPTH (FEET)	MP E	B W C UNIT B W / F T	VM RE DING (PPM)	GR PHIC G	SOIL DES I TION	FILE D M I TURE DRYWT.	DRY DEN ITY B ./CU. FT.	REM RK
3	9	49	0.0		UNDIFFERENTIATED UVI , PEW H ND E TU RINE DEP IT	24.	02.5	
32					At 30', transition to a y llow brown, w t, d ns , m dium-grain d, slightly micac ous, poorly grad d sand with silt (S -SM).			
35	0	00+	0.4		Soil is d ns to v ry d ns .	2 .7		
40								
41			0.0		Oliv gr n to oliv , w t, stiff, sandy silt (ML) with trac of sub-angular grav l up to /2" in maximum dim nsion.	28.7	99.0	
43								
44	2							
45								
46	3	8	0.		Oliv to oliv gray, no grav l obs rv d.	28.7		
47								
48								
49								
50								
51	4	35	0.0		At 5 ', soil grad s into oliv gr n to dark oliv gray, w t, d ns , fin to m dium-grain d, slightly micac ous, poorly grad d sand with silt (S -SM).	2 .	4.8	

NOTE :

Bottom of bor hol at 5 .5 f t.

Groundwat r ncount rd at 4 f t during drilling op rations.

APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Selected soil samples were tested in the laboratory to verify visual field classifications and to evaluate certain engineering characteristics. The testing was performed in accordance with the American Society for Testing and Materials (ASTM) or other generally accepted test methods, and included the following:

- Determination of in-place moisture content (ASTM D2216). The final test results are presented on the boring logs;
- Determination of in-place dry density and moisture content (ASTM D2937) based on relatively undisturbed drive samples. The final test results are presented on the boring logs;
- Maximum Density and Optimum Moisture Content test (ASTM D1557). The test results are plotted as curves on Figures B-1 and B-2;
- Sieve analyses (ASTM D422). The test results are plotted as gradation curves on Figure B-3;
- Atterberg Limits (ASTM D4318). The test results are shown on Figure B-3;
- Direct shear test (ASTM D3080). The test results are presented on Figures B-4 and B-5;
- Consolidation test (ASTM D2435). The test results are plotted as a curve on Figure B-6; and
- Expansion index (ASTM D4829). The final test results are presented in Table B-1.

In addition, representative samples of the onsite soil materials were delivered to Clarkson Laboratory and Supply, Inc. for analytical (chemical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A summary of the corrosivity test results is shown on Table B-2. Copies of Clarkson's laboratory test data reports are included herein.

Table B-1

Summary of Expansion Index Test Results

Sample	Expansion Index
B-3 #3 @ 9'-11'	24

Table B-2

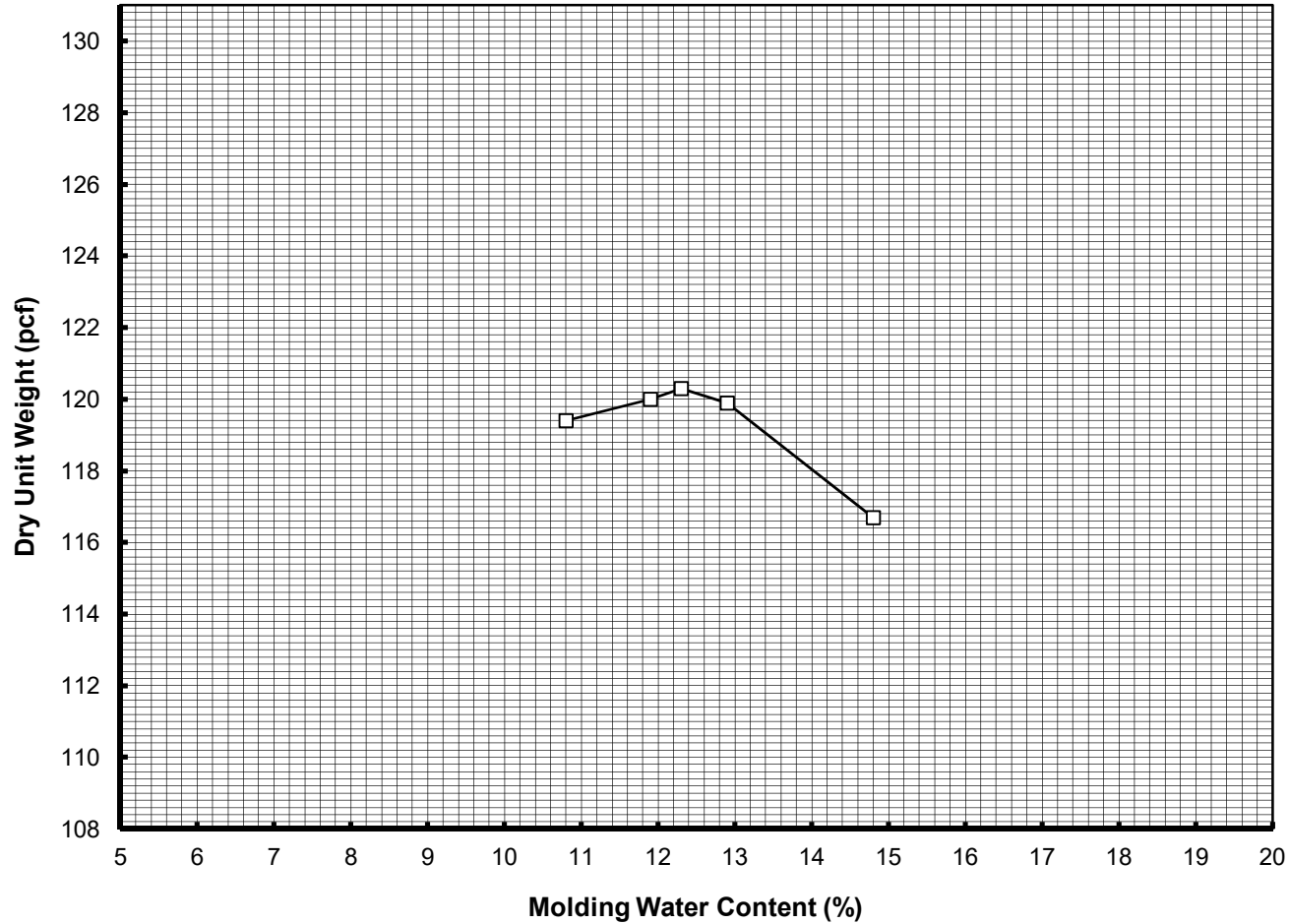
Summary of Corrosivity Test Results

	pH	Resistivity (ohm-cm)	Sulfate Conc. (ppm)	Chloride Conc. (ppm)	Bicarbonates Conc. (ppm)
B-3 Sample No. 13 @46'-50'	8.2	820	330	200	50
B-4 Sample No. 12 @43'-44'	8.0	410	2,280	530	34

COMPACTION CURVE

Test Method: ASTM D 1557

Compaction Procedure: B Specimen Preparation Method: Moist or Dry



5

Boring No.	Sample No.	Depth (ft)	OPT. WC (%)	MAX. DUW (pcf)	LL	PI	Description and/or Classification
B-3	8	27-30	12.3	120.3			Very dark gray sandy clay

**WATER GROUP 939
CITY OF SAN DIEGO**

PROJECT NO. 164 GS-14-E

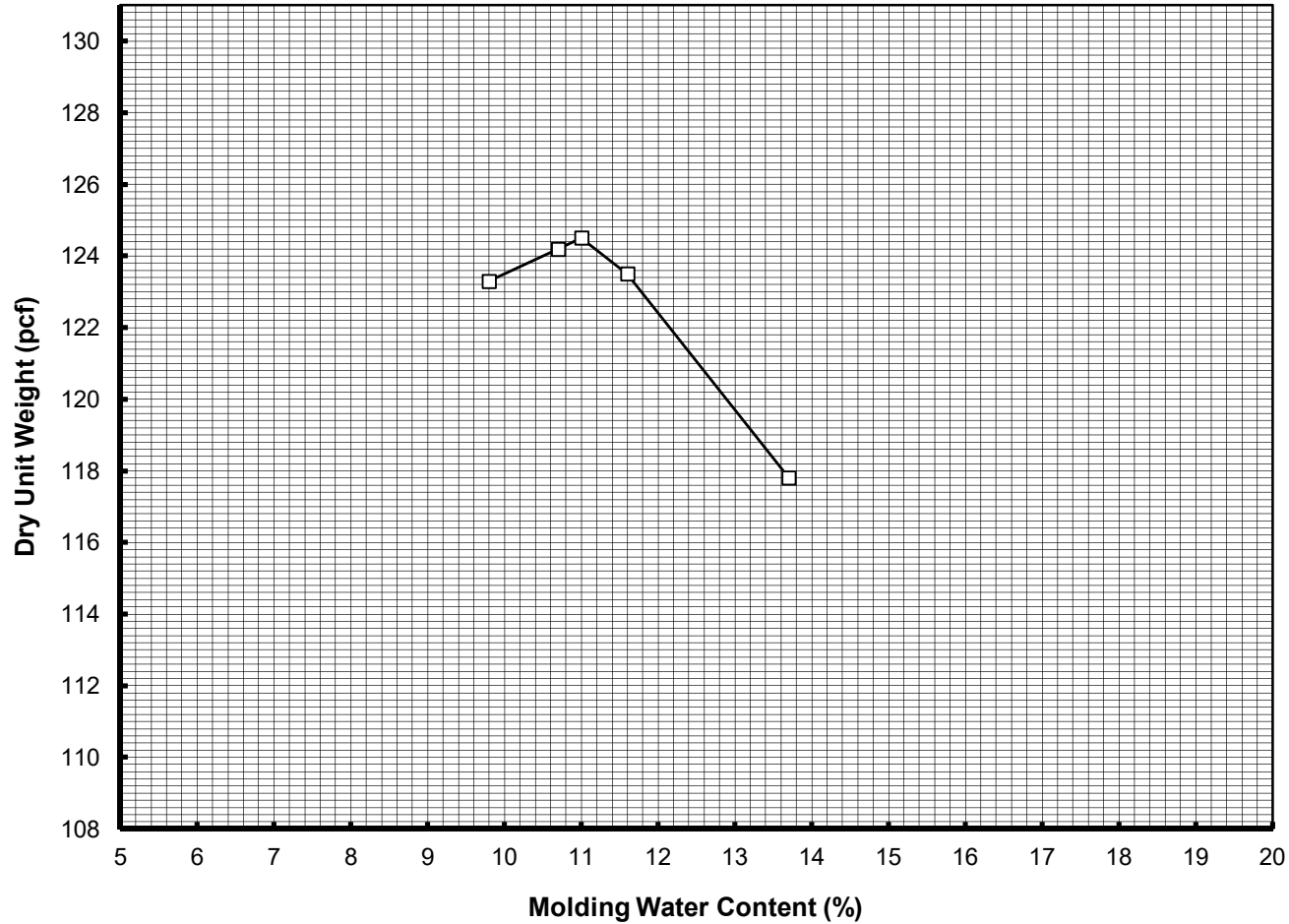
ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE B-1

COMPACTION CURVE

Test Method: ASTM D 1557

Compaction Procedure: B Specimen Preparation Method: Moist or Dry



5

Boring No.	Sample No.	Depth (ft)	OPT. WC (%)	MAX. DUW (pcf)	LL	PI	Description and/or Classification
B-4	4	15-18	11.0	123.0			Grayish brown sandy clay

**WATER GROUP 939
CITY OF SAN DIEGO**

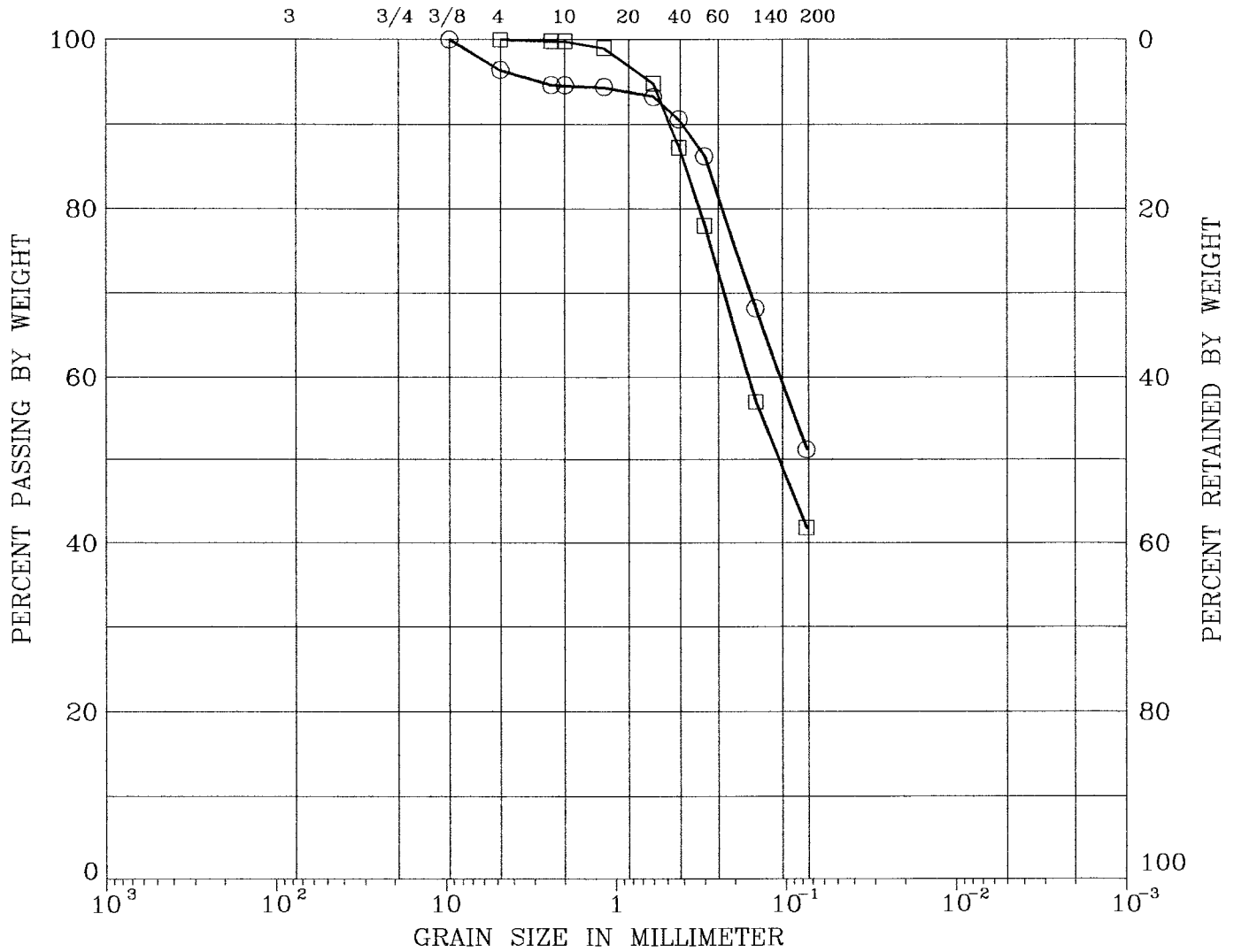
PROJECT NO. 164 GS-14-E

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE B-2

UNIFIED SOIL CLASSIFICATION

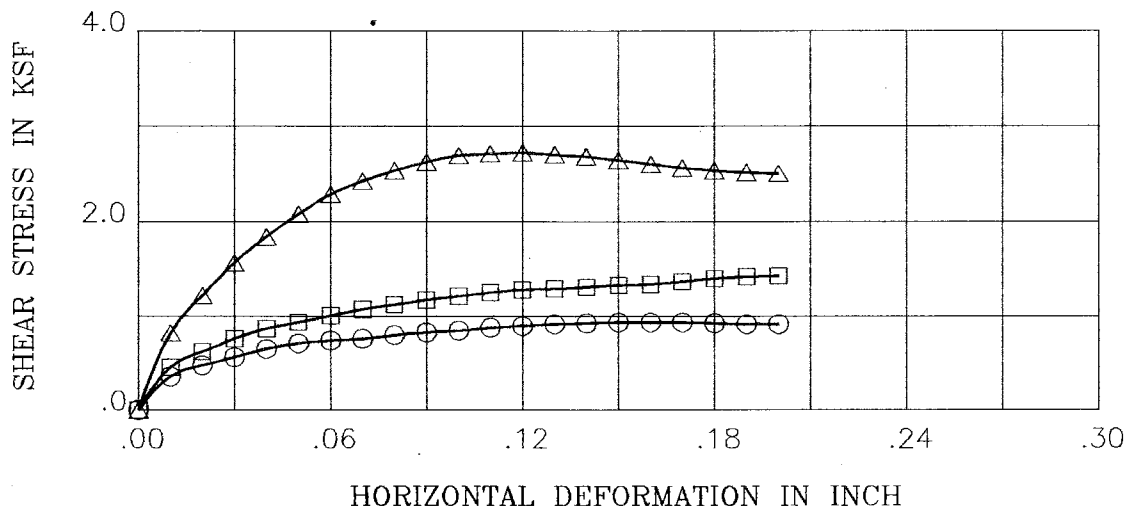
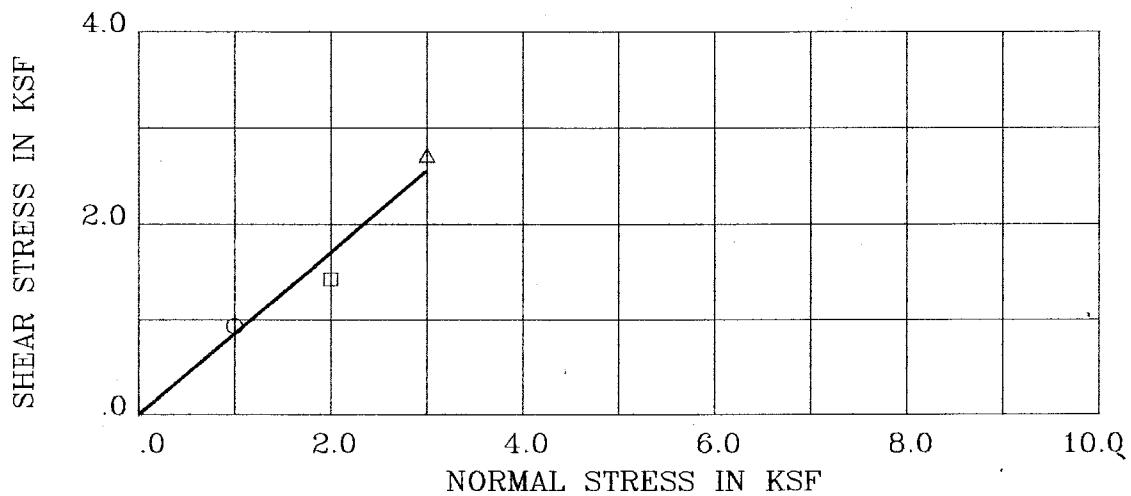
<i>COBBLES</i>	<i>GRAVEL</i>		<i>SAND</i>			<i>SILT OR CLAY</i>
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B-3 #6	21-21.5	34	16	CLAY (CL)
□	B-4 #7	26-26.5	32	16	CLAYEY SAND (SC)

Remark :

Project 164 GS-14E	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC.	GRAIN SIZE DISTRIBUTION Figure B-3

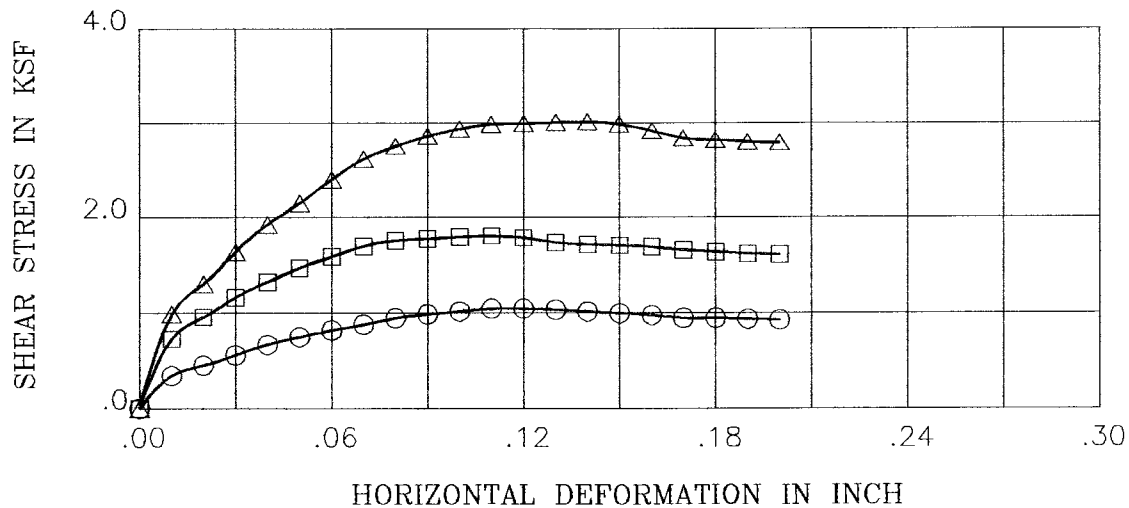
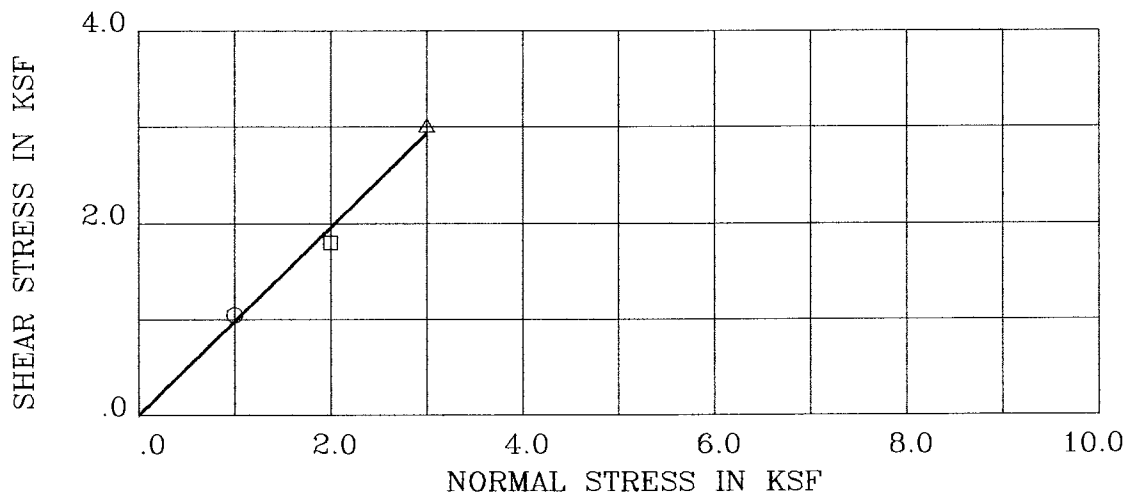


BORING/SAMPLE : B-3 #12 DEPTH (ft) : 46-46.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .000 KSF
 FRICTION ANGLE (PHI) : 40.5 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	25.7	103.6	.566	1.00	.94	.92
□	27.7	98.6	.645	2.00	1.43	1.43
△	27.4	100.5	.614	3.00	2.72	2.50

Remark :

Project 164 GS-14E	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC.	DIRECT SHEAR TEST Figure B-4 293 Page

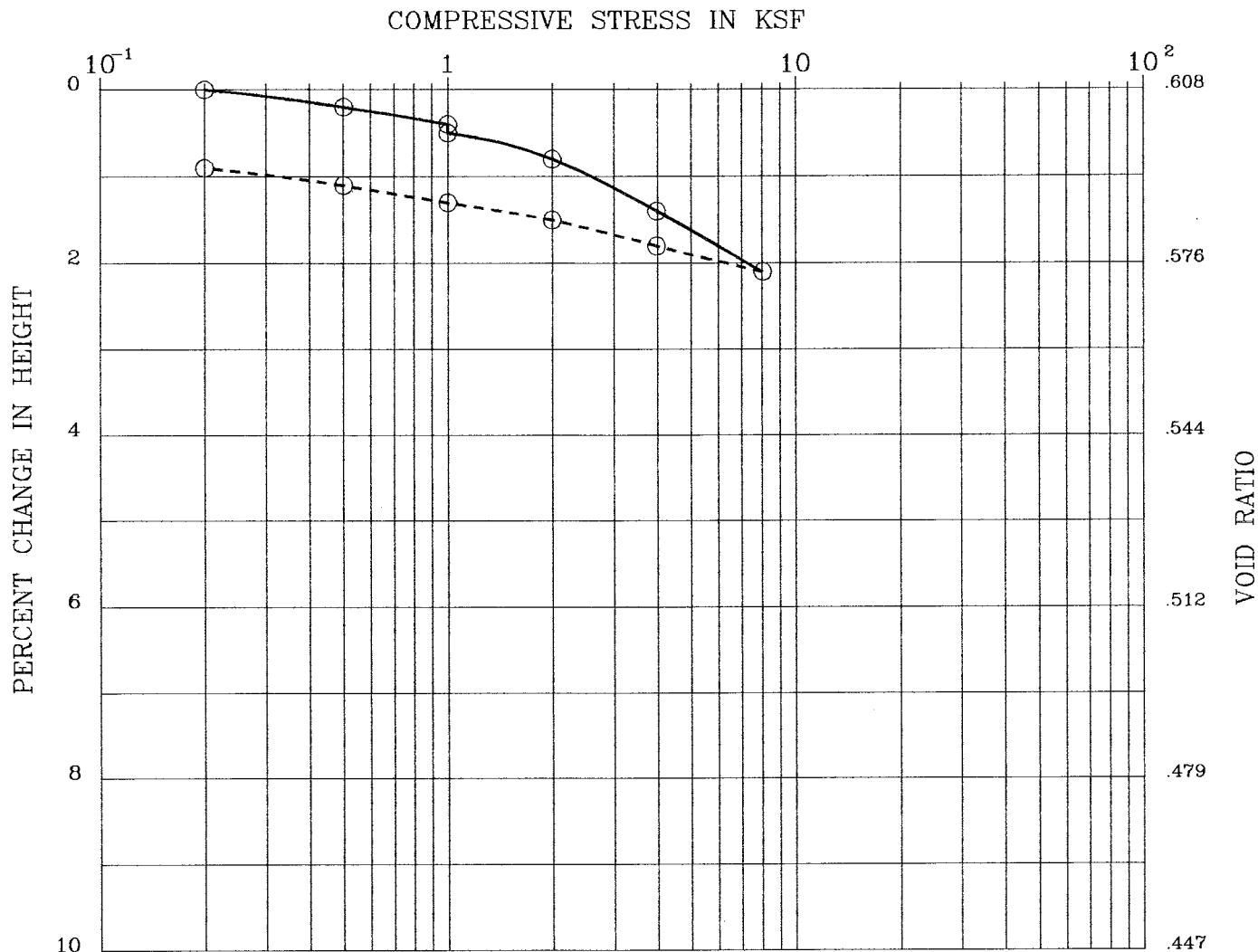


BORING/SAMPLE : B-4 #11 DEPTH (ft) : 41-41.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .000 KSF
 FRICTION ANGLE (PHI) : 44.4 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	29.7	101.0	.607	1.00	1.05	.93
□	30.1	102.0	.591	2.00	1.80	1.61
△	31.2	99.6	.629	3.00	3.02	2.79

Remark :

Project 164 GS-14E	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC.	DIRECT SHEAR TEST Figure B-5 294 Page



BORING : B-3#10
 DEPTH (ft) : 36-36.5
 SPEC. GRAVITY : 2.75

DESCRIPTION :
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	21.4	106.9	97	.608
FINAL	21.4	108.1	100	.590

Remark :

Project 164 GS-14E	WATER GROUP 939		
ALLIED GEOTECHNICAL ENGINEERS, INC.	CONSOLIDATION TEST		Figure B-6
			295 Page

LABORATORY REPORT

Telephone (619) 425-1993 Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
ANALYTICAL AND CONSULTING CHEMISTS

Date: February 24, 2017
Purchase Order Number: 164GS14-E
Sales Order Number: 34751
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S06304-1 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 02/22/17 at 9:20am,
taken on 02/17/17 from Project# 164GS14-E Water Group 939
marked as B-3#13@46'-50'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.2

Table with 2 columns: Water Added (ml) and Resistivity (ohm-cm). Rows show values for 10, 5, 5, 5, 5, 5, 5, 5 ml of water added, with corresponding resistivity values ranging from 4200 to 890 ohm-cm.

28 years to perforation for a 16 gauge metal culvert.
37 years to perforation for a 14 gauge metal culvert.
51 years to perforation for a 12 gauge metal culvert.
65 years to perforation for a 10 gauge metal culvert.
79 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.033% (330 ppm)
Water Soluble Chloride Calif. Test 422 0.020% (200 ppm)
Bicarbonate (as CaCO3) 50 ppm
(In a saturated soil paste extract)

Rosa M. Bernal signature
Rosa M. Bernal
RMB/dbb

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: February 24, 2017
Purchase Order Number: 164GS14-E
Sales Order Number: 34751
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S06304-2 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 02/22/17 at 9:20am,
taken on 02/17/17 from Project# 164GS14-E Water Group 939
marked as B-4#12@43'-44'.

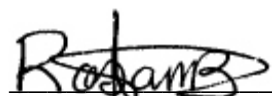
Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.0

Water Added (ml)	Resistivity (ohm-cm)
20	800
5	540
5	500
5	480
5	450
5	420
5	410
5	420
5	440

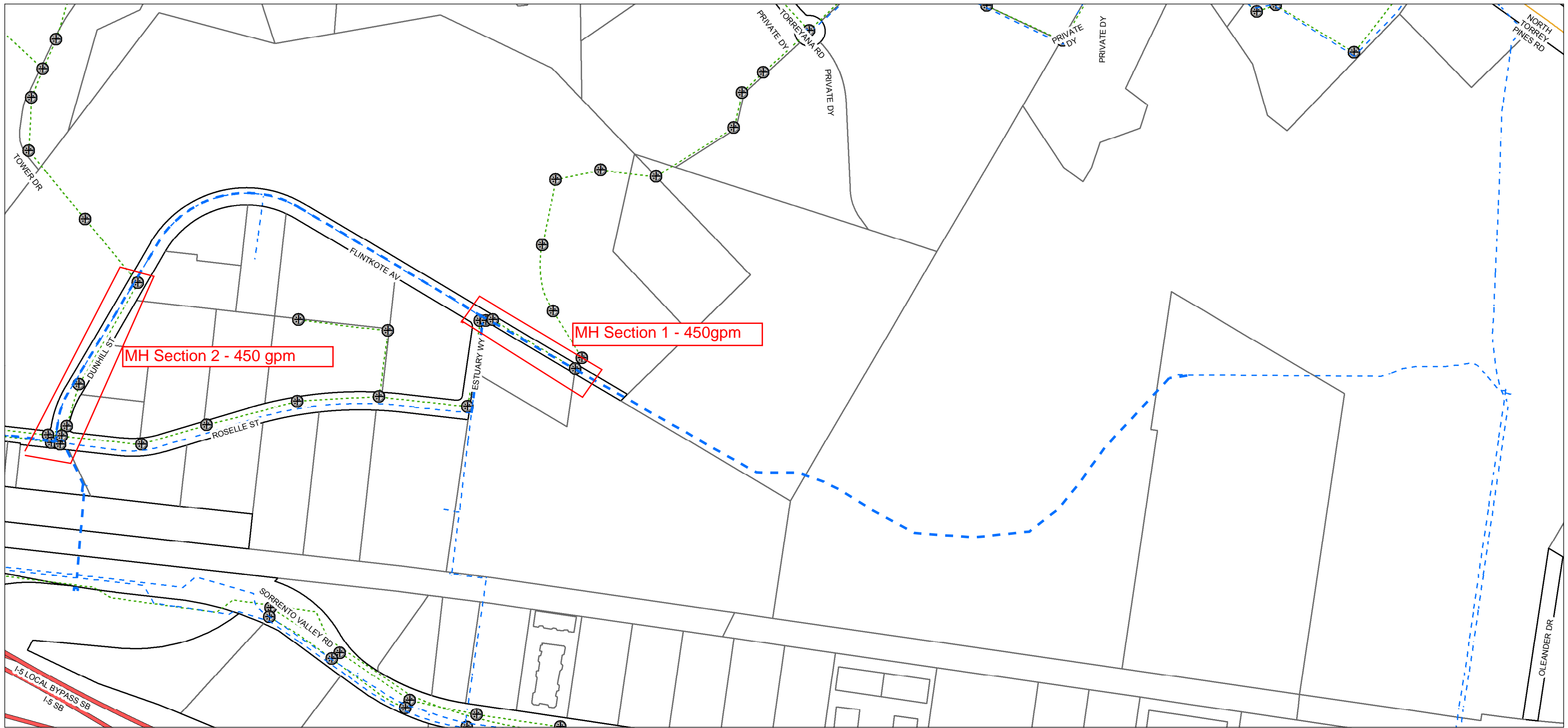
21 years to perforation for a 16 gauge metal culvert.
28 years to perforation for a 14 gauge metal culvert.
38 years to perforation for a 12 gauge metal culvert.
49 years to perforation for a 10 gauge metal culvert.
59 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.228% (2280 ppm)
Water Soluble Chloride Calif. Test 422	0.053% (530 ppm)
Bicarbonate (as CaCO ₃) (In a saturated soil paste extract)	34 ppm



Rosa M. Bernal
RMB/dbb

APPENDIX I
WATER GROUP 939 CHLORINATION DISCHARGE LOC



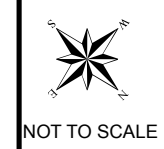
Legend

- - - Ex. Water Pipes
- - - Ex. Sewer Mains
- ⊕ Ex. Manholes
- - - - **Proposed Water Main**

Water Group 939



**CHLORINATION DISCHARGE
LOCATION MAP
WATER GROUP 939**



**WBW#
B-11035**

**MAP NO.
1**

APPENDIX J

ASBESTOS CEMENT PIPE WRAPPING QUALITY FOR MIRAMAR LANDFILL

**ACCEPTANCE CRITERIA FOR THE DISPOSAL OF
NON-FRIABLE ASBESTOS WASTE
AT THE CITY OF SAN DIEGO MIRAMAR LANDFILL**

Miramar Landfill **DOES NOT** accept friable wastes that contain greater than 1% asbestos. Wastes that may contain asbestos include, but are not limited to, floor tile, roofing material, ceiling panels, cement pipe, acoustic materials, and pipe insulation. Friable asbestos wastes are regulated as hazardous waste (California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24) and must be transported by a licensed hazardous waste hauler and disposed of in an appropriate landfill.

Demolition or renovation operations that involve asbestos-containing materials must conform to San Diego Air Pollution Control District Rule 361.145, Standard for Demolition and Renovation. Demolition debris that conforms to Rule 361.145 is not subject to this acceptance criteria.

Miramar Landfill may accept non-friable asbestos wastes generated within San Diego city limits and from other designated jurisdictions, in accordance with the following requirements. The City of San Diego reserves the right to refuse to accept non-friable asbestos waste due to landfill operational restrictions or capacity limitations.

1. A Special Waste Disposal Request signed by the generator or agent, shall be delivered to the Miramar Landfill's Hazardous Substances Enforcement Team a minimum of two (2) working days prior to the requested disposal date. This document shall include the following information:
 - a. The generator's name and address;
 - b. The contractor/contact person's name and telephone number;
 - c. The address of the site where the waste is generated;
 - d. The amount, type and description of the waste to be disposed;
 - e. The estimated number of loads of waste to be scheduled for landfill disposal;
 - f. The waste hauler's name and telephone number;
 - g. A statement, signed by the generator or agent, that the waste contains asbestos based on their knowledge of the waste, **OR** a copy of the laboratory analysis from a California State Certified Laboratory stating the percentage and type of asbestos in the waste, including a copy of the Chain of Custody; and
 - h. A signed statement by a State Certified Asbestos Consultant, or by an EPA Certified Asbestos Inspector or equivalent certification, that the waste consists of **only** non-friable asbestos waste. This statement should be based on visual inspection of the actual waste after it has been removed and prior to disposal.

2. The original documents shall be delivered a minimum of two (2) working days prior to scheduling disposal. The documents may be delivered to the Miramar Landfill or mailed to the following address:

**CITY OF SAN DIEGO
ENVIRONMENTAL SERVICES DEPARTMENT
ATTENTION: HAZARDOUS SUBSTANCES ENFORCEMENT TEAM
9601 RIDGEHAVEN COURT, SUITE 310
SAN DIEGO, CA 92123-1636**

**PHONE: (858) 573-1415
FAX NUMBER: (858) 278-2330**

3. The waste shall be double-wrapped in durable 6-mil thick plastic film or bags capable of containing the waste during unloading and disposal. Heavy or sharp asbestos containing waste such a floor tile, cement pipe, or transite siding must be wrapped individually or bagged in small quantities to prevent rupturing of the plastic film or bags.
4. Miramar Landfill will only accept two (2) loads per day per generator unless prior approval has been obtained.
5. Approved asbestos containing waste is only accepted Monday through Friday, excluding designated holidays, between the hours of 9:00 a.m. and 2:00 p.m.
6. An appointment for disposal shall be made with an Inspector from the Hazardous Substances Enforcement Team (858-573-1415) no later than 9:00 a.m. the day prior to disposal. There will be no exceptions to this scheduling requirement.
7. A Special Waste Manifest shall be completed for each load and will accompany the load at the time of disposal.
8. Special Waste Manifests and information regarding the fees are available from the Supervising Disposal Site Representative (858-492-6100). The following information shall be provided when obtaining a manifest: generator's name and address, contact person and telephone number, waste description and quantity, and consultant's name and telephone number.
9. Asbestos containing waste requires special disposal procedures. The fee collector will give the driver a "Special Handling" placard, which the driver will hand to the spotter upon reaching the tipping deck. The driver will await disposal directions or may be directed to the Load Check area.

APPENDIX K

SAMPLE ARCHAEOLOGY INVOICE

(FOR ARCHAEOLOGY ONLY)
Company Name
Address, telephone, fax

Date: Insert Date

To: Name of Resident Engineer
City of San Diego
Field Engineering Division
9485 Aero Drive
San Diego, CA 92123-1801

Project Name: Insert Project Name

SAP Number (WBS/IO/CC): Insert SAP Number

Drawing Number: Insert Drawing Number

Invoice period: Insert Date to Insert Date

Work Completed: Bid item Number – Description of Bid Item – Quantity – Unit Price– Amount

Detailed summary of work completed under this bid item: Insert detailed description of Work related to Archaeology Monitoring Bid item. See Note 1 below.

Summary of charges:

Description of Services	Name	Start Date	End Date	Total Hours	Hourly Rate	Amount
Field Archaeologist	Joe Smith	8/29/2011	9/2/2011	40	\$84	\$3,360
Laboratory Assistant	Jane Doe	8/29/2011	9/2/2011	2	\$30	\$60
Subtotal						\$3,420

Work Completed: Bid item Number – Description of Bid Item – Quantity – Unit Price– Amount

Detailed summary of work completed under this bid item: Insert detailed description of Work related to Archaeology Curation/Discovery Bid item. See Note 2 below.

Summary of charges:

Description of Services	Where work occurred (onsite vs offsite/lab)	Name	Start Date	End Date	Total Hours	Hourly Rate	Amount
Field Archaeologist		Joe Smith	8/29/2011	9/2/2011	40	\$84	\$3,360
Laboratory Assistant		Jane Doe	8/29/2011	9/2/2011	2	\$30	\$60
Subtotal							\$3,420

Total this invoice: \$ _____

Total invoiced to date: \$ _____

Note 1:

For monitoring related bid items or work please include summary of construction work that was monitored from Station to Station, Native American monitors present, MMC coordination, status and nature of monitoring and if any discoveries were made.

Note 2:

For curation/discovery related bid items or work completed as part of a discovery and curation process, the PI must provide a response to the following questions along with the invoice:

1. Preliminary results of testing including tentative recommendations regarding eligibility for listing in the California Register of Historical Resources (California Register).
 - a. Please briefly describe your application (consideration) of all four California Register criteria.
 - b. If the resource is eligible under Criterion D, please define the important information that may be present.
 - c. Were specialized studies performed? How many personnel were required? How many Native American monitors were present?
 - d. What is the age of the resource?
 - e. Please define types of artifacts to be collected and curated, including quantity of boxes to be submitted to the San Diego Archaeological Center (SDAC). How many personnel were required? How many Native American monitors were present?
2. Preliminary results of data recovery and a definition of the size of the representative sample.
 - a. Were specialized studies performed? Please define types of artifacts to be collected and curated, including quantity of boxes to be submitted to the SDAC. How many personnel were required? How many Native American monitors were present?
3. What resources were discovered during monitoring?
4. What is the landform context and what is the integrity of the resources?
5. What additional studies are necessary?
6. Based on application of the California Register criteria, what is the significance of the resources?
 - a. If the resource is eligible for the California Register, can the resource be avoided by construction?
 - b. If not, what treatment (mitigation) measures are proposed? Please define data to be recovered (if necessary) and what material will be submitted to the SDAC for curation. Are any specialized studies proposed?

(After the first invoice, not all the above information needs to be re-stated, just revise as applicable).

APPENDIX L

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE MAP

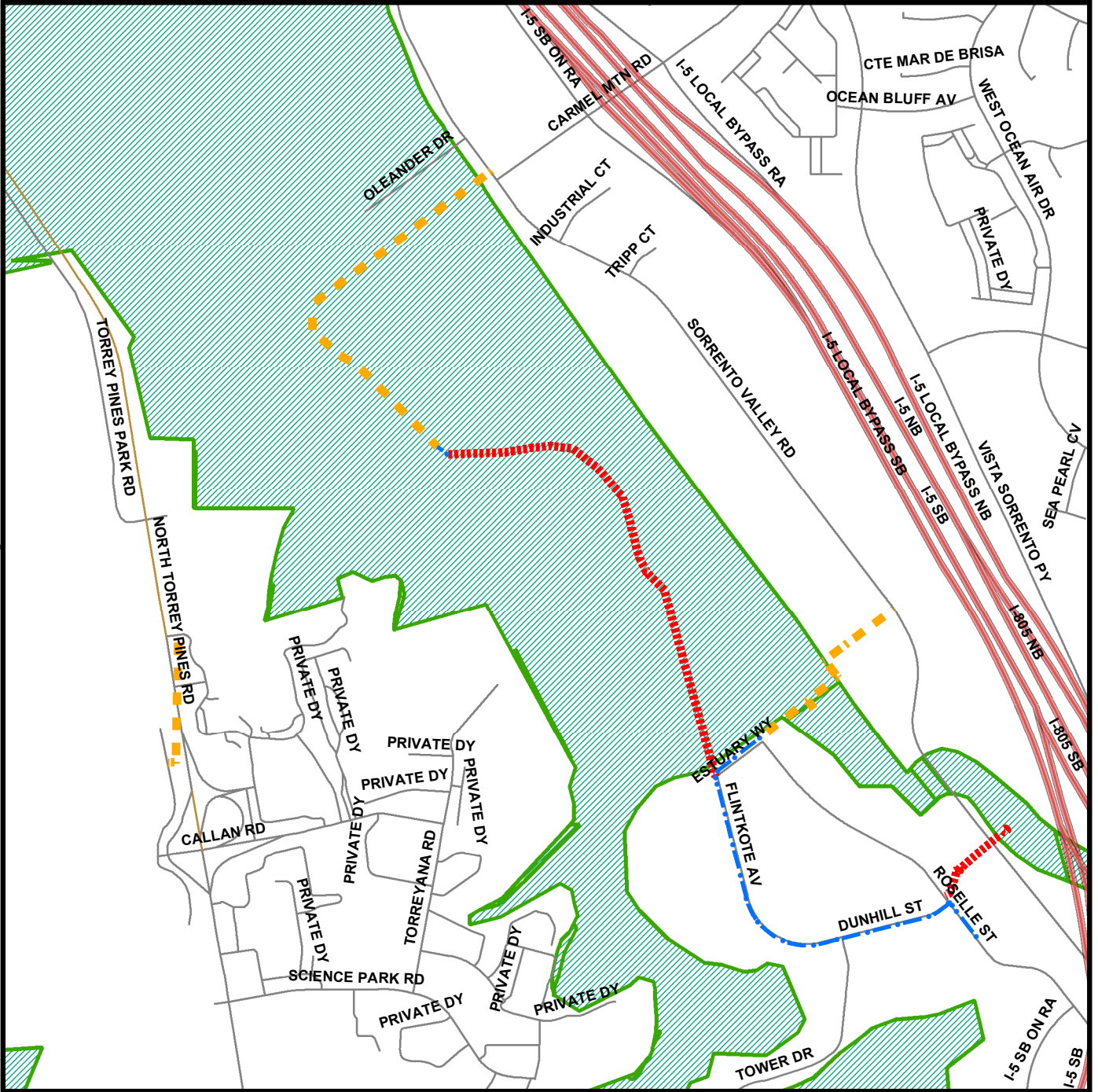
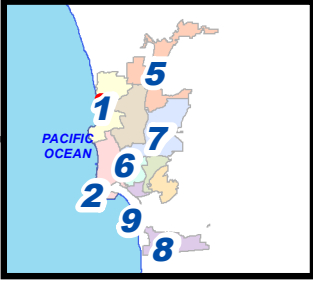
WATER GROUP 939 - MHPA MAP

SENIOR ENGINEER
SHEILA BOSE
(619) 533-4698

PROJECT MANAGER
CASEY CROWN
(619) 533-5485

PROJECT ENGINEER
ELIZABETH DUNN
(619) 533-7461

FOR QUESTIONS ABOUT THIS PROJECT
Call: 619-533-4207
Email: engineering@sandiego.gov



Legend

- - - Water_939_Abandon_Ex_Pipe
- - - New Water Main
- - - Water_939_Replace_in_Place
- MHPA



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APPENDIX M

SAMPLE OF PUBLIC NOTICE



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
• Streets where trenching takes place will be resurfaced and curb ramps will be upgraded to facilitate access for persons with disabilities where required.
• This work is anticipated to be complete in your community by December 2016.

How your neighborhood may be impacted:

- Water service to some properties during construction will be provided by a two-inch highline pipe that will run along the curb. To report a highline leak call 619-515-3525.
• Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
• Parking restrictions will exist because of the presence of construction equipment and materials.
• "No Parking" signs will be displayed 72 hours in advance of the work.
• Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:

Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:

Company Name, XXX-XXX-XXXX



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
• Streets where trenching takes place will be resurfaced and curb ramps will be upgraded to facilitate access for persons with disabilities where required.
• This work is anticipated to be complete in your community by December 2016.

How your neighborhood may be impacted:

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• Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
• Parking restrictions will exist because of the presence of construction equipment and materials.
• "No Parking" signs will be displayed 72 hours in advance of the work.
• Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:

Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:

Company Name, XXX-XXX-XXXX

APPENDIX N

ADVANCED METERING INFRASTRUCTURE (AMI) DEVICE PROTECTION

Protecting AMI Devices in Meter Boxes and on Street Lights

The Public Utilities Department (PUD) has begun the installation of the Advanced Metering Infrastructure (AMI) technology as a new tool to enhance water meter reading accuracy and efficiency, customer service and billing, and to be used by individual accounts to better manage the efficient use of water. **All AMI devices shall be protected per Section 5-2, "Protection", of the 2015 Whitebook.**

AMI technology allows water meters to be read electronically rather than through direct visual inspection by PUD field staff. This will assist PUD staff and customers in managing unusual consumption patterns which could indicate leaks or meter tampering on a customer's property.

Three of the main components of an AMI system are the:

- A. Endpoints, see Photo 1:

Photo 1



B. AMI Antenna attached to Endpoint (antenna not always required), see Photo 2:

Photo 2



Network Devices, see Photo 3:

Photo 3



AMI endpoints transmit meter information to the AMI system and will soon be on the vast majority of meters in San Diego. These AMI devices provide interval consumption data to the PUD's Customer Support Division. If these devices are damaged or communication is interrupted, this Division will be alerted of the situation. The endpoints are installed in water meter boxes, coffins, and vaults adjacent to the meter. A separate flat round antenna may also be installed through the meter box lid. This antenna is connected to the endpoint via cable. The following proper installation shall be implemented when removing the lid to avoid damaging the antenna, cable, and/or endpoint. Photo 4 below demonstrates a diagram of the connection:

Photo 4



The AMI device ERT/Endpoint/Transmitter shall be positioned and installed as discussed in this Appendix. If the ERT/Endpoint/Transmitter is disturbed, it shall be re-installed and returned to its original installation with the end points pointed upwards as shown below in Photo 5.

The PUD's code compliance staff will issue citations and invoices to you for any damaged AMI devices that are not re-installed as discussed in the Contract Document

Photo 5 below shows a typical installation of an AMI endpoint on a water meter.

Photo 5

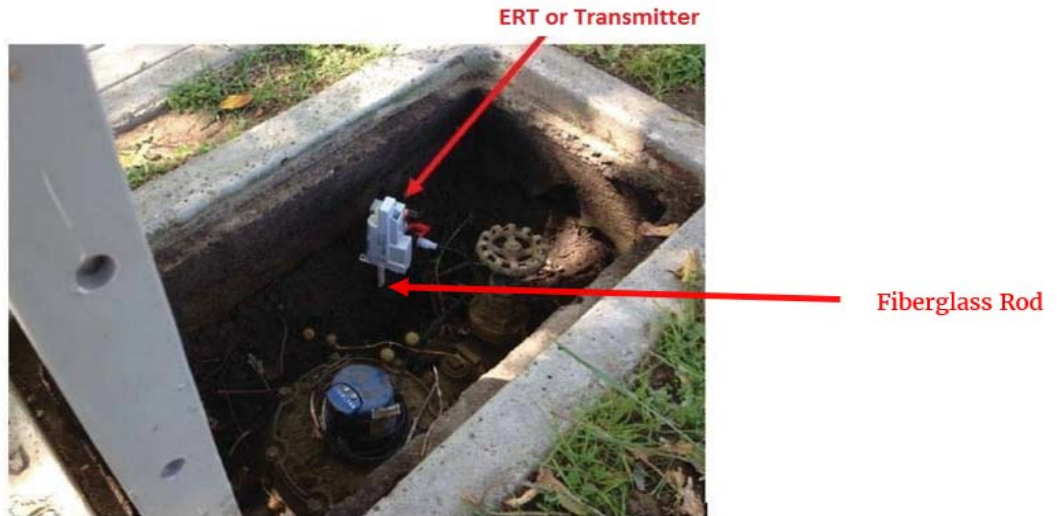


Photo 6 below is an example of disturbance that shall be avoided:

Photo 6



You are responsible when working in and around meter boxes. If you encounter these endpoints, use proper care and do not disconnect them from the registers on top of the water meter. If the lid has an antenna drilled through, do not change or tamper with the lid and inform the Resident Engineer immediately about the location of that lid. Refer to Photo 7 below:

Photo 7



Another component of the AMI system are the Network Devices. The Network Devices are strategically placed units (mainly on street light poles) that collect interval meter reading data from multiple meters for transmission to the Department Control Computer. **If you come across any of these devices on street lights that will be removed or replaced (refer to Photos 8 and 9 below), notify AMI Project Manager Arwa Sayed at (619) 362-0121 immediately.**

Photo 8 shows an installed network device on a street light. On the back of each Network Device is a sticker with contact information. See Photo 9. **Call PUD Water Emergency Repairs at 619-515-3525 if your work will impact these street lights.** These are assets that belong to the City of San Diego and you shall be responsible for any costs of disruption of this network.

Photo 8



Network Device

Photo 9



If you encounter any bad installations, disconnected/broken/buried endpoints, or inadvertently damage any AMI devices or cables, notify the Resident Engineer immediately. The Resident Engineer will then immediately contact the AMI Project Manager, Arwa Sayed, at (619) 362-0121.

APPENDIX O

DEPARTMENT OF INDUSTRIAL RELATIONS-UNDERGROUND CLASSIFICATION



State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

Van Nuys Office R5D2

Underground Classification

C042-073-17T

Water Group Job 939
City of San Diego

(NAME OF TUNNEL OR MINE AND COMPANY NAME)

of Michael Baker International for: City of San Diego
525 B Street, Suite 750 San Diego, CA 92101
(MAILING ADDRESS)

at under Railroad Tracks near Roselle Street and Sorrento Valley Road
San Diego, California
(LOCATION)

has been classified as *** POTENTIALLY GASSY ***
(CLASSIFICATION)

as required by the California Labor Code Section 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

A 36 inch diameter casing, approximately 360 feet in length (to accommodate a 16 inch diameter carrier pipeline) to be installed under MTS railroad tracks near the Sorrento Valley Train Station between approximate stations 3+00 and 6+60 in the City of San Diego.

Date December 7, 2016

Reference: Submittal from Michael Baker International, dated 11/29/16.



District Manager

ATTACHMENT F
INTENTIONALLY LEFT BLANK

ATTACHMENT G
CONTRACT AGREEMENT

ATTACHMENT G
CONTRACT AGREEMENT

CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and **James W. Fowler, Co.**, herein called "Contractor" for construction of Water Group 939; Bid No. K-18-1528-DBB-3; in the amount of **Five Million One Hundred Seventy-Three Thousand Nine Hundred Eighty-One Dollars and Nine Cents (\$5,173,981.09)**, which is comprised of the Base Bid plus Alternates A and B.

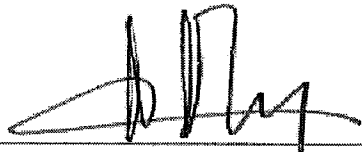
IN CONSIDERATION of the payments to be made hereunder and the mutual undertakings of the parties hereto, City and Contractor agree as follows:

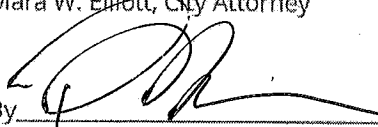
1. The following are incorporated into this contract as though fully set forth herein:
 - (a) The attached Faithful Performance and Payment Bonds.
 - (b) The attached Proposal included in the Bid documents by the Contractor.
 - (c) Reference Standards listed in the Instruction to Bidders and the Supplementary Special Provisions (SSP).
 - (d) Phased Funding Schedule Agreement.
 - (e) That certain documents entitled **Water Group 939**, on file in the office of the Public Works Department as Document No. **B-11035**, as well as all matters referenced therein.
2. The Contractor shall perform and be bound by all the terms and conditions of this contract and in strict conformity therewith shall perform and complete in a good and workmanlike manner **Water Group 939**, Bid Number **K-18-1528-DBB-3**, San Diego, California.
3. For such performances, the City shall pay to Contractor the amounts set forth at the times and in the manner and with such additions or deductions as are provided for in this contract, and the Contractor shall accept such payment in full satisfaction of all claims incident to such performances.
4. No claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
5. This contract is effective as of the date that the Mayor or designee signs the agreement.

IN WITNESS WHEREOF, this Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to **Municipal Code §22.3102** authorizing such execution.

THE CITY OF SAN DIEGO

APPROVED AS TO FORM

By 

Mara W. Elliott, City Attorney
By 

Print Name: Albert P. Rechany

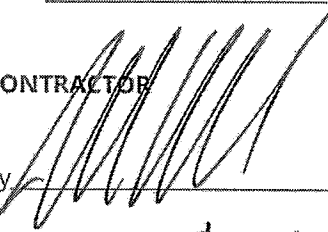
Print Name: Ray Palowicz

Deputy Director
Public Works Contracts

Deputy City Attorney

Date: 03/27/2018

Date: 4/3/18

CONTRACTOR
By 

Print Name: John Fowler

Title: VP

Date: 1/31/18

City of San Diego License No.: 2018001538

State Contractor's License No.: 777391

DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) REGISTRATION NUMBER: 1000002667

CERTIFICATIONS AND FORMS

The Bidder, by submitting its electronic bid, agrees to and certifies under penalty of perjury under the laws of the State of California, that the certifications, forms and affidavits submitted as part of this bid are true and correct.

BIDDER'S GENERAL INFORMATION

To the City of San Diego:

Pursuant to "Notice Inviting Bids", specifications, and requirements on file with the City Clerk, and subject to all provisions of the Charter and Ordinances of the City of San Diego and applicable laws and regulations of the United States and the State of California, the undersigned hereby proposes to furnish to the City of San Diego, complete at the prices stated herein, the items or services hereinafter mentioned. The undersigned further warrants that this bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

The undersigned bidder(s) further warrants that bidder(s) has thoroughly examined and understands the entire Contract Documents (plans and specifications) and the Bidding Documents therefore, and that by submitting said Bidding Documents as its bid proposal, bidder(s) acknowledges and is bound by the entire Contract Documents, including any addenda issued thereto, as such Contract Documents incorporated by reference in the Bidding Documents.

**NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH
BID UNDER 23 UNITED STATES CODE 112 AND PUBLIC CONTRACT CODE 7106**

State of California

County of San Diego

The bidder, being first duly sworn, deposes and says that he or she is authorized by the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-17 regarding Drug-Free Workplace as outlined in the WHITEBOOK, Section 7-13.3, "Drug-Free Workplace", of the project specifications, and that;

This company has in place a drug-free workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of subdivisions a) through c) of the policy as outlined.

CONTRACTOR CERTIFICATION

AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the American With Disabilities Act (ADA) outlined in the WHITEBOOK, Section 7-13.2, "American With Disabilities Act", of the project specifications, and that:

This company has in place workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of the policy as outlined.

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

I declare under penalty of perjury that I am authorized to make this certification on behalf of the company submitting this bid/proposal, that as Contractor, I am familiar with the requirements of City of San Diego Municipal Code § 22.3004 regarding Contractor Standards as outlined in the WHITEBOOK, Section 7-13.4, ("Contractor Standards"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors whose subcontracts are greater than \$50,000 in value has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3004.

AFFIDAVIT OF DISPOSAL

(To be submitted upon completion of Construction pursuant to the contracts Certificate of Completion)

WHEREAS, on the _____ DAY OF _____, 2_____ the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

WATER GROUP 939

(Name of Project or Task)

as particularly described in said contract and identified as Bid No. **K-18-1528-DBB-3**; SAP No. (WBS/IO/CC) ; and **WHEREAS**, the specification of said contract requires the Contractor to affirm that "all brush, trash, debris, and surplus materials resulting from this project have been disposed of in a legal manner"; and **WHEREAS**, said contract has been completed and all surplus materials disposed of:

NOW, THEREFORE, in consideration of the final payment by the City of San Diego to said Contractor under the terms of said contract, the undersigned Contractor, does hereby affirm that all surplus materials as described in said contract have been disposed of at the following location(s)

and that they have been disposed of according to all applicable laws and regulations.

Dated this _____ DAY OF _____, _____.

By: _____
Contractor

ATTEST:

State of _____ County of _____

On this _____ DAY OF _____, 2_____, before the undersigned, a Notary Public in and for said County and State, duly commissioned and sworn, personally appeared _____ known to me to be the _____ Contractor named in the foregoing Release, and whose name is subscribed thereto, and acknowledged to me that said Contractor executed the said Release.

Notary Public in and for said County and State

CONTRACTOR CERTIFICATION

Equal Benefits Ordinance Certification

I declare under penalty of perjury that I am familiar with the requirements of and in compliance with the City of San Diego Municipal Code § 22.4300 regarding Equal Benefits Ordinance.

LIST OF SUBCONTRACTORS

***** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY *** SEE INSTRUCTIONS TO BIDDERS, FOR FURTHER INFORMATION**

In accordance with the requirements of the "Subletting and Subcontracting Fair Practices Act", Section 4100, of the California Public Contract Code (PCC), the Bidder is to list below the name, address and license number of each Subcontractor who will perform work, labor, render services or specially fabricate and install a portion [type] of the work or improvement, in an amount of or in excess of 0.5% of the Contractor's total Bid. Failure to comply with this requirement may result in the Bid being rejected as non-responsive. The Contractor is to list only one Subcontractor for each portion of the Work. The Bidder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percentage of the Work to be performed with the Bidder's own forces. The Bidder is to also list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors for which the Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	SUBCONTRACTOR LICENSE NUMBER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB®	WHERE CERTIFIED®	CHECK IF JOINT VENTURE PARTNERSHIP
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							

- ① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):
- | | | | |
|---|--------|--|---------|
| Certified Minority Business Enterprise | MBE | Certified Woman Business Enterprise | WBE |
| Certified Disadvantaged Business Enterprise | DBE | Certified Disabled Veteran Business Enterprise | DVBE |
| Other Business Enterprise | OBE | Certified Emerging Local Business Enterprise | ELBE |
| Certified Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVOSB | | |
- ② As appropriate, Bidder shall indicate if Subcontractor is certified by:
- | | | | |
|--|--------|--|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | | |
| State of California's Department of General Services | CADoGS | City of Los Angeles | LA |
| State of California | CA | U.S. Small Business Administration | SBA |

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

***** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY *** SEE INSTRUCTIONS TO BIDDERS FOR FURTHER INFORMATION**

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	DOLLAR VALUE OF MATERIAL OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB ^①	WHERE CERTIFIED ^②
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____						
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____						

- ① As appropriate, Bidder shall identify Vendor/Supplier as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):
- | | | | |
|---|--------|--|---------|
| Certified Minority Business Enterprise | MBE | Certified Woman Business Enterprise | WBE |
| Certified Disadvantaged Business Enterprise | DBE | Certified Disabled Veteran Business Enterprise | DVBE |
| Other Business Enterprise | OBE | Certified Emerging Local Business Enterprise | ELBE |
| Certified Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVOSB | | |
- ② As appropriate, Bidder shall indicate if Vendor/Supplier is certified by:
- | | | | |
|--|--------|--|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | | |
| State of California's Department of General Services | CADoGS | City of Los Angeles | LA |
| State of California | CA | U.S. Small Business Administration | SBA |

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

SUBCONTRACTORS ADDITIVE/DEDUCTIVE ALTERNATE (USE ONLY WHEN ADDITIVE ALTERNATES ARE REQUIRED)

Alternate A

ADDITIVE/ DEDUCTIVE ALTERNATE	NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	SUBCONTRACT OR LICENSE NUMBER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB ^①	WHERE CERTIFIED ^②	CHECK IF JOINT VENTURE PARTNERSHIP
Deductive	Name: <u>L & C Paving</u> Address: <u>996 Borden Rd.</u> City: <u>San Marcos</u> State: <u>CA</u> Zip: <u>92069</u> Phone: <u>(760) 752-1743</u> Email: <u>shawn@lccpaving.com</u>	Constructor	621610	Paving	\$ -2,550.00	n/a	n/a	n/a
	Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							

- ① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):
- | | | | |
|---|--------|--|---------|
| Certified Minority Business Enterprise | MBE | Certified Woman Business Enterprise | WBE |
| Certified Disadvantaged Business Enterprise | DBE | Certified Disabled Veteran Business Enterprise | DVBE |
| Other Business Enterprise | OBE | Certified Emerging Local Business Enterprise | ELBE |
| Certified Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVOSB | | |
- ② As appropriate, Bidder shall indicate if Subcontractor is certified by:
- | | | | |
|--|------|--|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | State of California's Department of General Services | CADoGS |
| City of Los Angeles | LA | State of California | CA |
| U.S. Small Business Administration | SBA | | |

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

SUBCONTRACTORS ADDITIVE/DEDUCTIVE ALTERNATE (USE ONLY WHEN ADDITIVE ALTERNATES ARE REQUIRED)

Alternate B

ADDITIVE/ DEDUCTIVE ALTERNATE	NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	SUBCONTRACT OR LICENSE NUMBER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB^①	WHERE CERTIFIED^②	CHECK IF JOINT VENTURE PARTNERSHIP
	Name: <u>None</u> Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							
	Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							

- ① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):
- | | | | |
|---|--------|--|---------|
| Certified Minority Business Enterprise | MBE | Certified Woman Business Enterprise | WBE |
| Certified Disadvantaged Business Enterprise | DBE | Certified Disabled Veteran Business Enterprise | DVBE |
| Other Business Enterprise | OBE | Certified Emerging Local Business Enterprise | ELBE |
| Certified Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVOSB | | |
- ② As appropriate, Bidder shall indicate if Subcontractor is certified by:
- | | | | |
|--|------|--|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | State of California's Department of General Services | CADoGS |
| City of Los Angeles | LA | State of California | CA |
| U.S. Small Business Administration | SBA | | |

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

ELECTRONICALLY SUBMITTED FORMS

THE FOLLOWING FORMS MUST BE SUBMITTED IN PDF FORMAT WITH BID SUBMISSION

The following forms are to be completed by the bidder and submitted (uploaded) electronically with the bid in PlanetBids.

- A. BID BOND – See Instructions to Bidders, Bidders Guarantee of Good Faith (Bid Security) for further instructions**
- B. CONTRACTOR’S CERTIFICATION OF PENDING ACTIONS**

Bids will not be accepted until ALL the above-named forms are submitted as part of the bid submittal

BID BOND

**See Instructions to Bidders, Bidder Guarantee of Good Faith
(Bid Security)**

KNOW ALL MEN BY THESE PRESENTS,

That James W. Fowler Co. as Principal, and
Liberty Mutual Insurance Company as Surety, are

held and firmly bound unto The City of San Diego hereinafter called "OWNER," in the sum of **10% OF THE TOTAL BID AMOUNT** for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the bidding schedule(s) of the OWNER's Contract Documents entitled

Water Group 939, Bid No. K-18-1528-DBB-3, SAP No. B11035

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" enters into a written Agreement on the form of agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this 8th day of December, 2017

James W. Fowler Co. (SEAL)

Liberty Mutual Insurance Company (SEAL)

(Principal)

(Surety)

By:

James W. Fowler, President
(Signature)

By:

Elizabeth R. Hahn
(Signature) Elizabeth R. Hahn
Attorney-in-Fact
CA Lic. #0155652

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7918655

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Guy Armfield; John Claeys; Scott Fisher; Deanna M. French; Elizabeth R. Hahn; Roger Kaltenbach; Ronald J. Lange; Andrew P. Larsen; Susan B. Larson; Scott McGilvray; Mindee L. Rankin; Jana M. Roy; Jill A. Wallace

all of the city of Bellevue, state of WA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surely and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 20th day of October, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 20th day of October, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surely any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surely any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surely any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 8 day of December, 2017.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

ACKNOWLEDGMENT BY SURETY

State of Washington)
County of King)

On this 8th day of December, 2017, before me, Jill A. Wallace notary public in and for the State of Washington, with principal office in the County of King, residing therein, duly commissioned and sworn, personally appeared Elizabeth R. Hahn, known to me to be the person whose name is subscribed to the within instrument as the attorney-in-fact of Liberty Mutual Insurance Company as surety in said instrument, and acknowledged to me that she subscribed the name of said corporation thereto as surety, and her own name as attorney-in-fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.



NOTARY PUBLIC

Jill A Wallace

Commission Expires: 01/04/2020

CONTRACTOR'S CERTIFICATION OF PENDING ACTIONS

As part of its bid or proposal (Non-Price Proposal in the case of Design-Build contracts), the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against the Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

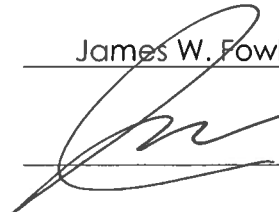
CHECK ONE BOX ONLY.

- The undersigned certifies that within the past 10 years the Bidder has NOT been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers.
- The undersigned certifies that within the past 10 years the Bidder has been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers. A description of the status or resolution of that complaint, including any remedial action taken and the applicable dates is as follows:

DATE OF CLAIM	LOCATION	DESCRIPTION OF CLAIM	LITIGATION (Y/N)	STATUS	RESOLUTION/REMEDIAL ACTION TAKEN

Contractor Name: James W. Fowler Co.

Certified By James W. Fowler Title President
Name

 Date December 19, 2017
Signature

USE ADDITIONAL FORMS AS NECESSARY

City of San Diego

CITY CONTACT: Antoinette Sanfilippo, Email: ASanfilippo@sandiego.gov

Phone No. (619) 533-3439, Fax No. (619) 533-3633

ADDENDUM A



WATER GROUP 939


BID NO.: _____ K-18-1528-DBB-3
SAP NO. (WBS/IO/CC): _____ B-11035
CLIENT DEPARTMENT: _____ 2000
COUNCIL DISTRICT: _____ 1
PROJECT TYPE: _____ KB

BID DUE DATE:

**2:00 PM
DECEMBER 13, 2017
CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTS
1010 SECOND AVENUE, 14th FLOOR, MS 614C
SAN DIEGO, CA 92101**

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:



1) Registered Engineer
(Responsible for Section 308)

11-29-2017
Date

Seal:





2) For City Engineer

11/20/17
Date

Seal:



A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

B. BIDDER'S QUESTIONS

Q1. The plans show 1 microtunnel from approximate station 3+00 to 6+60 and seems to be covered by line item #51. Please clarify what line item #32 is for.

A1. Bid Item 32 is not applicable and shall be deleted.

Q2. Will the City allow the microtunneling contractor to work a 12 hour shift (i.e. 7:00 AM to 7:00 PM)?

A2. Yes. Microtunneling work hours may be extended to meet MTS/NCTD requirements.

Q3. Has the Owner or the Engineer conducted systematic surface settlement Calculation for the microtunneling Crossing? If so, what was the overcut used in this calculation? What was the lubrication fill % of the overcut area used in this calculation? What was the anticipated Face Loss used in this Calculations? Would the Owner consider sharing the calculation with the bidders?

A3. Allowable settlement and heave values in the Contract Documents are dictated by the agencies.

Q4. Has the Owner and or the Engineer conducted buoyancy Calculations for the microtunneling casing pipe and carrier pipe? Would the Owner share these calculations with the bidders?

A4. Allowable settlement and heave values in the Contract Documents are dictated by the agencies.

- Q5. Since this will be a pressurized water line, can the elevation of the microtunnel be lowered? This would accomplish two things. One, increase the distance from existing utilities. Two, increase depth underneath the railroad tracks which in turn would minimize the likely hood of settlement due to systematic settlement.
- A5. The City may consider a design revision; however, this revision must be submitted by the Contractor during the submittal/review process for City review and consideration. Any approved changes would be done by the Contractor at no additional cost to the City. The City reserves the right to utilize the design included in the Contract Documents.
- Q6. Will a flagger be required for all microtunneling work including, but not limited to mobilization, drilling and demobilization.
- A6. An NCTD supplied railroad flag person is required when any work is to be performed above ground within the MTS/NCTD right of way. The limits of the MTS/NCTD right of way are shown on Sheet 6.
- Q7. We respectfully request that all manmade objects be listed as obstructions as well, regardless of size and strength.
- A7. See Section C, Supplementary Special Provisions, Items 1 and 2 of this Addendum.
- Q8. By, following installation does the City mean that welding should take place after the MTBM has been recovered, the tunnel has been stripped and after contact grouting?
- A8. Contractor's sequence of operations shall be performed as required to execute the Work as described within the Contract Documents.
- Q9. Please confirm that seal weld will not need to be performed by a certified welder
- A9. Per Specification Section 308-7.1.2, All welding shall be performed by qualified welding operators in accordance with the requirements of ANSI/AWS D1.1. See Section C, Supplementary Special Provisions, Item 3 of this Addendum.

- Q10. The final pipe, once complete will be pressurized. What economic harm will the City incur if the casing and / or carrier pipe is not installed within tolerance?
- A10. Contractor shall install casing and carrier pipe within the tolerances indicated in the Contract Documents.
- Q11. Processed slurry that has been ran through the separation plant and centrifuge is normally discharged to a sewer within the limits set forth by the sewer district. Please confirm that the microtunneling contractor will be able to discharge processed slurry to the sewer.
- A11. If Contractor elects to discharge to the City's sanitary sewer system, the Contractor shall be responsible for obtaining a Groundwater Discharge Permit from the City of San Diego and shall be responsible for all associated fees. The inability of the Contractor to obtain a Groundwater Discharge Permit, meet the discharge requirements established by the permit, or discharge to the sewer will not be cause for a change in the Contract price.
- Q12. Please confirm that the City will require the microtunneling contractor to work 24/7 only when the MTBM is within the railroad right-of-way.
- A12. Per Note 4 of the MTS and NCTD Jack and Bore General Notes on Sheet 18, the Contractor shall perform microtunneling operations on a 24-hour basis when operations are within the MTS/NCTD right of way. The Contractor, at its discretion, may perform microtunneling operations on a 24-hour basis outside of the MTS/NCTD right of way.
- Q13. Is a protective coating required for the microtunneling casing? If so, please provide a specification for the coating.
- A13. There is no protective coating required for the steel casing.
- Q14. Land is at a premium in this area. Will the City be providing a yard for office trailers, equipment, material and spoil storage?
- A14. No.
- Q15. The City does not show work areas for microtunneling. Please provide potential bidders the allowable work areas at each shaft location.
- A15. See Specification Section 308-9.5 for construction work area at Shaft 2. See Section C, Supplementary Special Provisions, Item 4 and Item 6 of this Addendum for the available temporary construction area at Shaft 1.

- Q16. The bore logs within Geotechnical Reports authored on 3/27/17 and 3/29/17 are incomplete. They are missing letters and in cases hard to decipher. We respectfully ask the City to provide legible bore logs.
- A16. Corrected Geotechnical Reports dated 3/7/17 and 3/29/17 will be provided.
- Q17. Is a permit required for microtunneling within the MTS / NCTD railroad right-of-way?
- A17. Yes.
- Q18. Will the City be supplying bid items for this project?
- A18. Bid per bid sheet.
- Q19. The quantity in Bid Item 45 for Cold Milling AC pavement does not match the contract plans. The Street Resurfacing Drawings show a total of 75,892 SF of AC Overlay (22,942 SF on C-13 plus 52,950 SF on C-14). The quantity listed in Bid Item 45 is 201,861 SF. If the City wants the entire width of streets receiving AC overlays to be cold milled, the quantity should be changed to 75,892 SF. If the City only wants the 6' wide edges of each street to be cold milled, the quantity should be changed to about 35,328 LF (2944 LF x 2 sides x 6' wide). Please advise if the City wants the full width of each street to be cold-milled or only the 6' wide edges, and revise the quantity for Bid Item 45 accordingly.
- A19. Bid item #45 will be revise to show 75892 SF.
- Q20. The quantity in bid Item 17 for AC overlay does not match the contract plans. As noted above, the plans show 75,892 SF of AC Overlay. If the AC is placed 1.5" thick, the quantity in Bid Item 17 should be about 685 tons. The quantity listed is only 430 tons. Please revise the quantity in Bid Item 17 to match the quantity shown on the plans.
- A20. Bid item#17 will be revise and is 683 Tons.
- Q21. Bid Item 32 for 309 LF of "Water Main by Microtunneling with Steel Casing" appears to be a duplicate of the combination of Bid Items 51 and 52. Bid Item 51 is for 360 LF of "Steel Casing Installation via Microtunneling" and Bid Item 52 is for 381 LF of "Installation of Carrier Pipe Within Steel Casing". These bid items correspond to the quantities shown on Drawing C-05. Please delete Bid Item 32 from the Bid Schedule.
- A21. Bid Item 32 is not applicable and shall be deleted.

- Q22. Bid Items 50 for "Exploratory Horizontal Pilot Bores" and Bid Item 51 for "Steel Casing Installation via Microtunneling" are work activities that are typically performed by highly specialized subcontractors, and not by general engineering prime contractors. In accordance with the Greenbook Article 2-3.2, we request that Bid Items 50 and 51 be designated as "Specialty Items" in the contract specifications and Bid Schedule. We request that the value of these bid items be excluded from the calculation for self-performance and for SLBE/ELBE participation.
- A22. No revision to self-performance or SLBE/ELBE requirement.
- Q23. "Please confirm that the only cathodic protection work required on the 36" steel casing crossing the RR tracks is the test stations called out on drawing C-17."
- A23. Bid per plan.
- Q24. This question pertains to the undercrossing of the existing 54" RCP on Drawing C-04, Station 2+59.10. The note on the horizontal cross section calls out "DR-14 Pipe with no joints 10' back and 10' ahead of the storm drain". With the current location of the existing tee at 2+59.10 there does not seem to be 10' of separation from the existing 54" RCP, so there will necessarily be a joint closer than 10' where the pipe bolts to the tee. Does the City want fusible PVC pipe to be used at this location? If so, there is no bid item for fusible PVC. Please advise how to handle this situation.
- A24. Bid per plan.

C. SUPPLEMENTARY SPECIAL PROVISIONS

1. To Attachment E, Supplementary Special Provisions, page 56. Section 308, Microtunneling, Subsection 308-2, Definitions, **DELETE** Item "Obstruction", in its entirety and **SUBSTITUTE** with the following:

Obstruction: Objects located within the cross-sectional area to be excavated by the microtunneling machine that prevent the forward movement of the microtunneling machine after all diligent efforts to advance past the object by the Contractor have failed and in compliance with Section 308-6.4.

2. To Attachment E, Supplementary Special Provisions, Section 308, Microtunneling, Subsection 308-6.4, Obstructions, page 69, Item 3, **DELETE** in its entirety and **SUBSTITUTE** with the following:
 3. The Contractor will receive no additional compensation for removing, clearing, or otherwise making it possible for the MTBM to advance past objects consisting of cobbles, boulders, wood, and other nonmetallic objects or debris both natural and/or manmade with maximum lateral dimensions less than thirty percent (30%) of the outer diameter of the MTBM or cutterhead, whichever is larger. Additionally, full-face, massive, jointed, and/or fractured rock up to 15,000 psi will not be considered an obstruction.
3. To Attachment E, Supplementary Special Provisions, Section 308, Microtunneling, page 71, **ADD** the following:

ADD:

308-7.1.2.9 All single-welded joints shall be tested by the liquid penetrant method. Tests shall be performed by an independent testing agency and be performed only by individuals qualified per AWS D1.1 for NDT Level 1 and working under the NDT Level 2 or individuals qualified for NDT Level 2. Liquid penetrant tests shall be performed in conformance with ASTM E165. Provide materials that are either washable or nonflammable. Acceptable products include Spotcheck by the Magnaflux Corporation or Met-L-Check Flaw-Findr by the Met-L-Check Company. Chip out all defects, reweld and retest the section affected until it shows no leaks or other defects. Costs for all tests and re-testing shall be borne by the Contractor.
4. To Attachment E, Supplementary Special Provisions, Section 308, Microtunneling, page 84, **ADD** the following:

308-9.5.2 Microtunneling construction zones on private property shall remain within the confines of the temporary construction easement. See Appendix P, Temporary Construction Area-Shaft 1.

5. To Attachment E, Supplementary Special Provisions Appendices, pages 217 through 297, Appendix H, Report of Geotechnical Investigation-Water Group 939 City of San Diego, **DELETE** in its entirety and **SUBSTITUTE** with pages 10 through 90 of this Addendum.
6. To Attachment E, Supplementary Special Provisions Appendices, **ADD** "Appendix P, Temporary Construction Area", pages 91 through 97 of this Addendum.

D. ADDITIONAL CHANGES

1. The following are additional changes to the Line Items in the PlanetBids Tab:

For clarity where applicable, **ADDITIONS**, if any, have been Underlined and **DELETIONS**, if any, have been ~~Stricken out~~.

Section	Item Code	Description	UoM	Quantity	Payment Reference	Unit Price
MAIN BID	237110	Water Main by Microtunneling with Steel Casing (16-Inch Pipe, 36-Inch Casing)	LF	309	308-13	
MAIN BID	237310	Asphalt Concrete Overlay	TON	430 683	302-5.9	
MAIN BID	237310	Cold Mill AC Pavement (0 Inch - 1½ Inch)	SF	201861 75892	302-1.12	

James Nagelvoort, Director
Public Works Department

Dated: *December 6, 2017*
San Diego, California

JN/JB/egz

**REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO**

Submitted to:

RICK ENGINEERING COMPANY
5620 Friars Road
San Diego, CA 92110

Prepared By:

ALLIED GEOTECHNICAL ENGINEERS, INC.
9500 Cuyamaca Street, Suite 102
Santee, California 92071-2685

March 29, 2016



March 29, 2016

Mr. Kevin Gibson, P.E.
Project Manager
Rick Engineering Company
5620 Friars Road
San Diego, CA 92110

**Subject: REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO
AGE Project No. 164 GS-14-E**

Dear Kevin:

Allied Geotechnical Engineers, Inc. is pleased to submit the accompanying report to present the findings, opinions, and recommendations of a geotechnical investigation that was performed for the design of the proposed trenchless construction between Sorrento Valley Road and the intersection of Roselle Street and Dunhill Street.

If you have any questions regarding the contents of this report or if we may be of further assistance, please give us a call. We greatly appreciate the opportunity to be of service on this important project.

Respectfully submitted,

ALLIED GEOTECHNICAL ENGINEERS, INC.

Nicholas E. Barnes, P.G., C.E.G.
Senior Geologist



Sani Sutanto, P.E.
Project Manager



SS/TJL:sem
Distr. (1 electronic copy) Addressee

**REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO**

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1.0 INTRODUCTION

Allied Geotechnical Engineers, Inc. (AGE) is pleased to submit this report to present the findings, conclusions and recommendations of a geotechnical investigation conducted in connection with the design of the City of San Diego (City) Water Group 939 Project. This report has been prepared for the exclusive use of Rick Engineering Company (Rick Engineering), the City and their design subconsultants in their design of the project as described herein. The information presented in this report is not sufficient for any other uses or the purposes of other parties

2.0 PROJECT DESCRIPTION

The project site is located in the Sorrento Valley area of San Diego, California (Figure 1 - Location Map). The Water Group 939 Project consists of the replacement of approximately 3,080 linear feet of cast iron water pipe and 1,330 linear feet of A.C. water pipe, and abandonment of approximately 3,800 linear feet of cast iron water pipe. The scope of the proposed project includes a proposed trenchless crossing which extends from the intersection of Roselle Street and Dunhill Street on the west and Sorrento Valley Road on the east. The approximately 550-foot long trenchless segment crosses beneath a business park on the east side of Roselle Street, railroad tracks and an existing drainage channel located between Roselle Street and Sorrento Valley Road, and the parking lot facility for the Metropolitan Transit System (MTS) station on the west side of Sorrento Valley Road. Surface elevation along the trenchless crossing ranges from a high of +35 feet above the mean sea level (msl) at Roselle Street to a low of +25 feet msl at the drainage channel. The subsurface geotechnical investigation was performed for the design of the trenchless crossing.

3.0 OBJECTIVE AND SCOPE OF INVESTIGATION

The objective of this investigation is to characterize the subsurface conditions beneath the proposed trenchless crossing segment in order to develop recommendations pertaining to the geotechnical aspects of the currently proposed project. The scope of our investigation included several tasks as described in more detail below.

3.1 Information Review

This task involved a review of readily available information pertaining to the project site, including published geologic literature and maps, topographic maps, and historical aerial photographs. A listing of the references that were reviewed as part of this geotechnical investigation is presented in Section 8.0.

3.2 Geotechnical Field Exploration

The field exploration program for this project was performed on March 11, 2016. A total of two (2) soil borings were performed at the approximate locations shown on the Site Plan (Figure 2). The borings were advanced using conventional hollow-stem auger drilling methods to depths of 30 feet and 32 feet below the existing ground surface (bgs). A more detailed description of the drilling and sampling activities, and logs of the borings are presented in Appendix A.

Prior to commencement of the field exploration activities, several site reconnaissance visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. Existing buried utilities in the vicinity of the project alignment and alternative include: potable water and sanitary sewer pipelines; storm drains; natural gas and electrical transmission lines; and cable, telephone, and fiber optic lines. Traffic control permits were obtained from the City of San Diego to perform the borings. In addition, AGE also obtained soil boring permit from the County of San Diego Department of Environmental Health.

3.3 Geotechnical Laboratory Testing

Selected soil samples obtained from the borings were tested in the laboratory to verify field classifications and evaluate certain engineering characteristics. The geotechnical laboratory tests were performed in general conformance with the American Society for Testing and Materials (ASTM) or other generally accepted testing procedures.

The laboratory tests included: in-place density and moisture content, maximum density and optimum moisture content, sieve (wash) analysis, shear strength, and consolidation. In addition, representative samples of the onsite soil materials were collected and delivered to Clarkson Laboratories and Supply, Inc. for chemical (analytical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A brief description of the tests that were performed and the final test results are presented in Appendix B.

4.0 GEOLOGIC CONDITIONS

4.1 Geologic Setting

The project site lies within the lower reaches of a broad and relatively flat to gently sloping, northwest-trending drainage valley of the Los Penasquitos, Carroll Canyon and Soledad Canyon drainage system. The valley is known as Soledad Valley, and is bounded by the Del Mar Mesa on the east and the Torrey Pines Mesa on the west. The valley floor is underlain by undifferentiated fluvial and colluvial sediments and estuary deposits of Holocene age. Older sedimentary formations are mapped in the valley walls which rise moderately to steeply from the valley floor. These sedimentary formations include the old paralic deposits of Holocene to late Pleistocene age, units of the La Jolla Group of Eocene age, and the very old paralic deposits of mid to early Pleistocene age which forms a cap on top of the mesas.

4.2 Geologic Units

Based on a review of the published geologic maps and compositional characteristics, the soil types anticipated to be encountered in the project study area can be categorized into four (4) distinct geologic units which include, in order of increasing age: fill materials; undifferentiated alluvium, slope wash and estuary deposits; old paralic deposits; and Ardath Shale. Brief descriptions of these units are presented below.

4.2.1 Fill Soils

Variable amounts of fill materials were placed during development of the areas along the proposed trenchless crossing segment. Areas where significant amounts of fill can be expected to occur

include the western edge of Sorrento Valley Road, and along the channel embankments and Roselle Street.

The depth of fill materials encountered in the borings range from 14 feet bgs in boring B-1 (Roselle Street) to 6 feet bgs in boring B-2 (Sorrento Valley Road). The fill materials encountered in the exploratory soil borings consist predominantly of silty sand.

4.2.2 Undifferentiated Alluvium, Slopewash and Estuary Deposits

Undifferentiated alluvial, slopewash and estuary deposits of Holocene to late Pleistocene age lie beneath the valley floor. The soils encountered in the borings consist of interbedded layers of loose/soft, brown to grayish brown and dark gray, silty sand, clayey sand, and lean sandy clay, which are interpreted as interfingering alluvial and estuary deposits.

Kennedy & Tan (2009) mapped the estuary deposits along the valley floor north of the proposed trenchless crossing. These deposits were encountered in the borings performed by Woodward-Clyde Consultants (1991) for the Carmel Valley Trunk Sewer project along Sorrento Valley Road and Roselle Street. These sediments were reportedly encountered beneath alluvial soils at depths ranging from 7 to 32 feet below the ground surface, and were described as soft, gray, lean to fat clay and loose silt to poorly graded sand.

4.2.3 Old Paralic Deposits

The old paralic deposits are mapped at the lower elevations along the base of the valley walls. This formation is typically composed of gray brown to brown, medium dense to dense silty, clayey, and poorly graded sands with interbedded gravel and cobble lenses or beds. It is not considered likely that the proposed trenchless crossing will encounter this unit.

4.2.4 Ardath Shale

The Ardath Shale is mapped along the western walls of the valley, generally above an elevation of about 60 feet above the mean sea level (MSL). It is not considered likely that the proposed trenchless crossing will encounter this unit.

4.3 **Groundwater**

Groundwater was encountered in both borings at the time of our field investigation at a depth of 8 feet in boring B-1 (+22 feet MSL) and 10 feet in boring B-2 (+15 feet MSL). In AGE borings and Cone Penetrometer Soundings (AGE, 1999) which were performed for the Sorrento Valley Trunk Sewer Replacement Project and Woodward-Clyde Consultants (1988 and 1991) borings, groundwater in the general area of the proposed trenchless crossing was measured at elevations ranging from +18 feet to +28 feet MSL.

5.0 DISCUSSIONS, OPINIONS, AND RECOMMENDATIONS**5.1 Potential Geologic Hazards****5.1.1 Faulting and Seismicity**

The published geologic maps show the presence of a mapped fault in the vicinity of the project site. An unnamed branch of the Salk and Torrey Pines faults is mapped about 2,000 feet west of the proposed trenchless crossing segment (Kennedy & Tan, 2008 & City of San Diego, 2008). The fault is mapped as offsetting Pleistocene age and older units, and may be considered potentially active based on the fault classification criteria adopted by the California Geological Survey. This fault is not considered to pose a seismic risk to the subject project.

For the purpose of this project, we consider the Rose Canyon fault zone (RCFZ) to represent the most significant seismic hazard. The RCFZ is a complex set of anastomosing and en-echelon, predominantly strike slip faults that extend from off the coast near Carlsbad to offshore south of downtown San Diego (Treiman, 1993). Previous geologic investigations on the RCFZ in the Rose Creek area (Rockwell et. al., 1991) and in downtown San Diego (Patterson et. al., 1986) found evidence of multiple Holocene earthquakes. Based on these studies, several fault strands within the RCFZ have been classified as active faults, and are included in Alquist-Priolo Special Studies Zones. In San Diego Bay, this fault zone is believed to splay into multiple, subparallel strands; the most pronounced of which are the Silver Strand, Spanish Bight and Coronado Bank faults. The project site is not located within an Alquist-Priolo Earthquake Study Zone.

The location of the project alignment in relation to the active faults in the region is shown on the Regional Fault Map (Figure 3). The computer program EQFAULT (Blake, 2000, updated 2004) was used to approximate the distance of known faults to the project alignment. Seven (7) known active faults are identified within a search radius of 50 miles from the alignment. A summary of seismic source characteristics for faults that present the most significant seismic hazard potential to the alignment are presented in Table 1 below.

Table 1
Summary of Seismic Source Characteristics

Fault	Maximum Magnitude (Mw)	Peak Site Acceleration (g)	Closest Distance to Site (miles)
Rose Canyon	6.8	0.437	3.5
Coronado Bank	7.4	0.216	15.9
Newport-Inglewood (offshore)	6.9	0.121	21.1
Elsinore - Julian	7.7	0.086	33.6
Elsinore - Temecula	7.7	0.068	35.0
Earthquake Valley	6.5	0.045	42.1
Palos Verdes	7.1	0.059	48.9

5.1.2 Historical Seismicity

EQSEARCH is a program that performs automated searches of a catalog of historical Southern California earthquakes. As the program searches the catalog, it computes and prints the epicentral distance from a selected site to each of the earthquakes within a specified radius (100 kilometers). From the computed distance, the program also estimates (using an appropriate attenuation relation) the peak horizontal ground acceleration that may have occurred at the site due to each earthquake.

V_{s30} along the project at the project site was estimated to be on the order of 200 m/s. The shear wave velocity was calculated based on the corrected blow counts in AGE's borings, and using the correlation method developed by Ohta and Gotto (1978) for cohesive soil and David Boore (2004) extrapolation equation.

$$V_s = 86.9 (N_{60})^{0.333} \quad (\text{Ohta \& Goto, 1978})$$

$$V_{s30} = [1.45 - (0.015 \times d)] \times V_{s(d)} \quad (\text{David Boore, 2004})$$

Based on the estimated shear wave velocities and our visual classification of the geologic units encountered in the soil borings, site Class D attenuation was used for all of our analysis. We used a combined earthquake catalog for magnitude 5.0 or larger events which occur within 100 miles from the site between 1800 and December 1999. The earthquake catalog for events prior to about 1933 is limited to the higher magnitude events.

The search results indicate that the nearest earthquake of magnitude 6.5 occurred on November 22, 1800 located about 4.1 miles from the project site. This earthquake resulted in a calculated ground acceleration of 0.327 g which is also the largest calculated seismic ground acceleration from this search. The largest magnitude earthquake reported was a magnitude 7.0 event on December 16, 1858, located 77.3 miles from the project study area on the San Jacinto fault which resulted in a calculated ground acceleration of 0.048 g.

It is our opinion that the major seismic hazard affecting the project alignment would be seismic-induced ground shaking. The alignment will likely be subject to moderate to severe ground shaking in response to a local or more distant large magnitude earthquake occurring during the life of the proposed facilities. For project design purposes, we recommend that the RCFZ be considered as the dominant seismic source.

5.1.3 Fault Ground Rupture & Ground Lurching

There are no known (mapped) active or potentially active faults crossing the proposed trenchless crossing (Kennedy, 1975; City of San Diego, 2008). Therefore, the potential for fault ground rupture and ground lurching at the project site is considered insignificant.

5.1.4 Soil Liquefaction

Seismically-induced soil liquefaction is a phenomenon during which loose, saturated granular materials undergo matrix rearrangement, develop high pore water pressure, and lose shear strength due to cyclic ground vibrations induced by earthquakes. Manifestations of soil liquefaction at the project site can include loss of soil bearing capacity, ground subsidence and differential settlement, ground lurching and tilting in level ground, and instabilities in areas of sloping ground. Soil liquefaction can also result in increased lateral and uplift pressures on buried structures. Light-weight or unrestrained buried structures may float upward to the ground surface. Based on the blow counts, laboratory particle size analysis test results and depth to known groundwater, it is anticipated that the project site is underlain by liquefiable soil materials.

AGE previous performed an evaluation of liquefaction potential for the Sorrento Valley Trunk Sewer Replacement Project. The evaluation was performed based upon the results of the CPT soundings, the simplified procedure outlined by Seed, et al. (1983), and the modified procedure presented in NCEER Summary Report (1998). These procedures empirically correlate in-situ soil resistance with intensity of ground shaking from documented earthquake events to evaluate susceptibility to liquefaction. The liquefaction analysis was performed using a ground acceleration of 0.5g based on a magnitude 7 earthquake on the Rose Canyon fault. The results of the analysis indicate that the alluvial and estuary deposits below the groundwater table have a moderate to very high potential for liquefaction. An estimated maximum cumulative ground surface settlement of 13 inches was estimated at the project site. Liquefaction at the project site most likely would manifest itself as local ground subsidence and settlement. Due to the relatively level ground surface elevation, lateral flow is not likely to occur.

5.1.5 Landslides

The project site is not located on or near any known (mapped) ancient landslides. Landslides have been mapped in the hillsides on both sides of the valley (Kennedy, 1975; City of San Diego Seismic Safety Study, 2008). These landslides appear to be confined to areas that are underlain by the Ardath Shale, and are not considered to pose a significant hazard to the project as they are not located near the project site.

5.1.6 Differential Seismic-Induced Settlement

Differential seismic settlement occurs when seismic shaking causes one type of soil to settle more than another type. It may also occur within a soil deposit with largely homogeneous properties if the seismic shaking is uneven due to variable geometry or thickness of the soil deposit. Based on the results of our investigation, it is our opinion that the alluvial deposits possess a moderate to high potential of differential settlement.

5.1.7 Secondary Hazards

A review of the State of California Tsunami Inundation Map for Emergency Planning (2009) indicates that the project site is not located within the tsunami inundation area. It is our opinion that the potential of property damage from a seismic-induced tsunami at the project site is considered remote. The project site is located within the 100- and 500-year flood zone (FEMA Flood Insurance Rate Map, 2012). It is our opinion that the potential of property damage due to flooding is considered high.

5.2 Soil Corrosivity

In accordance with the City of San Diego Water Facility Design Guidelines, Book 2, Chapter 7, soil is generally considered aggressive to concrete if its chloride concentration is greater than 300 parts per million (ppm) or sulfate concentration is greater than 1,000 ppm, or if the pH is 5.5 or less.

Analytical testing was performed on a representative sample of the onsite soil materials to determine pH, resistivity, soluble sulfate, chlorides and bicarbonates content. The tests were performed in accordance with California Test Method Nos. 643, 417 and 422. A summary of the test results is presented in Table 5 below. Copies of the analytical laboratory test data reports are included in Appendix B.

Table 2
Summary of Corrosivity Test Results

	pH	Resistivity (ohm-cm)	Sulfate Conc. (ppm)	Chloride Conc. (ppm)	Bicarbonates Conc. (ppm)
B-1 Sample No. 8 @ 29'-30'	8.3	250	5,100	910	N/A
B-2 Sample No. 8 @ 27'-28'	8.1	630	160	190	N/A

The test results indicate that the onsite soil is considered highly aggressive toward concrete. Therefore, we recommend that Type V Portland Cement Concrete (high sulfate resistance) be used for proposed facilities at the project site. It should be noted here that the most effective way to prevent sulfate attack is to keep the sulfate ions from entering the concrete in the first place. This can be done by using mix designs that give a low permeability (mainly by keeping the water/cement ratio low) and, if practical, by placing moisture barriers between the concrete and the soil.

AGE does not practice in the field of corrosion engineering. In the event that corrosion sensitive facilities are planned, we recommend that a corrosion engineer be retained to perform the necessary corrosion protection evaluation and design.

5.3 Expansive Soil

Based on visual observations and the laboratory test results, the on-site materials are considered non-expansive.

5.4 Trenchless Construction

Since no changes to the existing ground surface along the proposed pipeline crossing are planned, the net stress change in the underlying soils is considered negligible. The native alluvial soil materials within the tunnel zone are not expected to pose a problem for the trenchless construction.

5.4.1 Excavation Characteristics

The existing fill materials and alluvial deposits can generally be readily excavated with conventional heavy-duty construction equipment.

5.4.2 Fill Materials

Fill materials should be free of biodegradable materials, hazardous substance contamination, other deleterious debris, and or rocks or hard lumps greater than 6 inches. If the fill materials contain rocks or hard lumps, at least 70 percent (by weight) of its particles shall pass a U.S. Standard $3/4$ -inch sieve. Fill materials should consist of predominantly granular soil (less than 40 percent passing the U.S. Standard #200 sieve) with Expansion Index of less than 50.

5.4.3 Placement and Compaction of Backfill

Prior to placement, all backfill materials should be moisture-conditioned, spread and placed in lifts (layers) not-to-exceed 6 inches in loose (uncompacted) thickness, and uniformly compacted to at least 90 percent relative compaction. During backfilling, the soil moisture content should be maintained at or within 2 to 3 percent above the optimum moisture content of the backfill materials. It is recommended that the upper 24 inches directly beneath the roadway pavement and the base materials be compacted to at least 95 percent relative compaction. The maximum dry density and optimum moisture content of the backfill materials should be determined in the laboratory in accordance with the ASTM D1557 testing procedures.

Small hand-operated compacting equipment should be used for compaction of the backfill materials to an elevation of at least 4 feet above the top (crown) of the pipes. Flooding or jetting should not be used to densify the backfill.

5.4.4 Trenchless Construction Considerations

Based on the conditions encountered in the borings, it is anticipated that the trenchless construction operation will encounter alluvial deposits which can be classified as flowing - saturated sand as described by the Tunnelman's Ground Classification System (Bickel & Kuesel, 1995). For assessing the stability of the trenchless tunnel, the alluvial deposits may be modeled as having an undrained shear strength of 1,500 psf (waiting for shear test results).

For following formula may be used to estimate ground deformation due to the trenchless operations.

$$d_{\max} = (2.5i/V_s)$$

d_{\max} is maximum ground settlement;

i is equal to K times the depth to the center of the pipe; and

V_s is the volume loss due to the excavation per foot of pipe.

For the formational units at the project site, we recommend using a K of 0.4 and a V_s equal to 2.5 percent of the excavated face. Ground settlement adjacent to the tunnel alignment may be estimated using the following equation.

$$d = d_{\max} \exp(-x^2/2i^2)$$

x is the distance from the centerline of the pipe (feet);

i is defined as Kz where z is the depth to the center of the pipe (feet); and

d is the ground displacement at x .

We recommend using a coefficient of 0.45 for steel casing against soil and 0.8 for concrete against soil. We further recommend using a unit weight of 130 pcf for calculating the normal pressure acting on the casing.

5.5 Buried Structures

It is recommended that any proposed buried structures be founded on firm native soils or approved compacted materials. In areas where loose or soft soils are encountered at the bottom of the box structure excavations, it is recommended that the loose/soft materials be removed to a minimum depth of 24 inches below the bottom of the excavation and replaced with 3/4-inch crushed rock materials wrapped in geotextile fabric such as Mirafi 600X or equivalent. The actual extent of over-excavation of any loose/soft soil materials should be evaluated and determined by the City's Resident Engineer during construction.

5.5.1 Placement and Compaction of Backfill

Fill materials used around buried structures should meet the criteria for “Fill Materials” presented in Section 5.4.2. Placement and compaction of backfill materials around the buried structures should be performed in accordance with the recommendations presented in Section 5.4.3 of this report.

5.5.2 Seismically-Induced Settlement

The project site is be subject to seismically-induced liquefaction settlement. Pipeline connections to buried structures be designed to accommodate as much as 4 inches of differential settlement.

5.5.3 Foundations

Bearing Capacity

An allowable soil bearing capacity of 1,000 psf should be used for buried structures supported on soft and loose estuary and alluvial deposits. This allowable soil bearing value is for total dead and live loads, and may be increased by one third when considering seismic loads.

Anticipated Settlement

Under static condition, total settlement of the slab foundation is estimated to be less than 0.5 inch. Differential settlement between the center and the edge of the slab foundation is expected to be within tolerable limits. No permanent deformation and/or post-construction settlement is anticipated, provided that backfill around the structures is properly compacted in accordance with the project specifications.

Resistance to Lateral Loads

Resistance to lateral loads may be developed by a combination of friction acting at the base of the slab foundation and passive earth pressure developed against the sides of the foundations below grade. Passive pressure and friction may be used in combination, without reduction, in determining the total resistance to lateral loads.

An allowable passive earth pressure of 300 and 200 psf per foot of foundation embedment below grade may be used for the sides of foundations placed against properly compacted fill materials, for above and below the groundwater level, respectively. The maximum recommended allowable passive pressure is 3,000 and 2,000 psf, respectively, for above and below the groundwater level. A coefficient of friction of 0.35 may be used for foundation cast directly on approved compacted materials or wrapped crushed rock as described above. An allowable passive earth pressure of 80 psf per foot of foundation embedment below grade should be used for sides of foundations placed against soft alluvial/estuary deposits. The maximum recommended allowable passive pressure in soft alluvial/estuary deposits should be limited to 800 psf.

5.5.3 Walls Below Grade

Lateral earth pressures for walls below grade for structures less than 48 inches in horizontal dimensions may be treated as a shaft structure. Walls below grade for structures larger than 48 inches in horizontal dimensions should be designed to resist the lateral earth pressures presented on the next page.

The following values may be used for preliminary design purposes.

- Groundwater Depth: 10 feet bgs
- Active Pressure: 35 pcf equivalent fluid weight (above GW level) and 20 pcf equivalent fluid weight (below GW level)
- Restrained Additive Term: 10H psf uniform load (above GW level) and 5H psf uniform load (below GW level)
- Hydrostatic Pressure: 62.4 pcf equivalent fluid weight

The following equation may be used to estimate the pseudostatic force ($P_{Eactive}$) acting on the wall under active loading conditions:

$$P_{Eactive} = 0.30 * (a_{max}/g) * H^2 * \tilde{a}_t$$

The following equation may be used to estimate the pseudostatic force ($P_{Eat-rest}$) acting on the wall under at-rest loading conditions:

$$P_{Eat-rest} = 0.45 * (a_{max}/g) * H^2 * \tilde{a}_t$$

$P_{Eactive}$ = horizontal pseudostatic force acting on active condition walls (lb)

$P_{Eat-rest}$ = horizontal pseudostatic force acting on at-rest condition walls (lb)

a_{max} = ground motion as a decimal (g).

$H =$ height of the retaining wall (ft)

$\tilde{\alpha}_t =$ total unit weight of backfill soil (pcf)

The location of the pseudostatic force can be assumed to act at a distance of $0.6H$ above the base of the wall for active conditions and $0.65H$ above the base of the wall for at-rest conditions. We recommend that $a_{\max} = 0.29 g$ and $\tilde{\alpha}_t = 120$ pcf be used for preliminary design purposes. It must be noted that actual seismic load will depend on the method of construction and how the excavation is shored.

Surcharge and foundation loads occurring within a horizontal distance equal to the wall height should be added to the lateral pressures as presented in Figures 4 and 5.

5.5.4 Uplift Resistance

Buried structures located below the groundwater table will be subject to buoyant uplift forces. Geotechnical parameters for use in calculating uplift resistance of the surrounding backfill soil materials is presented in Figure 6 and 7.

6.0 CONSTRUCTION-RELATED CONSIDERATIONS**6.1 Temporary Shoring**

Since excavations for the proposed project will be more than 5 feet below the ground surface, prevailing Federal and Cal OSHA safety regulations require that the excavations be either sloped (if sufficient construction space or easement is available), shored, braced, or protected with approved sliding trench shield. Limited construction space, the presence of other buried utilities, and the need to avoid excessive community disruption dictate that a shored excavation will be needed. For design of excavation which extend below the groundwater table, it is recommended that a continuous shoring system or solid sheet piles system be utilized to minimize water intrusion into the trench excavation. Design and construction of temporary shoring shall be the sole responsibility of the Contractor.

It must be noted that the contractor for the construction of the Sorrento Valley Trunk Sewer Replacement project experienced great difficulties in keeping the trenched excavations open due to very loose soil and high groundwater. It is anticipated that proposed excavations for this project will encounter similar conditions.

6.1.1 Settlement

Settlement of existing street improvements and/or utilities adjacent to the shoring may occur in proportion to both the distance between shoring system and adjacent structures or utilities and the amount of horizontal deflection of the shoring system. Vertical settlement will be maximum directly adjacent to the shoring system, and decreases as the distance from the shoring increases. At a

distance equal to the height of the shoring, settlement is expected to be negligible. Maximum vertical settlement is estimated to be on the order of 75 percent of the horizontal deflection of the shoring system. It is recommended that shoring be designed to limit the maximum horizontal deflection to 1/2-inch or less where existing structures or utilities are to be supported.

6.1.2 Lateral Earth Pressures

Temporary shoring should be designed to resist the pressure exerted by the retained soils and any additional lateral forces due to loads placed near the top of the excavation. For design of braced shorings supporting fill materials and/or bay deposits, the recommended lateral earth pressure should be $32H$ psf, where H is equal to the height of the retained earth in feet. Any surcharge loads would impose uniform lateral pressure of $0.3q$, where " q " equals the uniform surcharge pressure. The surcharge pressure should be applied starting at a depth equal to the distance of the surcharge load from the top of the excavation.

The above lateral earth pressures have been estimated based on the assumption that the shored earth is level at the surface, there are no hydrostatic pressures above the bottom of the excavation, and that the shoring system is temporary in nature.

6.1.3 Lateral Bearing Capacity

Resistance to lateral loads will be provided by passive soil resistance. An allowable passive earth pressure of 300 and 200 psf per foot may be used for properly compacted fill materials, for above and below the groundwater level, respectively. The maximum recommended allowable passive pressure is 3,000 and 2,000 psf, respectively, for above and below the groundwater level. An allowable passive earth pressure of 80 psf per foot should be used for soft alluvial/estuary deposits. The maximum recommended allowable passive pressure in soft alluvial/estuary deposits should be limited to 800 psf.

5.2 **Construction Dewatering**

It is anticipated that construction dewatering will be required for the construction of the proposed project. It is recommended that the selection, design, and construction of the specific dewatering system be performed by a qualified contractor specializing in construction dewatering.

5.3 **Unusual Subsurface Conditions**

The scope of AGE's investigation did not include the performance of a Phase I Environmental Site Assessment (Phase I ESA) to evaluate the possible presence of soil and/or groundwater contamination beneath the project alignment. During our subsurface investigation soil samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The field screening did not reveal elevated levels of volatile organics in the samples.

In the event that hazardous or toxic materials are encountered during the construction phase, the contractor should immediately notify the City and be prepared to handle and dispose of such materials in accordance with current industry practices and applicable Local, State and Federal regulations.

7.0 GENERAL CONDITIONS**7.1 Post-Investigation Services**

Post-investigation geotechnical services are an important continuation of this investigation, and we recommend that the City's Construction Inspection Division performs the necessary geotechnical observation and testing services during construction. In the event that the City is unable to perform said services, it is recommended that our firm be retained to provide the services.

Sufficient and timely observation and testing should be performed during excavation, pipeline installation, backfilling and other related earthwork operations. The purpose of the geotechnical observation and testing is to correlate findings of this investigation with the actual subsurface conditions encountered during construction and to provide supplemental recommendations, if necessary.

7.2 Uncertainties and Limitations

The information presented in this report is intended for the sole use of Rick Engineering and other members of the project design team and the City for project design purposes only and may not provide sufficient data to prepare an accurate bid. The contractor should be required to perform an independent evaluation of the subsurface conditions at the project site prior to submitting his/her bid.

AGE has observed and investigated the subsurface conditions only at selected locations along the project alignment. The findings and recommendations presented in this report are based on the assumption that the subsurface conditions beneath all project alignments do not deviate substantially from those encountered in the exploratory soil borings. Consequently, modifications or changes to the recommendations presented herein may be necessary based on the actual subsurface conditions encountered during construction.

California, including San Diego County, is in an area of high seismic risk. It is generally considered economically unfeasible to build a totally earthquake-resistant project and it is, therefore, possible that a nearby large magnitude earthquake could cause damage at the project site.

Geotechnical engineering and geologic sciences are characterized by uncertainty. Professional judgments and opinions presented in this report are based partly on our evaluation and analysis of the technical data gathered during our present study, partly on our understanding of the scope of the proposed project, and partly on our general experience in geotechnical engineering.

In the performance of our professional services, we have complied with that level of care and skill ordinarily exercised by other members of the geotechnical engineering profession currently practicing under similar circumstances in southern California. Our services consist of professional consultation only, and no warranty of any kind whatsoever, expressed or implied, is made or intended in connection with the work performed. Furthermore, our firm does not guarantee the performance of the project in any respect.

AGE does not practice or consult in the field of safety engineering. The contractor will be responsible for the health and safety of his/her personnel and all subcontractors at the construction site. The contractor should notify the City if he or she considers any of the recommendations presented in this report to be unsafe.

8.0 REFERENCES

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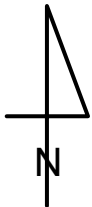
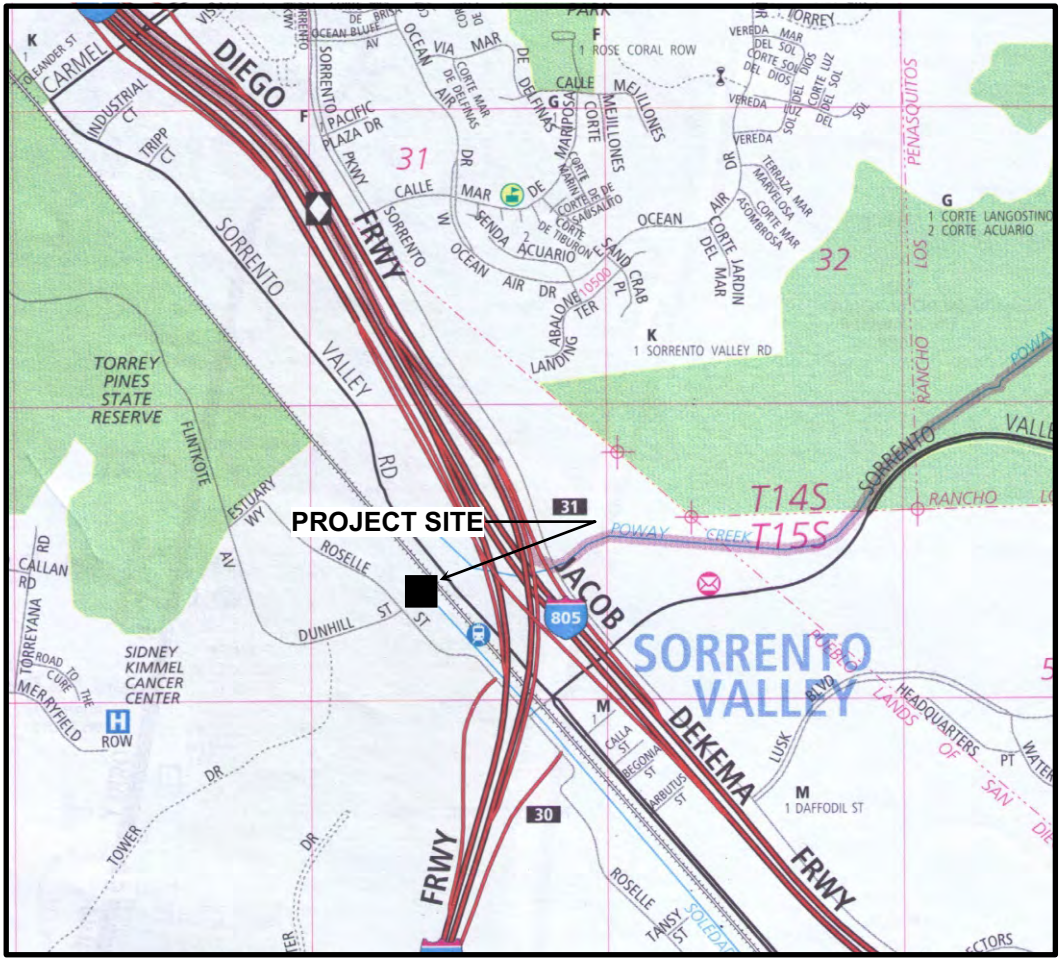
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FIGURES



NOT TO SCALE

SOURCE:

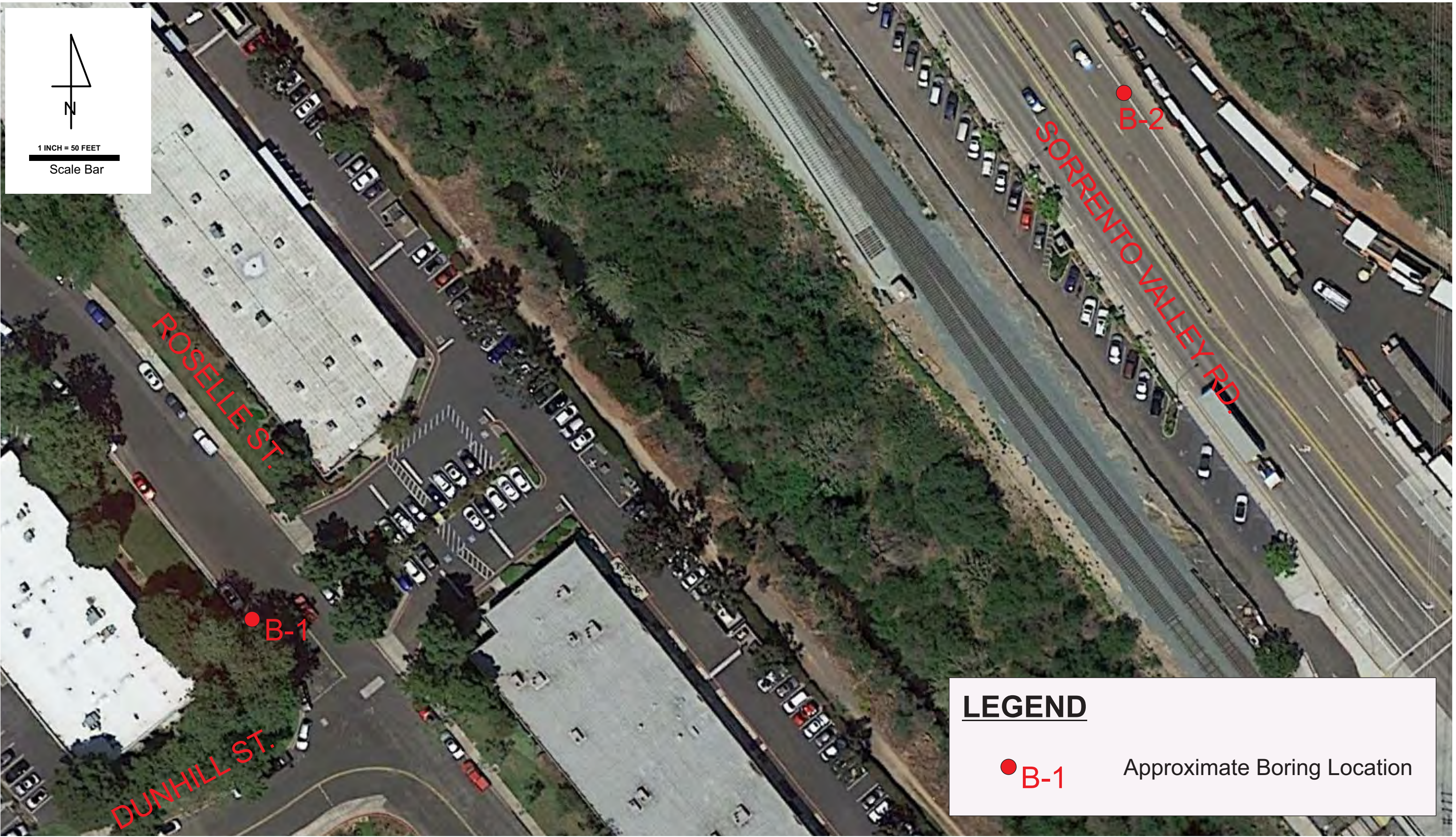
SAN DIEGO & IMPERIAL
COUNTY THOMAS GUIDE, 2016

**LOCATION MAP
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 1



LEGEND

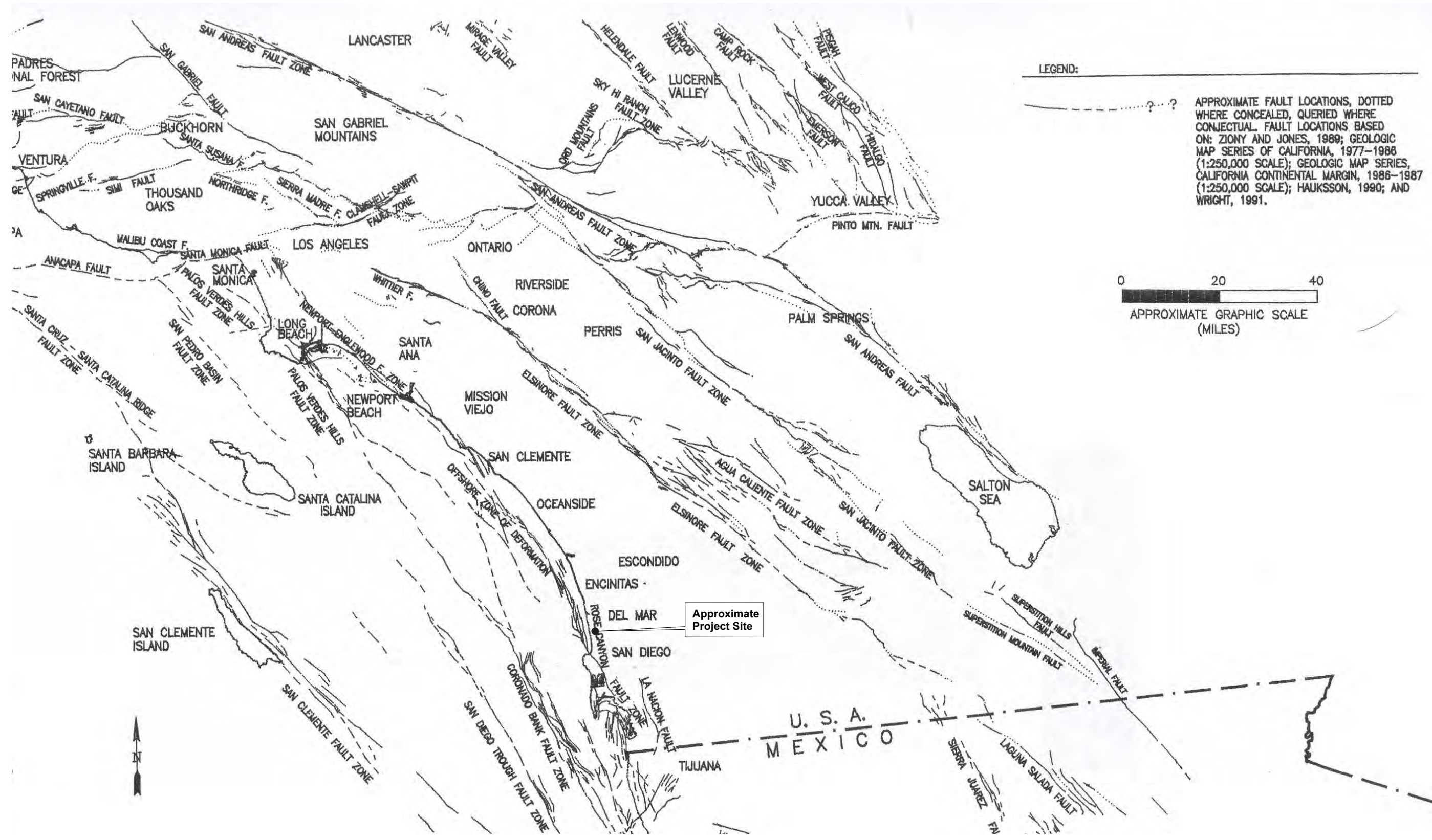
● B-1 Approximate Boring Location

WATER GROUP 939	SITE PLAN
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**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 2



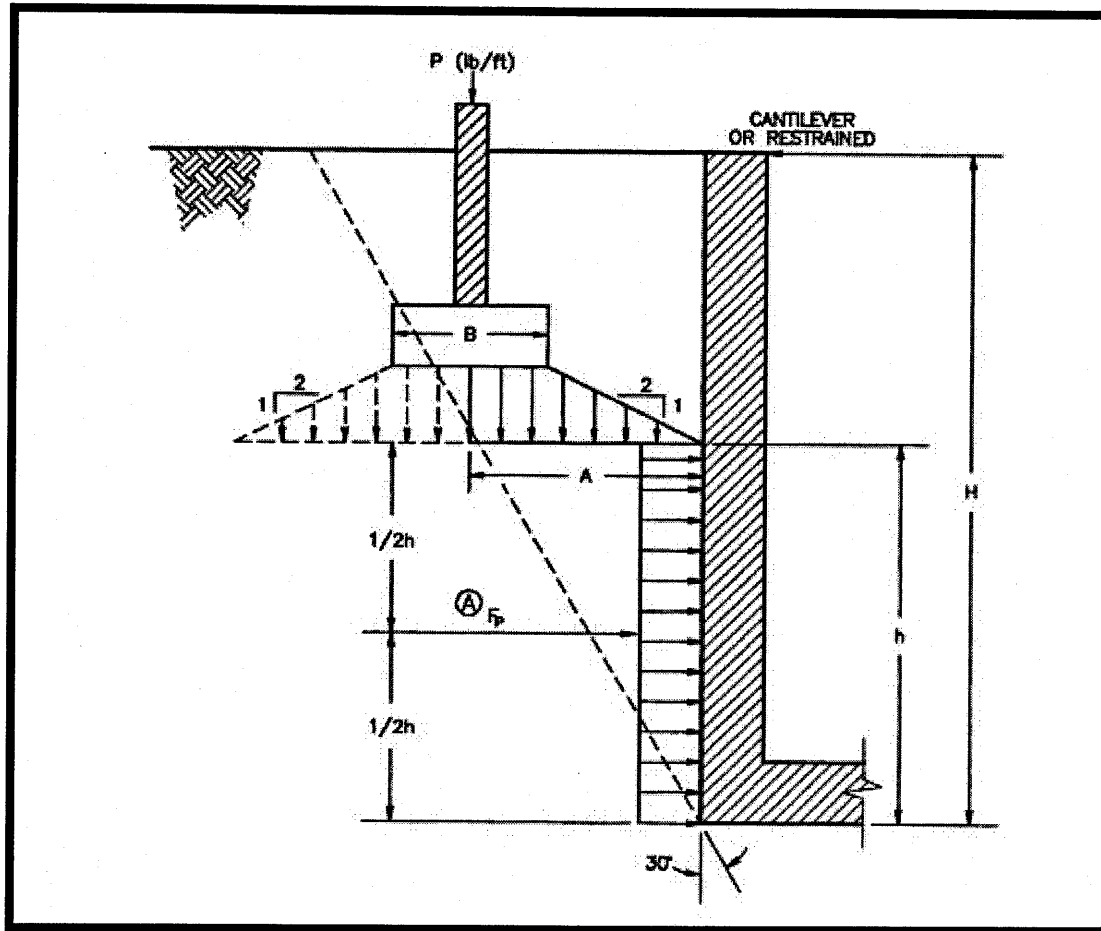
WATER GROUP 939

REGIONAL FAULT MAP

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 3



NON-EXPANSIVE BACKFILL

$$F_p = M (A/B) P, \text{ lb/ft}$$

$$A = h \tan 30^\circ, \text{ ft}$$

$$M = 0.3 \text{ for cantilever wall}$$

$$M = 0.4 \text{ for restrained wall}$$

NOTES:

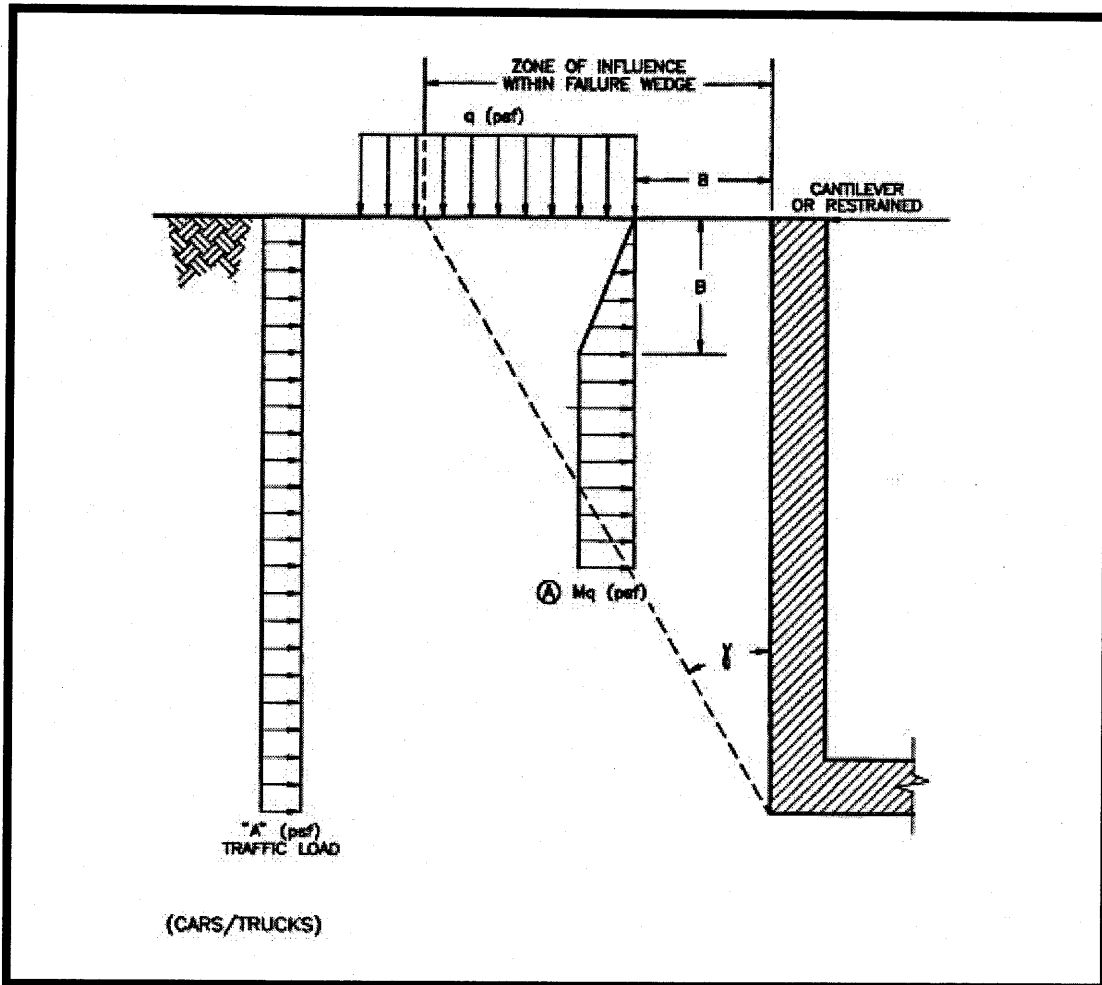
1. Surcharge pressure acting on wall is not affected by groundwater elevation.
2. Surcharge pressures shown are applicable for continuous footing only. Spread footings need to be evaluated individually.

**FOUNDATION INDUCED WALL PRESSURES
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 4



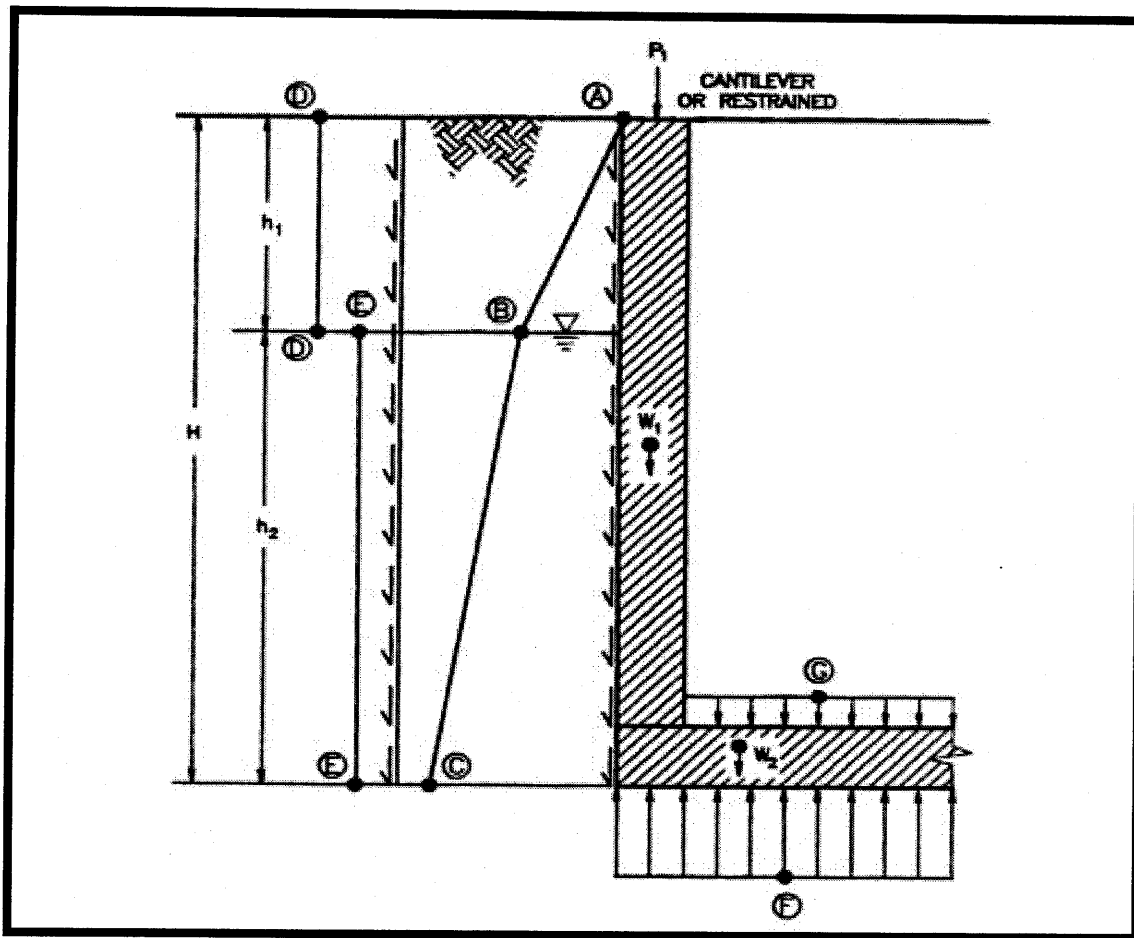
NON-EXPANSIVE BACKFILL

- q = surcharge load (psf)
- B = distance between wall and surcharge load, ft
- $M = 0.3$ for cantilever wall
- $M = 0.4$ for restrained wall
- Ⓐ = Mq , psf
- "A" = 75 psf
- $\gamma = 30^\circ$

NOTE: Surcharge pressure acting on wall is not affected by groundwater elevation.

**TRAFFIC AND SURCHARGE PRESSURES
WATER GROUP 939**

PROJECT NO. 164 GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE 5
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**PROPERLY COMPACTED
BACKFILL**

Soil Friction, psf

- Ⓐ = 0
- Ⓑ = $22h_1$
- Ⓒ = $22h_1 + 11h_2$
- Ⓓ = $7H^*$
- Ⓔ = $4H^*$

Hydrostatic Pressure, psf

- Ⓕ = $62.4 h_2$

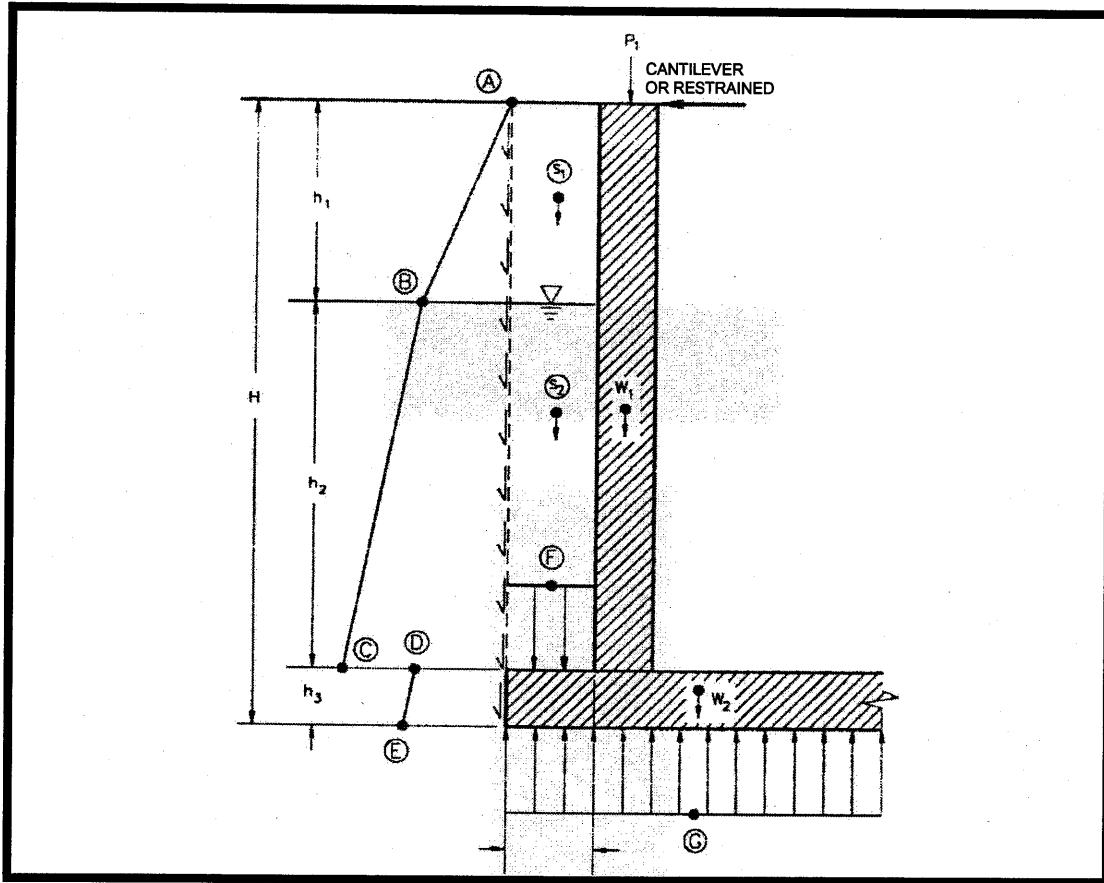
NOTE: * Ⓓ and Ⓔ are only applicable for restrained walls and should be ignored if walls are to be designed as simple cantilever

**UPLIFT RESISTANCE FOR WALLS WITHOUT EXTENSION
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 6



**PROPERLY COMPACTED
BACKFILL**

Soil Friction, psf

- Ⓐ = 0
- Ⓑ = $40h_1$
- Ⓒ = $40h_1 + 20h_2$
- Ⓓ = $24h_1 + 12h_2$
- Ⓔ = $24h_1 + 12h_2 + 12h_3$

Soil Weights - Within Vertical Prism, pcf

- Ⓐ₁ = 130 (above groundwater)
- Ⓐ₂ = 62 (below groundwater)

Hydrostatic Pressure, psf

- Ⓕ = $62.4h_2$
- Ⓖ = $62.4(h_2 + h_3)$

**UPLIFT RESISTANCE FOR WALLS WITH EXTENSION
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 7

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

The field exploration program for this project was performed on March 11, 2016. Two (2) soil borings were performed at the approximate locations shown on Figure 2. The borings were advanced using conventional hollow-stem auger drilling methods to depths ranging from 30 feet to 32 feet below the existing ground surface (bgs) using conventional hollow-stem auger drilling methods. The borings were performed with a CME 95 truck-mounted drill rig or equivalent. The soils encountered in the borings were visually classified and logged. A Key to Logs is presented on Figure Nos. A-1 and A-2 and the logs of borings are included as Figure Nos. A-3 and A-4.

Prior to commencement of the field exploration activities, several site visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. Traffic control permits were obtained from the City of San Diego to perform the boring located on public right-of-way. In addition, we obtained soil boring permit from the County of San Diego Department of Environmental Health (DEH).

During drilling, Standard Penetration Tests (SPT) were performed at selected depth intervals. The SPT tests involve the use of a specially manufactured "split spoon" sampler which is driven into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. The number of blows required to penetrate each 6-inch increment was counted and recorded on the field logs, and have been used to evaluate the relative density and consistency of the materials. The blow counts were subsequently corrected for sample type, hammer model, groundwater and surcharge. The corrected blow counts are shown on the boring logs.

Relatively undisturbed samples were obtained by driving a 3-inch (OD) diameter standard California sampler with a special cutting tip and inside lining of thin brass rings into the soils at the bottom of the borehole. The sampler is driven a distance of 12 inches into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. A 6-inch long section of the soil samples that were retained in the brass rings were extracted from the sampling tube and transported to our laboratory in close-fitting, waterproof containers. The samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The OVM readings are indicated on the boring logs.

Following completion of the drilling and sampling activities, the borings were backfilled using bentonite grout to approximately 12 inches below the ground surface, and capped with rapid-set concrete to match the adjacent pavement surface.

KEY TO LOG OF BORING

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> <p>Sample identification number</p> </div> <div style="position: absolute; top: 35%; left: 10%; width: 10px; height: 10px; background-color: black;"></div> <div style="position: absolute; top: 35%; left: 10%; width: 10px; height: 10px; background-color: white; border: 1px solid black;"></div> <div style="position: absolute; top: 70%; left: 10%; width: 10px; height: 10px; border: 1px solid black; transform: rotate(45deg);"></div> <div style="position: absolute; top: 70%; left: 10%; width: 10px; height: 10px; border: 1px solid black; transform: rotate(-45deg);"></div> <div style="position: absolute; top: 60%; left: 10%; width: 10px; height: 10px; border: 1px solid black; transform: rotate(45deg);"></div> <div style="position: absolute; top: 60%; left: 10%; width: 10px; height: 10px; border: 1px solid black; transform: rotate(-45deg);"></div> </div>	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 45%; left: 10%; width: 10px; height: 10px; border: 1px solid black;"></div> <div style="position: absolute; top: 60%; left: 10%; width: 10px; height: 10px; border: 1px solid black;"></div> </div>			<p>Approximate interval of bulk sample</p> <p>Approximate interval of Standard California Sampler (SCS).</p> <p>Number of blows required to advance sampler for the last foot, or distance indicated. Blow counts shown on boring logs have been corrected for dimensions of sampler, sample and ground water depth, and hammer type.</p> <p>Approximate interval of Standard Penetration Test (SPT).</p> <p> Groundwater level at the time of drilling</p>			
(KEY TO LOG OF BORING CONTINUED ON FIGURE A-2)								
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-1

KEY TO LOG OF BORING (CONTINUED)

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1					-?- -?- -?- APPROXIMATE GEOLOGIC CONTACT			
2				[Blank]	FILL			
3				[Blank]	SAND			
4				[Blank]	SILT			
5				[Blank]	CLAY			
6				[Blank]	GRAVELS & COBBLES			
7				[Blank]				
8								
9								
10					<u>GENERAL NOTES</u>			
11					1. Approximate elevations and locations of borings are based on GoogleEarth, 2016.			
12					2. Soil descriptions are based on visual classification made during the field exploration and, where deemed appropriate, have been modified based on the results of laboratory tests.			
13					3. Descriptions on the boring logs apply only at the specific boring locations and at the time the borings were performed. They are not warranted to be representative of subsurface conditions at other locations or times.			
14								
15								
16								
17								
18								
19								
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-2

BORING NO. B-1

DATE OF DRILLING: MARCH 11, 2016

TOTAL BORING DEPTH: 31.5 FEET

GENERAL LOCATION: SOUTHWEST SIDE OF ROSELLE STREET APPROXIMATELY 75 FEET NORTHWEST OF DUNHILL STREET

APPROXIMATE SURFACE ELEV.: +30 FEET MSL

DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..

DRILLING METHOD: 8 INCH HSA

LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 6" A.C. over 10" misc. base			
2					FILL: Yellowish brown, damp to wet, silty sand (SM) with traces of gravel up to 1/2" in maximum dimension			
3								
4								
5	1	11	0.4			17.1	109.7	
6	2							
7								
8								
9								
10	3	6	0.5			15.3		
11								
12								
13								
14								
15					UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARY DEPOSITS Dark gray to dark grayish brown, wet, medium stiff, sandy clay (CL) interlayered with yellow brown, fine-grained silty sand (SM).			
16	4	9	0.2			26.2	95.7	
17								
18								
19								
20								
21	5	8						No sample recovery
22								
23								
24								
25								
26	6	9	0.1		Dark grayish brown to dark bluish gray, wet, medium stiff, fine-grained, micaceous, sandy silt (ML).	27.4	96.2	
27	7							
28								
29								
30	8				NOTES: Bottom of borehole at 32'			
31	9	2	1.1		Groundwater measured at 8.5' at completion of drilling operations	36.4		
32								

**PROJECT NO.
164GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE A-3

BORING NO. B-2

DATE OF DRILLING: MARCH 11, 2016	TOTAL BORING DEPTH: 30 FEET
GENERAL LOCATION: EAST SIDE OF SORRENTO VALLEY ROAD, APPROXIMATELY 1,475 FEET NORTH OF SORRENTO VALLEY BOULEVARD	
APPROXIMATE SURFACE ELEV.: +25 FEET MSL	DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..
DRILLING METHOD: 8 INCH HSA	LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVN READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 5" A.C., 12" misc. base			
2					FILL: Yellow brown, damp, silty sand (SM) with sub-rounded to sub-angular gravel up to 1" maximum dimension.	17.4	111.8	
3								
4								
5	1	18	0.1					
6								
7					UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARY DEPOSITS Olive brown to greenish gray, wet, medium stiff to stiff, sandy silt (ML). ▼ Soils become dark grayish brown to dark olive gray, and soft.	33.2		
8	2							
9								
10								
11	3	2	0.4					
12								
13								
14								
15								
16	5	7				22.2	103.9	
17								
18								
19								
20								
21	6	10	0.1		Dark gray brown, wet, medium dense, fine-grained, slightly micaceous silty sand (SM) and sandy silt (ML).			No sample recovery
22								
23								
24								
25								
26	7	13	0.5		Dark grayish brown, wet, medium dense, fine-grained, micaceous, silty sand (SM).	18.3		
27								
28	8							
29								
30								

NOTES:
 Bottom of borehole at 30 feet
 Groundwater measured at 9'-10" at completion of drilling operations

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-4
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APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Selected soil samples were tested in the laboratory to verify visual field classifications and to evaluate certain engineering characteristics. The testing was performed in accordance with the American Society for Testing and Materials (ASTM) or other generally accepted test methods, and included the following:

- Determination of in-place moisture content (ASTM D2216). The final test results are presented on the boring logs;
- Determination of in-place dry density and moisture content (ASTM D2937) based on relatively undisturbed drive samples. The final test results are presented on the boring logs;
- Sieve and hydrometer analyses (ASTM D422), and the final test results are plotted as gradation curves on Figure B-1;
- Direct shear test (ASTM D3080). The test results are presented on Figures B-2 and B-3;
- Expansion index (ASTM D4829). The final test results are presented in Table B-1; and
- Atterberg Limits (ASTM D4318) and the test results are presented in Table B-2.

In addition, representative samples of the onsite soil materials were delivered to Clarkson Laboratory and Supply, Inc. for analytical (chemical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. Copies of Clarkson's laboratory test data reports are included herein.

Table B-1

Summary of Expansion Index Test Results

Sample ID.	Expansion Index
B-1 #7 @ 25'-28'	26

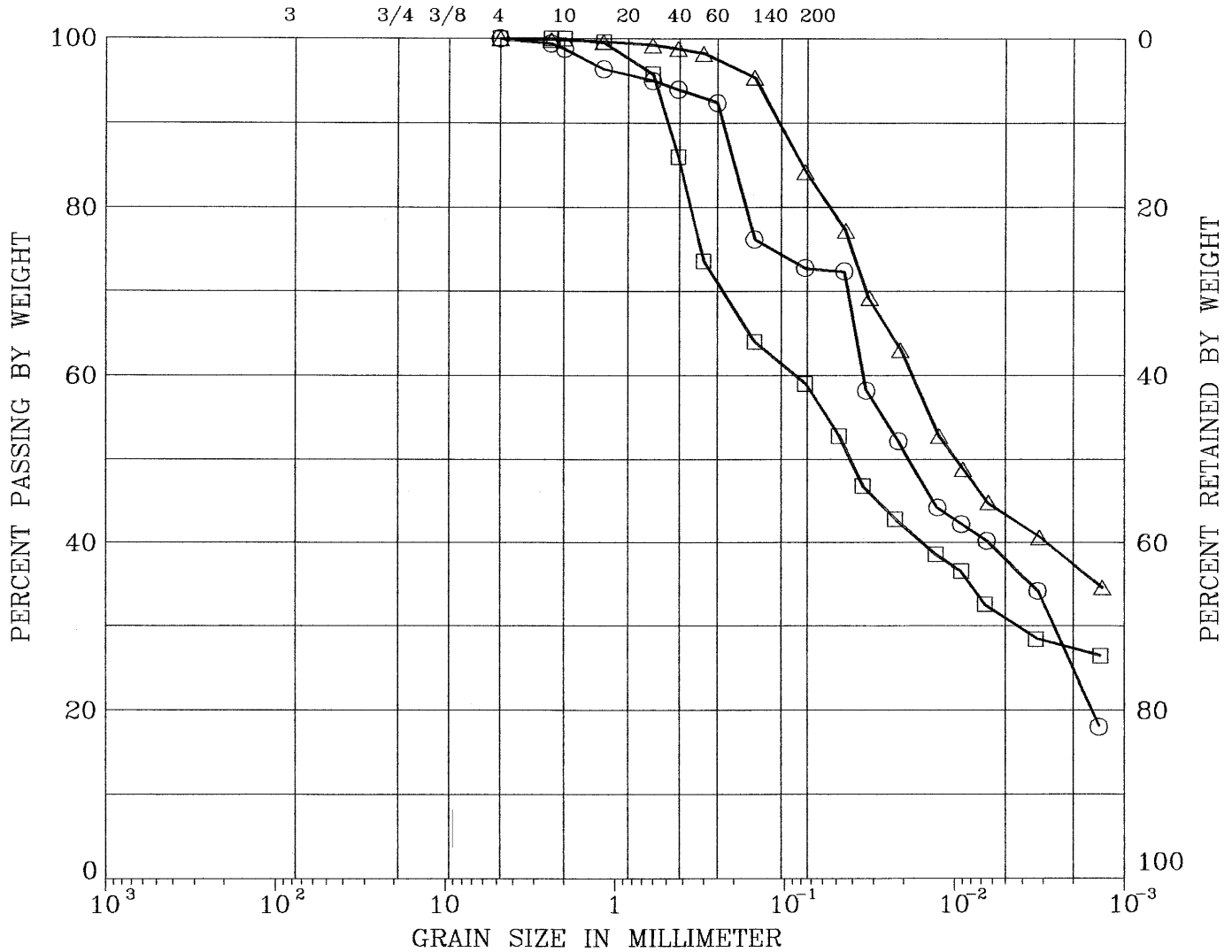
Table B-2

Summary of Atterberg Test Results

Sample ID.	LL (%)	PL (%)	PI (%)
B-2 #6 @ 21'-21.5'	28	21	7
B-1 #6 @ 26'-26.5'	40	23	17
B-2 #3 @ 11'-11.5'	39	20	19

UNIFIED SOIL CLASSIFICATION

<i>COBBLES</i>	<i>GRAVEL</i>		<i>SAND</i>			<i>SILT OR CLAY</i>
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B-1 #6	26-26.5	40	17	CLAY (CL)
□	B-2 36	21-21.5	28	7	CLAY (CL)
△	B-2 #3	11-11.5	39	19	CLAY (CL)

Remark :

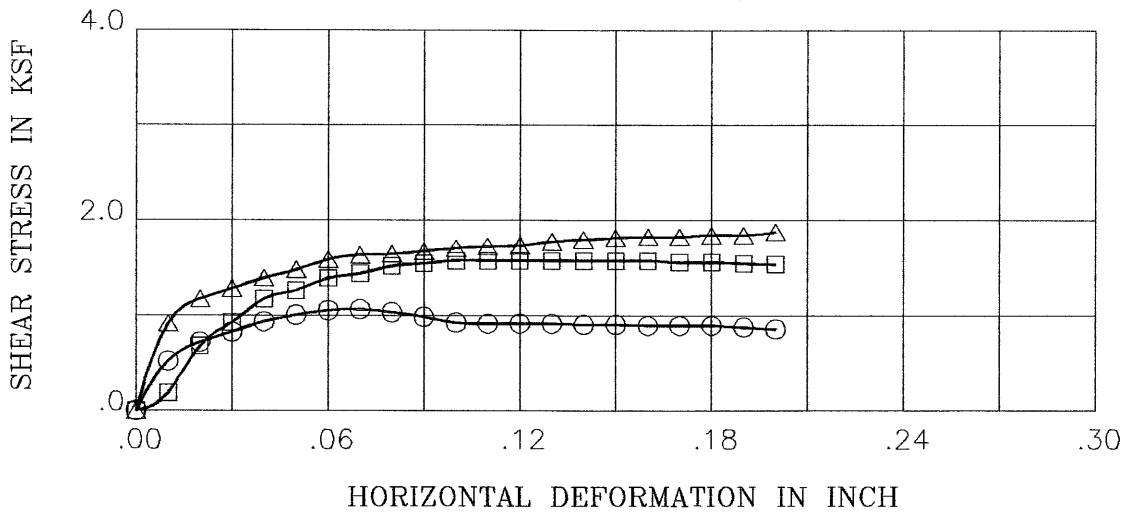
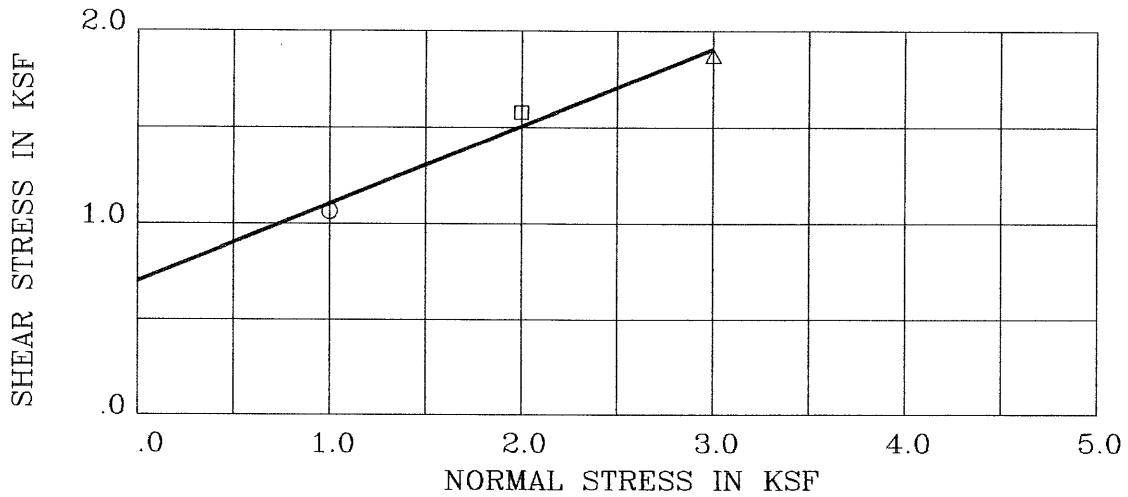
Project 164 GS-14E

WATER GROUP 939

ALLIED GEOTECHNICAL ENGINEERS, INC.
December 6, 2017
Water Group 939

GRAIN SIZE DISTRIBUTION
ADDENDUM A

Figure B-1
Page 64 of 97

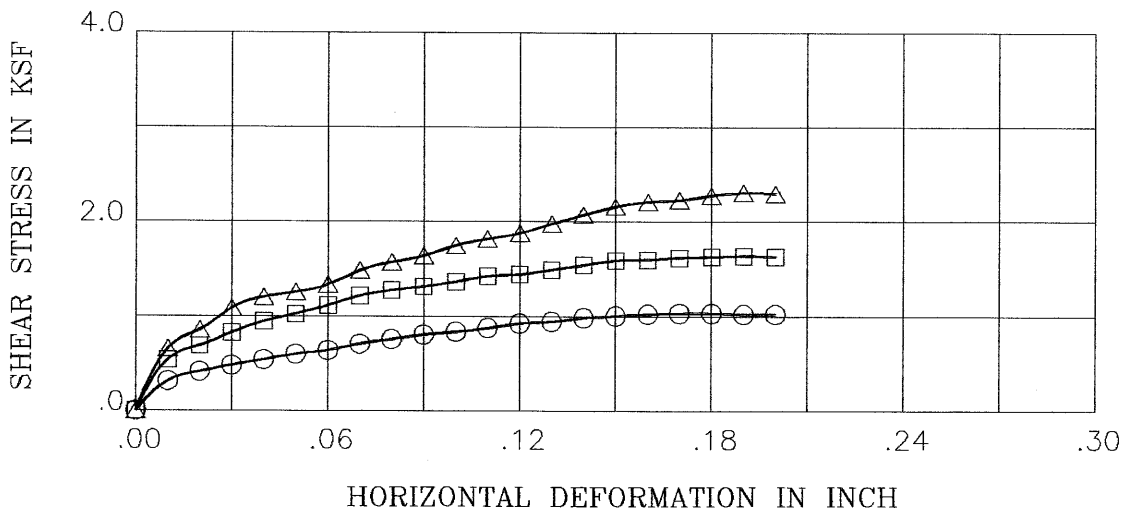
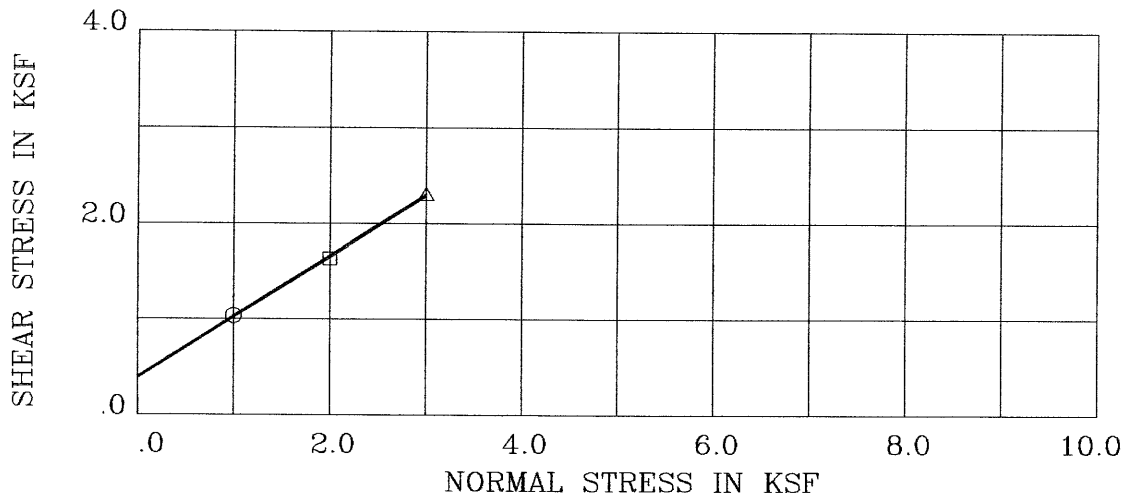


BORING/SAMPLE : B-1#6 DEPTH (ft) : 26-26.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .700 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 22.0 DEG

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	31.0	93.4	.804	1.00	1.07	.86
□	27.5	94.6	.781	2.00	1.58	1.54
△	29.4	92.2	.828	3.00	1.87	1.87

Remark :

Project 164 GS-14B	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC. December 6, 2017 Water Group 939	DIRECT SHEAR TEST <small>ADDENDUM A</small> Figure B-2 Page 65 of 97



BORING/SAMPLE : B-2#6 DEPTH (ft) : 21-21.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .389 KSF
 FRICTION ANGLE (PHI) : 32.4 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	21.9	103.4	.629	1.00	1.04	1.02
□	22.3	103.4	.630	2.00	1.64	1.63
△	22.3	105.4	.598	3.00	2.31	2.30

Remark :

Project 164 GS-14B	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC. December 6, 2017 Water Group 939	DIRECT SHEAR TEST <small>ADDENDUM A</small>

Figure B-3
Page 66 of 97

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 31, 2016
Purchase Order Number: 164 GS-14-E
Sales Order Number: 30727
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S05955-1 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 03/24/16 at 11:26am,
taken on 03/24/16 from Water Group 939 Project# 164-GS-14-E
marked as B-1#8@29'-30'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.3

Water Added (ml)	Resistivity (ohm-cm)
15	860
5	520
5	360
5	310
5	290
5	260
5	250
5	310
5	350

- 17 years to perforation for a 16 gauge metal culvert.
- 23 years to perforation for a 14 gauge metal culvert.
- 31 years to perforation for a 12 gauge metal culvert.
- 40 years to perforation for a 10 gauge metal culvert.
- 48 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.510% (5100ppm)
Water Soluble Chloride Calif. Test 422	0.091% (910ppm)
Bicarbonate (as CaCO ₃) (In a saturated soil paste extract)	N/A

Note: N/A = Unable to determine due to the texture of the soil (Clay).



Laura Torres
LT/dbb

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 31, 2016
Purchase Order Number: 164 GS-14-E
Sales Order Number: 30727
Account Number: ALLG
To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S05955-2 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 03/24/16 at 11:26am,
taken on 03/24/16 from Water Group 939 Project#164-GS-14-E
marked as B-2#8@27'-28'

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.1

Water Added (ml)	Resistivity (ohm-cm)
10	4100
5	1600
5	1200
5	770
5	640
5	630
5	650
5	670

25 years to perforation for a 16 gauge metal culvert.
33 years to perforation for a 14 gauge metal culvert.
46 years to perforation for a 12 gauge metal culvert.
58 years to perforation for a 10 gauge metal culvert.
71 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.016% (160ppm)
Water Soluble Chloride Calif. Test 422	0.019% (190ppm)
Bicarbonate (as CaCO ₃) (In a saturated soil paste extract)	N/A

Note: N/A = Unable to determine due to the texture of the soil (Clay).



Laura Torres
LT/dbb



March 7, 2017

Mr. Kevin Gibson, P.E.
Project Manager
Rick Engineering Company
5620 Friars Road
San Diego, CA 92110

**Subject: REPORT OF GEOLOGIC LOGGING AND
LABORATORY TESTING FOR
WATER GROUP 939
CITY OF SAN DIEGO
AGE Project No. 164 GS-14-E**

Dear Kevin,

Reference is made to our "Report of Geotechnical Investigation Water Group 939" dated March 29, 2016 in which we presented our findings, opinions and recommendations with regard to the design of the subject project. The scope of work included the advancement of two soil borings (borings B-1 and B-2).

In accordance with our proposal dated June 22, 2016, Allied Geotechnical Engineers, Inc. (AGE) has performed drilling, logging and sampling operations of two additional borings (borings B-3 and B-4) at the approximate locations shown on Figure 1. The borings were advanced to a depth of 51.5 feet below the existing ground surface (bgs) on February 17 and 18, 2017 using conventional hollow-stem auger drilling methods. A more detailed description of the drilling and sampling activities, and logs of the borings are presented in Appendix A.

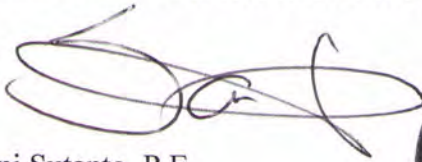
Selected soil samples obtained from the borings were tested in the laboratory to verify field classifications and evaluate certain engineering characteristics. The geotechnical laboratory tests were performed in general conformance with the American Society for Testing and Materials (ASTM) or other generally accepted testing procedures.

The laboratory tests included: in-place density and moisture content, maximum density and optimum moisture content, sieve (wash) analysis, Atterberg limits, shear strength, expansion index and consolidation. In addition, representative samples of the onsite soil materials were collected and delivered to Clarkson Laboratories and Supply, Inc. for chemical (analytical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A brief description of the tests that were performed and the final test results are presented in Appendix B.

We appreciate the opportunity to be of service on this project. If you have any questions regarding the content of this report or need further assistance, please feel free to contact our office.

Sincerely,

ALLIED GEOTECHNICAL ENGINEERS, INC.

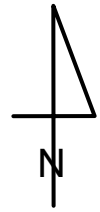


Sani Sutanto, P.E.
Senior Engineer



SS/TJL:cal
Distr. (1 electronic copy) Addressee




 1 INCH = 50 FEET
 Scale Bar

WATER GROUP 939

SITE PLAN

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 1

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

The field exploration program for this project was performed on February 17 and 18, 2017. Two (2) soil borings were performed at the approximate locations shown on Figure 1. The borings were advanced using conventional hollow-stem auger drilling methods to a depth of 51.5 feet below the existing ground surface (bgs) using conventional hollow-stem auger drilling methods. The borings were performed with a Diedrich D-120HT/HS truck-mounted drill rig. The soils encountered in the borings were visually classified and logged. A Key to Logs is presented on Figure Nos. A-1 and A-2 and the logs of borings are included as Figure Nos. A-3 and A-6.

Prior to commencement of the field exploration activities, several site visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. A traffic control permit was obtained from the City of San Diego to perform the boring located on Sorrento Valley Road. An Access Agreement was obtained from ARE-11025/11075 Roselle Street, LLC for the boring located behind the office building located at 11045 Roselle Street. In addition, AGE also obtained soil boring permit from the County of San Diego Department of Environmental Health (DEH).

During drilling, Standard Penetration Tests (SPT) were performed at selected depth intervals. The SPT tests involve the use of a specially manufactured "split spoon" sampler which is driven into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. The number of blows required to penetrate each 6-inch increment was counted and recorded on the field logs, and have been used to evaluate the relative density and consistency of the materials. The blow counts were subsequently corrected for sample type, hammer model, groundwater and surcharge. The corrected blow counts are shown on the boring logs.

Relatively undisturbed samples were obtained by driving a 3-inch (OD) diameter standard California sampler with a special cutting tip and inside lining of thin brass rings into the soils at the bottom of the borehole. The sampler is driven a distance of 12 inches into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. A 6-inch long section of the soil samples that were retained in the brass rings were extracted from the sampling tube and transported to our laboratory in close-fitting, waterproof containers. The samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The OVM readings are indicated on the boring logs.

Following completion of the drilling and sampling activities, the borings were backfilled using bentonite grout to approximately 12 inches below the ground surface, and capped with rapid-set concrete to match the adjacent pavement surface.

KEY TO LOG OF BORING

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> 1 </div> <div style="position: absolute; top: 70%; left: 50%; transform: translate(-50%, -50%);"> 2 </div> <div style="position: absolute; top: 110%; left: 50%; transform: translate(-50%, -50%);"> 3 </div> </div>	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> 16 </div> <div style="position: absolute; top: 110%; left: 50%; transform: translate(-50%, -50%);"> 18 </div> </div>			<p>Sample identification number</p> <p>Approximate interval of bulk sample</p> <p>Approximate interval of Standard California Sampler (SCS).</p> <p>Number of blows required to advance sampler for the last foot, or distance indicated. Blow counts shown on boring logs have been corrected for dimensions of sampler, sample and ground water depth, and hammer type.</p> <p>Approximate interval of Standard Penetration Test (SPT).</p> <p> Groundwater level at the time of drilling</p> <p style="text-align: center;">(KEY TO LOG OF BORING CONTINUED ON FIGURE A-2)</p>			
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-1

KEY TO LOG OF BORING (CONTINUED)

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1					-?- -?- -?- APPROXIMATE GEOLOGIC CONTACT			
2				[Horizontal lines]	FILL			
3				[Dotted pattern]	SAND			
4				[Vertical lines]	SILT			
5				[Diagonal lines /]	CLAY			
6				[Scattered circles]	GRAVELS			
7								
8								
9								
10					<u>GENERAL NOTES</u>			
11					1. Approximate elevations and locations of borings are based on GoogleEarth, 2016.			
12					2. Soil descriptions are based on visual classification made during the field exploration and, where deemed appropriate, have been modified based on the results of laboratory tests.			
13					3. Descriptions on the boring logs apply only at the specific boring locations and at the time the borings were performed. They are not warranted to be representative of subsurface conditions at other locations or times.			
14								
15								
16								
17								
18								
19								
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-2

BORING NO. B-3

DATE OF DRILLING: FEBRUARY 17, 2017

TOTAL BORING DEPTH: 51.5 FEET

GENERAL LOCATION: WEST SIDE OF SORRENTO VALLEY ROAD APPROXIMATELY 1,500 FEET NORTH OF SORRENTO VALLEY BOULEVARD

APPROXIMATE SURFACE ELEV.: +35 FEET MSL

DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..

DRILLING METHOD: 8 INCH HSA

LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVN READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 5" A.C. over 12" misc. base.			
2					FILL Yellow brown, damp to wet, silty sand (SM) with sub-angular to sub-rounded gravels up to 2" in maximum dimension.			
5	1	26	0.0			12.5	113.2	
6	2							
7								
8				- - - - - ? - - - - - ? - - - - - ?				- - - - - ? - - - - -
9					UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS			
10	3							
11	4	6	0.2		Dark gray to black, wet, soft to medium stiff, sandy clay (CL) containing trace amounts of organics and displaying a faint odor of decomposed vegetation.	26.5		
12					No odor of decomposed vegetation odors noted below depth of 12'.			
13								
14								
15								
16	5	6	0.0		Dark olive gray to black, slightly micaceous, low plasticity sandy clay (CL).	33.1	92.3	
17								
18					▼			
19								
20								
21	6	6	0.1		Very dark grayish brown to dark olive gray, wet, micaceous, sandy clay/sandy silt (CL/ML) with traces of sub-angular gravels up to 1/4" in maximum dimension.	22.9		
22								Driller adding bentonite grout inside auger to maintain stability of hole bottom
23								
24								
25								
26	7	17	0.0		Grayish brown to dark gray, wet, medium dense, slightly micaceous, fine-grained, silty sand (SM).	19.9	111.3	
27								
28								
29	8							

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-3
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BORING NO. B-3(Continued)

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	QVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS	
31	9	18	0.2		UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS At 31', soil grades into grayish brown, wet, medium dense, fine-grained, poorly graded sand with silt (SP-SM).	22.2			
32									
33									
34									
35	10	61	0.0		Soil becomes very dense, medium grained.	20.0	106.1		
36									
37									
38									
39									
40	11	8	0.1	At 41', soil makes a sharp transition to grayish brown, wet, medium stiff, sandy clay (CL).	25.8				
41									
42									
43									
44									
45	12	15	0.0	Grayish brown to olive gray, wet, stiff, sandy silt (ML).	24.6	103.5			
46									
47									
48	13								
49									
50					Grayish brown to dark olive gray, wet, soft, sandy silt (ML).				
51	14	2	0.1			25.9			

NOTES:

Bottom of borehole at 51.5 feet.

Groundwater encountered at 18 feet during drilling operations.

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-4
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BORING NO. B-4

DATE OF DRILLING: FEBRUARY 18, 2017

TOTAL BORING DEPTH: 51.5 FEET

GENERAL LOCATION: PARKING AREA LOCATED BEHIND THE OFFICE BUILDING AT 11045 ROSELLE STREET

APPROXIMATE SURFACE ELEV.: +35 FEET MSL

DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..

DRILLING METHOD: 8 INCH HSA

LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVN READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 4" A.C., no base.			
2					FILL Yellow brown to reddish yellow, damp, fine to medium-grained silty sand (SM) with scattered sub-angular to sub-rounded gravels, up to 3" in maximum dimension.	11.7		
3								
4								
5	1	17	0.1					
6								
7								
8								
9								
10								
11	2	9	0.1		UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS	29.9	91.4	
12					Olive to dark olive gray, wet, medium stiff, sandy silt (ML).			
13								
14								
15								
16	3	3	0.0		Dark greenish brown, wet, loose, fine to medium-grained, slightly micaceous, silty sand (SM).	26.3		
17	4							
18								
19								
20								
21	5	8	0.1		Very dark gray, wet, medium stiff, slightly micaceous, low plasticity sandy silt (ML) grading into sandy clay (CL).	23.3	108.8	
22								
23	6							
24								
25	7	3	0.5		Soil becoming soft/loose sandy clay/clayey sand (CL/SC).	23.9		
26								
27	8							
28								
29								

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-5
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BORING NO. B-4(Continued)

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	QVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS	
31	9	49	0.0		UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS At 30', transition to a yellow brown, wet, dense, medium-grained, slightly micaceous, poorly graded sand with silt (SP-SM).	24.1	102.5		
32									
33									
34									
35	10	100+	0.4		Soil is dense to very dense.	21.7			
36									
37									
38									
39									
40	11	11	0.0	Olive green to olive, wet, stiff, sandy silt (ML) with trace of sub-angular gravel up to 1/2" in maximum dimension.	28.7	99.0			
41									
42									
43	12								
44									
45	13	8	0.1	Olive to olive gray, no gravel observed.	28.7				
46									
47									
48									
49									
50	14	35	0.0	At 51', soil grades into olive green to dark olive gray, wet, dense, fine to medium-grained, slightly micaceous, poorly graded sand with silt (SP-SM).	21.1	114.8			
51									

NOTES:

Bottom of borehole at 51.5 feet.

Groundwater encountered at 14 feet during drilling operations.

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-6
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APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Selected soil samples were tested in the laboratory to verify visual field classifications and to evaluate certain engineering characteristics. The testing was performed in accordance with the American Society for Testing and Materials (ASTM) or other generally accepted test methods, and included the following:

- Determination of in-place moisture content (ASTM D2216). The final test results are presented on the boring logs;
- Determination of in-place dry density and moisture content (ASTM D2937) based on relatively undisturbed drive samples. The final test results are presented on the boring logs;
- Maximum Density and Optimum Moisture Content test (ASTM D1557). The test results are plotted as curves on Figures B-1 and B-2;
- Sieve analyses (ASTM D422). The test results are plotted as gradation curves on Figure B-3;
- Atterberg Limits (ASTM D4318). The test results are shown on Figure B-3;
- Direct shear test (ASTM D3080). The test results are presented on Figures B-4 and B-5;
- Consolidation test (ASTM D2435). The test results are plotted as a curve on Figure B-6; and
- Expansion index (ASTM D4829). The final test results are presented in Table B-1.

In addition, representative samples of the onsite soil materials were delivered to Clarkson Laboratory and Supply, Inc. for analytical (chemical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A summary of the corrosivity test results is shown on Table B-2. Copies of Clarkson's laboratory test data reports are included herein.

Table B-1

Summary of Expansion Index Test Results

Sample	Expansion Index
B-3 #3 @ 9'-11'	24

Table B-2

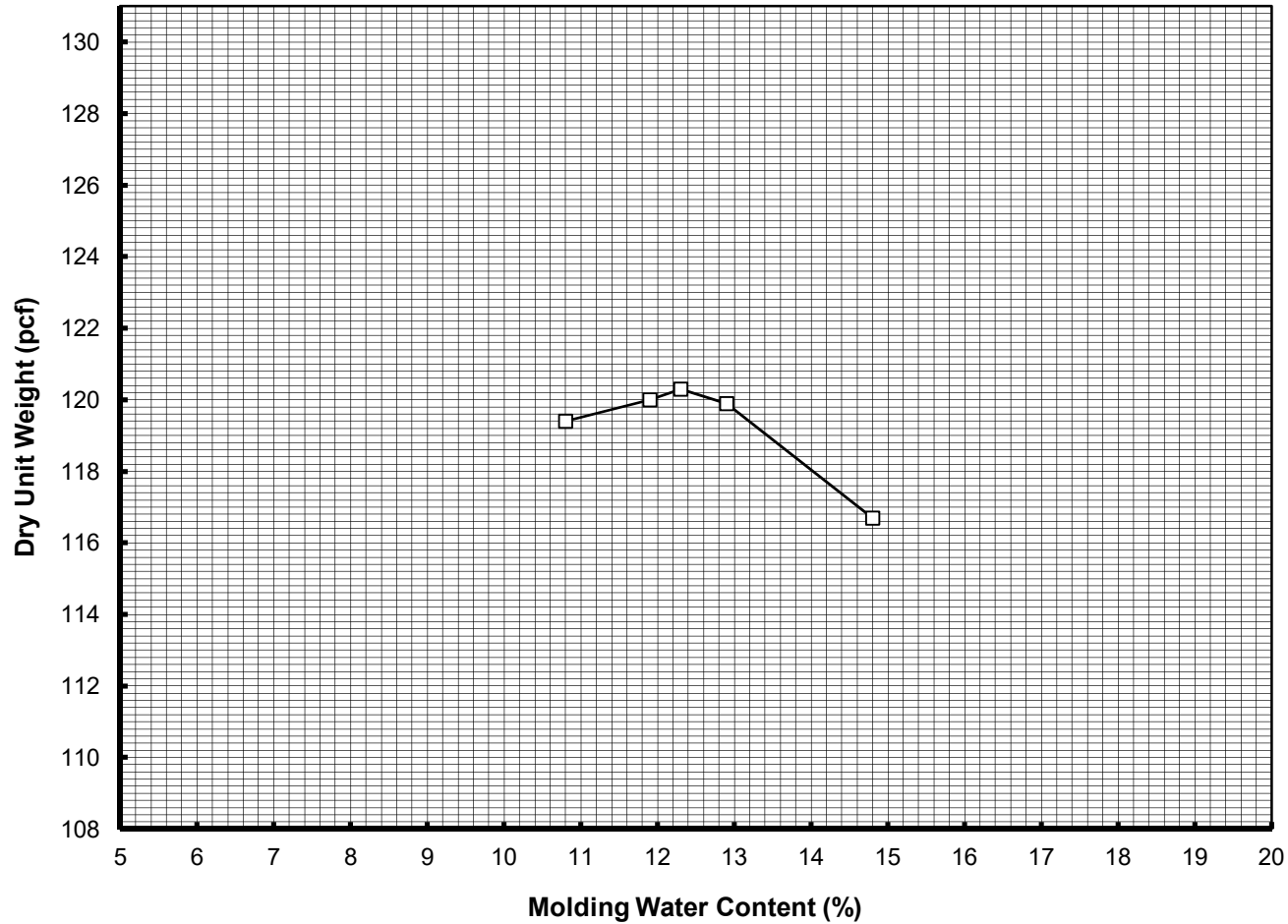
Summary of Corrosivity Test Results

	pH	Resistivity (ohm-cm)	Sulfate Conc. (ppm)	Chloride Conc. (ppm)	Bicarbonates Conc. (ppm)
B-3 Sample No. 13 @46'-50'	8.2	820	330	200	50
B-4 Sample No. 12 @43'-44'	8.0	410	2,280	530	34

COMPACTION CURVE

Test Method: ASTM D 1557

Compaction Procedure: B Specimen Preparation Method: Moist or Dry



5

Boring No.	Sample No.	Depth (ft)	OPT. WC (%)	MAX. DUW (pcf)	LL	PI	Description and/or Classification
B-3	8	27-30	12.3	120.3			Very dark gray sandy clay

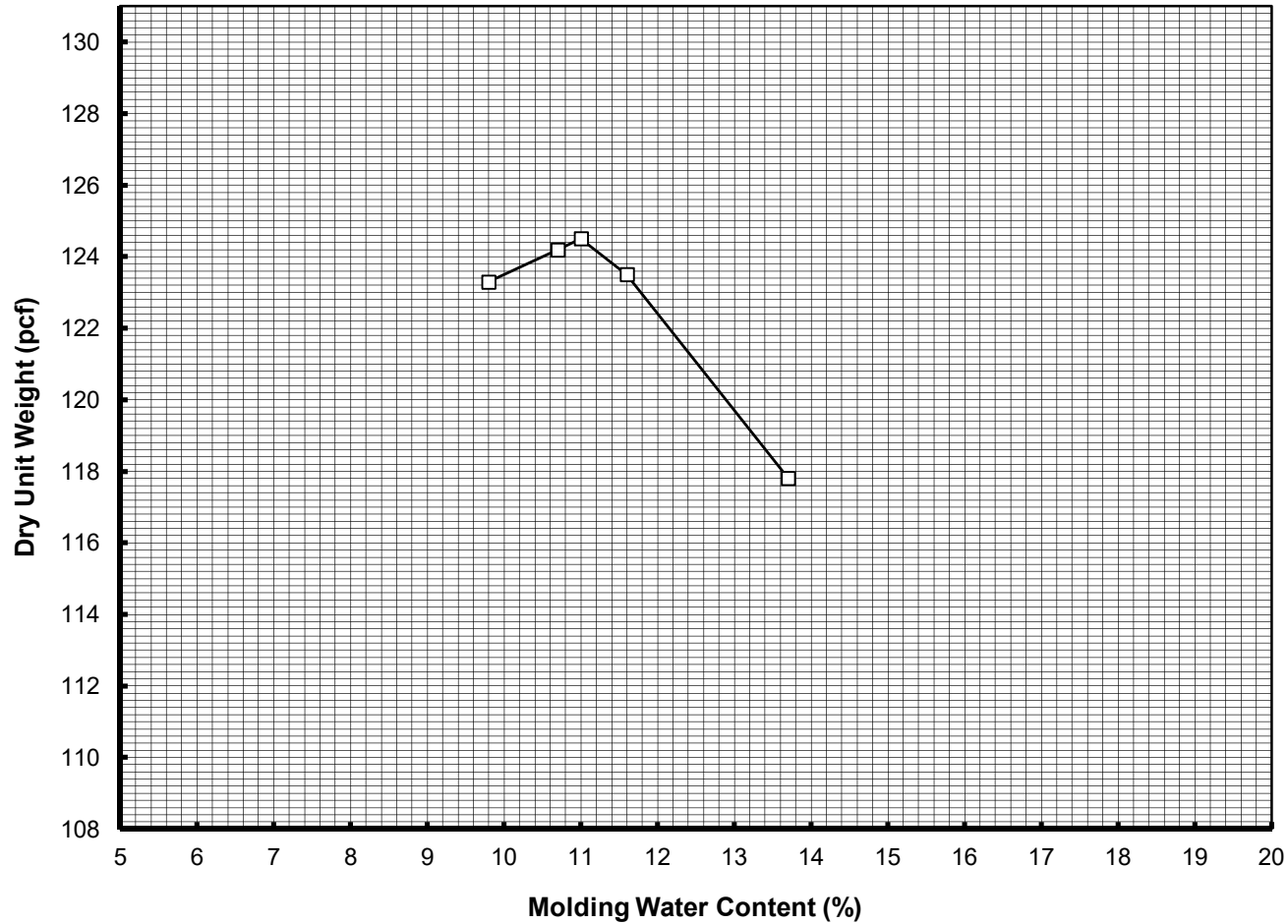
**WATER GROUP 939
CITY OF SAN DIEGO**

PROJECT NO. 164 GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE B-1
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COMPACTION CURVE

Test Method: ASTM D 1557

Compaction Procedure: B Specimen Preparation Method: Moist or Dry



5

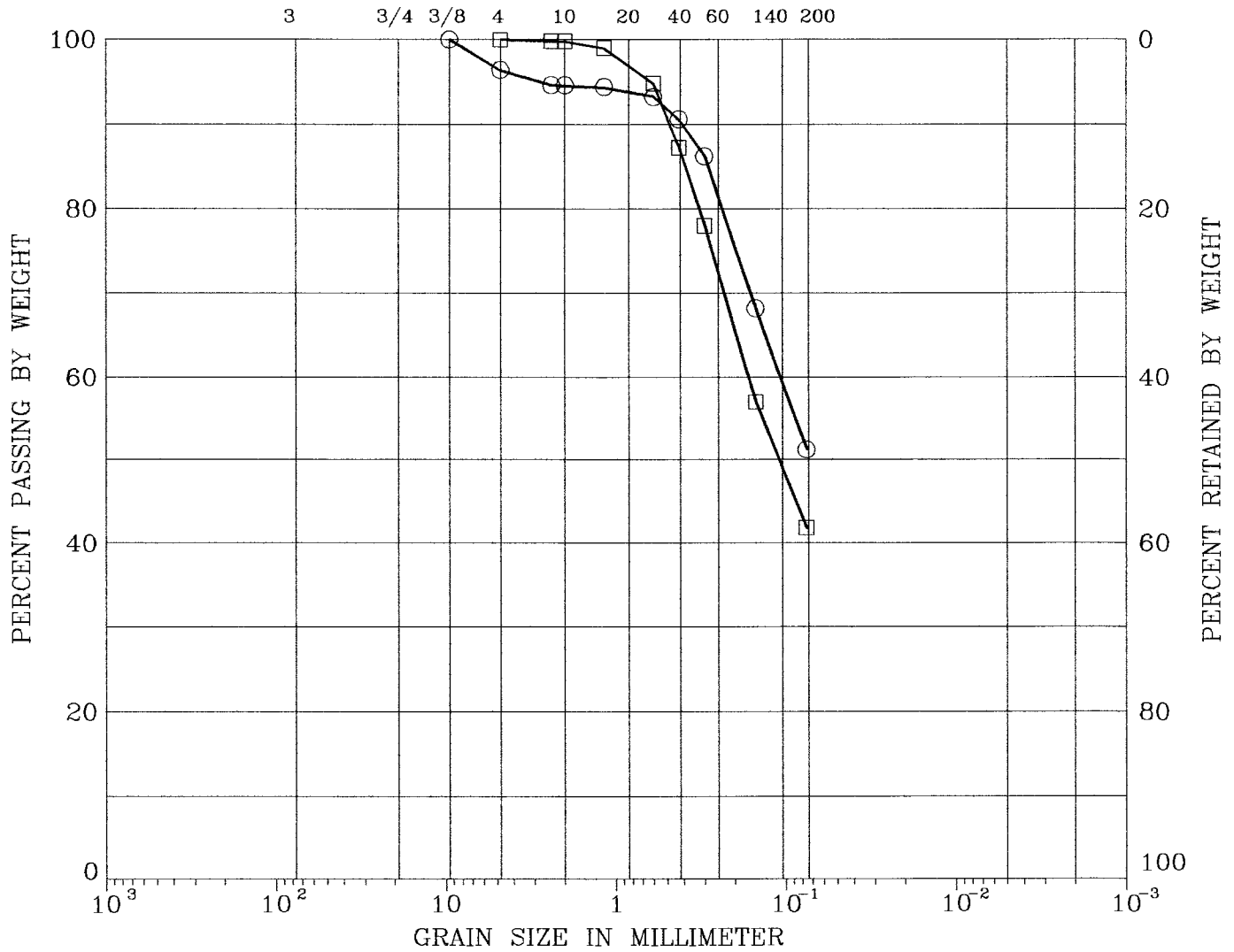
Boring No.	Sample No.	Depth (ft)	OPT. WC (%)	MAX. DUW (pcf)	LL	PI	Description and/or Classification
B-4	4	15-18	11.0	123.0			Grayish brown sandy clay

**WATER GROUP 939
CITY OF SAN DIEGO**

PROJECT NO. 164 GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE B-2
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UNIFIED SOIL CLASSIFICATION

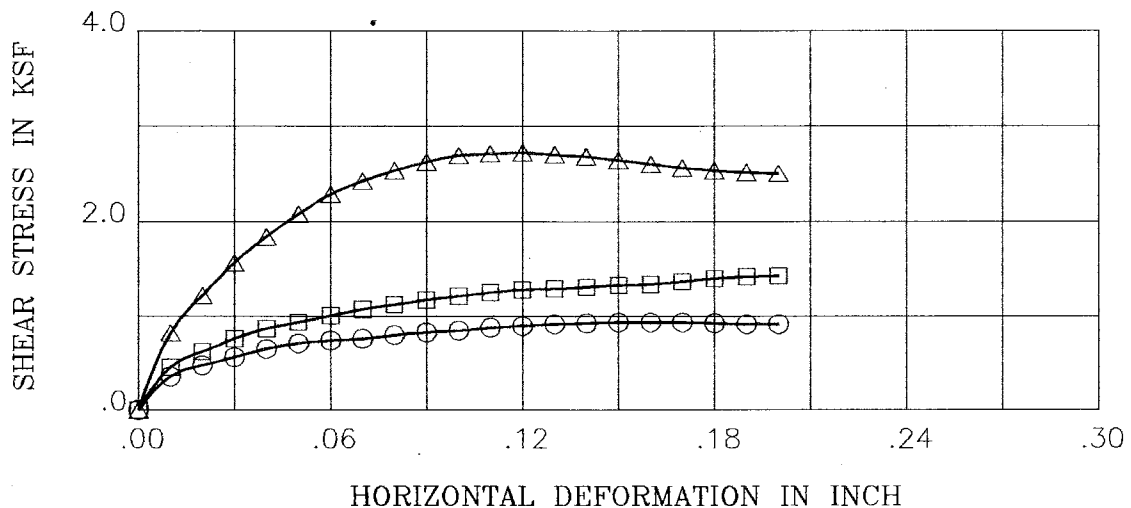
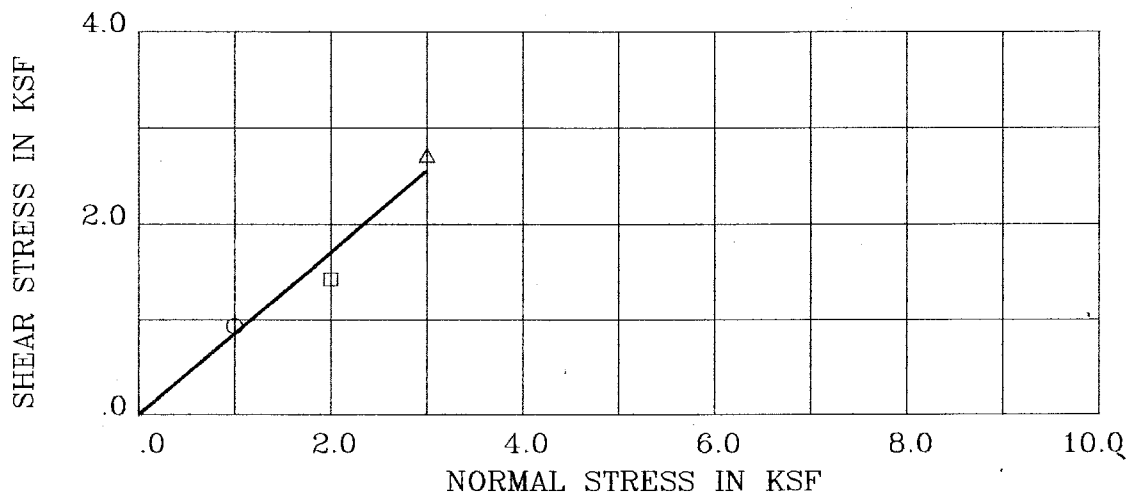
<i>COBBLES</i>	<i>GRAVEL</i>		<i>SAND</i>			<i>SILT OR CLAY</i>
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B-3 #6	21-21.5	34	16	CLAY (CL)
□	B-4 #7	26-26.5	32	16	CLAYEY SAND (SC)

Remark :

Project 164 GS-14E	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC.	GRAIN SIZE DISTRIBUTION Figure B-3
December 6, 2017 Water Group 939	ADDENDUM A Page 85 of 97

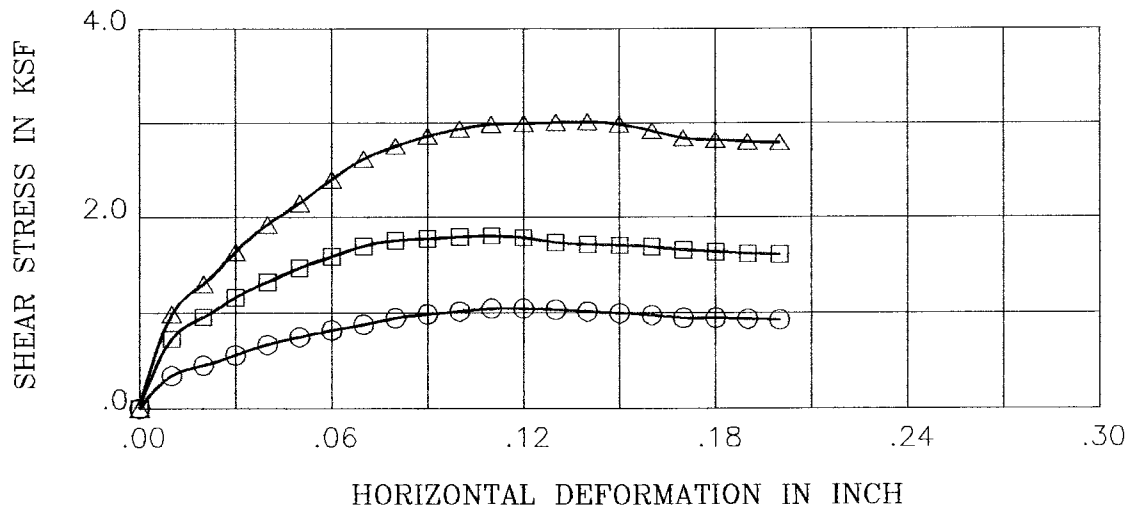
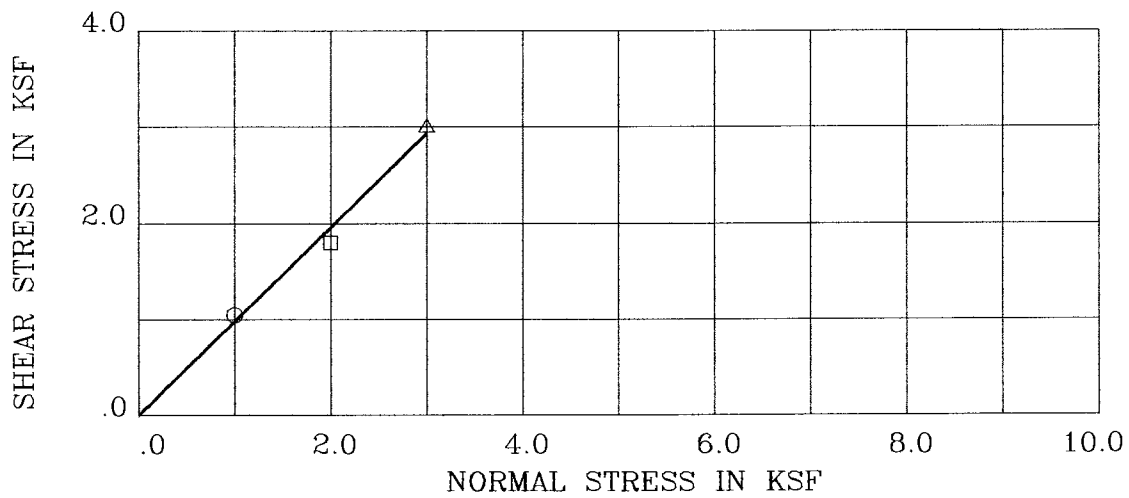


BORING/SAMPLE : B-3 #12 DEPTH (ft) : 46-46.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .000 KSF
 FRICTION ANGLE (PHI) : 40.5 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	25.7	103.6	.566	1.00	.94	.92
□	27.7	98.6	.645	2.00	1.43	1.43
△	27.4	100.5	.614	3.00	2.72	2.50

Remark :

Project 164 GS-14E	WATER GROUP 939	
ALLIED GEOTECHNICAL ENGINEERS, INC. December 6, 2017 Water Group 939	DIRECT SHEAR TEST ADDENDUM A	Figure B-4 Page 86 of 97

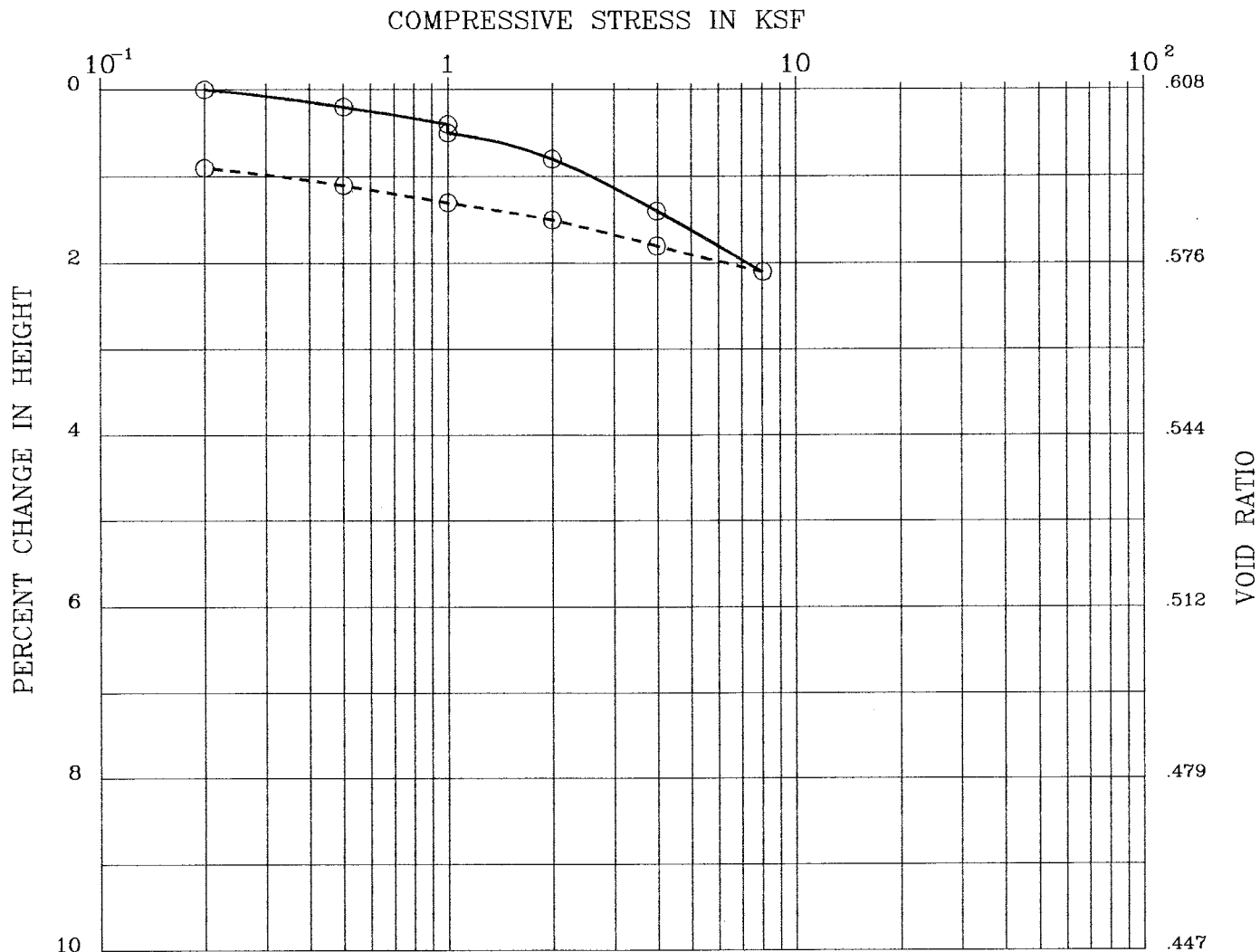


BORING/SAMPLE : B-4 #11 DEPTH (ft) : 41-41.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .000 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 44.4 DEG

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	29.7	101.0	.607	1.00	1.05	.93
□	30.1	102.0	.591	2.00	1.80	1.61
△	31.2	99.6	.629	3.00	3.02	2.79

Remark :

Project 164 GS-14E	WATER GROUP 939	
ALLIED GEOTECHNICAL ENGINEERS, INC. December 6, 2017 Water Group 939	DIRECT SHEAR TEST ADDENDUM A	Figure B-5 Page 87 of 97



BORING : B-3#10
 DEPTH (ft) : 36-36.5
 SPEC. GRAVITY : 2.75

DESCRIPTION :
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	21.4	106.9	97	.608
FINAL	21.4	108.1	100	.590

Remark :

Project 164 GS-14E	WATER GROUP 939		
ALLIED GEOTECHNICAL ENGINEERS, INC. December 6, 2017 Water Group 939	CONSOLIDATION TEST		Figure B-6
	ADDENDUM A		Page 88 of 97

LABORATORY REPORT

Telephone (619) 425-1993 Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
ANALYTICAL AND CONSULTING CHEMISTS

Date: February 24, 2017
Purchase Order Number: 164GS14-E
Sales Order Number: 34751
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S06304-1 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 02/22/17 at 9:20am,
taken on 02/17/17 from Project# 164GS14-E Water Group 939
marked as B-3#13@46'-50'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.2

Table with 2 columns: Water Added (ml) and Resistivity (ohm-cm). Rows show values for 10, 5, 5, 5, 5, 5, 5, 5 ml of water added, with corresponding resistivity values ranging from 4200 to 890 ohm-cm.

28 years to perforation for a 16 gauge metal culvert.
37 years to perforation for a 14 gauge metal culvert.
51 years to perforation for a 12 gauge metal culvert.
65 years to perforation for a 10 gauge metal culvert.
79 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.033% (330 ppm)
Water Soluble Chloride Calif. Test 422 0.020% (200 ppm)
Bicarbonate (as CaCO3) 50 ppm
(In a saturated soil paste extract)

Rosa M. Bernal signature
Rosa M. Bernal
RMB/dbb
December 6, 2017 Water Group 939

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: February 24, 2017
Purchase Order Number: 164GS14-E
Sales Order Number: 34751
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S06304-2 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 02/22/17 at 9:20am,
taken on 02/17/17 from Project# 164GS14-E Water Group 939
marked as B-4#12@43'-44'.

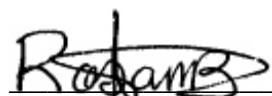
Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.0

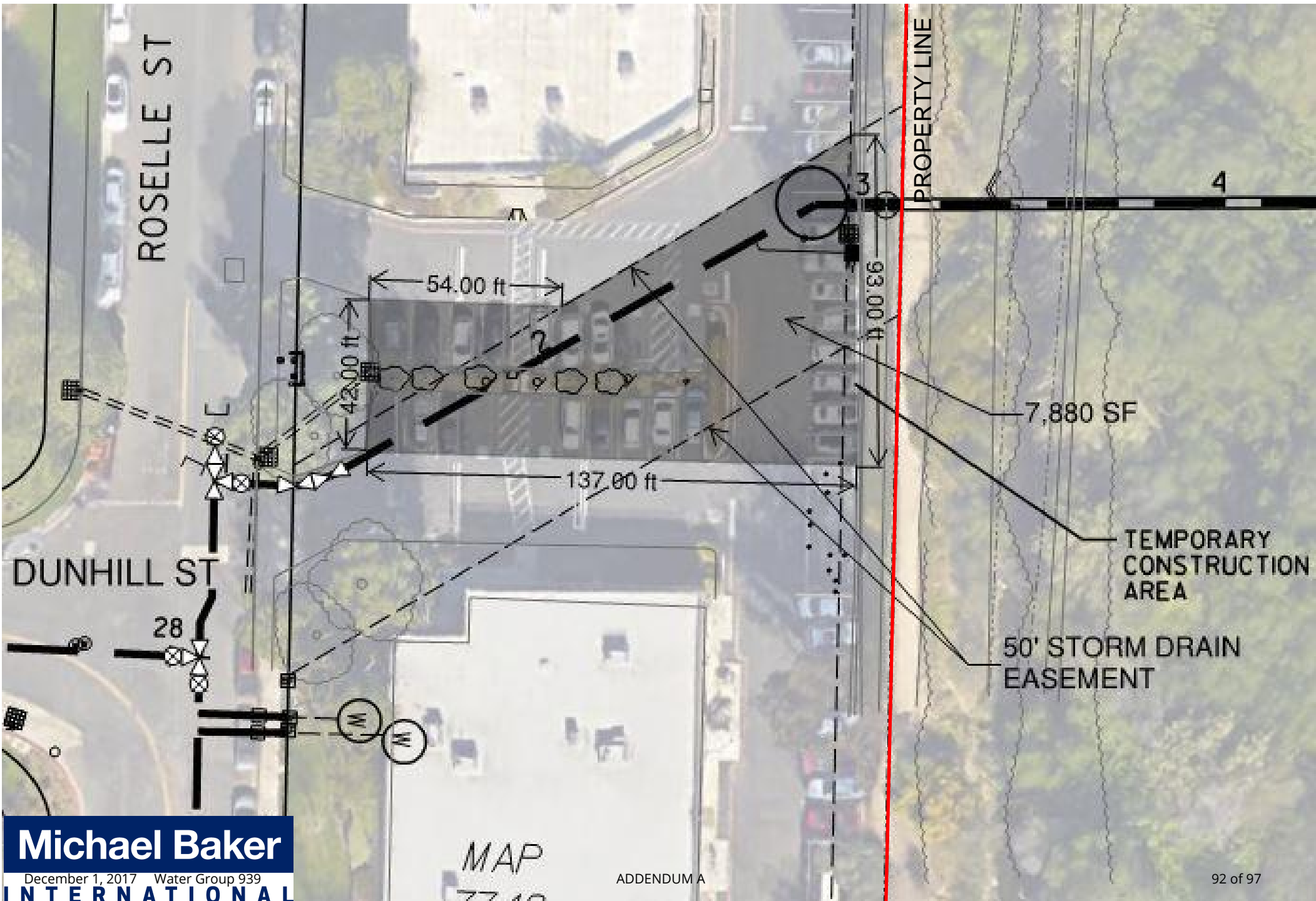
Water Added (ml)	Resistivity (ohm-cm)
20	800
5	540
5	500
5	480
5	450
5	420
5	410
5	420
5	440

21 years to perforation for a 16 gauge metal culvert.
28 years to perforation for a 14 gauge metal culvert.
38 years to perforation for a 12 gauge metal culvert.
49 years to perforation for a 10 gauge metal culvert.
59 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.228% (2280 ppm)
Water Soluble Chloride Calif. Test 422	0.053% (530 ppm)
Bicarbonate (as CaCO ₃) (In a saturated soil paste extract)	34 ppm


Rosa M. Bernal
RMB/dbb
December 6, 2017 Water Group 939

APPENDIX P
TEMPORARY CONSTRUCTION AREA



Michael Baker

December 1, 2017 Water Group 939

INTERNATIONAL

ADDENDUM A

EXHIBIT "A"

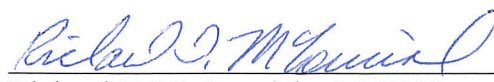
GENERAL UTILITY EASEMENT

APN: 310-120-15

All that portion of Lot 1 of Pacific Sorrento Industrial Park, in the City of San Diego, County of San Diego, State of California, according to the Map thereof No. 7748, filed in the Office of the County Recorder of San Diego County on September 25, 1973, identical in extent to that area of land shown therein said Lot 1 as "50' Drainage Easement Granted Hereon," being the northwesterly 50 feet of said Lot 1.

The above described General Utility Easement consisting of 9,935.26 square feet, 0.2281 acre.

Exhibit 'B' (City of San Diego Drawing No. 39758-B) attached, and by this reference is made a part hereto.

 10-27-2016
Richard T. McCormick LS 7450 Date
Senior Land Surveyor, Field Engineering
My Registration Expires 12-31-2016



File: B11035_GUE&TCA_310-120-15&16
W.B.S. B-11035--October 2016

EXHIBIT "A"

TEMPORARY CONSTRUCTION AREA

APN: 310-120-15 & 16

All that portion of Lots 1 and 2 of Pacific Sorrento Industrial Park, in the City of San Diego, County of San Diego, State of California, according to the Map thereof No. 7748, filed in the Office of the County Recorder of San Diego County on September 25, 1973, described as follows:

Beginning at a point in the northwest line of said Lot 1, distant thereon South 19°29'01" West 16.38 feet from the most northerly corner of said Lot; Thence continuing along said northwest line South 19°29'01" West 93.98 feet; Thence leaving said northwest line South 51°42'02" West 55.00 feet; Thence South 39°50'11" East 43.00 feet; Thence North 51°37'59" East 137.00 feet; Thence North 40°32'31" West 93.00 feet to the **Point of Beginning**.

The above described Temporary Construction Area consisting of 7,907.95 square feet, 0.1815 acre.

Exhibit 'B' (City of San Diego Drawing No. 39758-B) attached, and by this reference is made a part hereto.

Richard T. McCormick 10-27-2016
Richard T. McCormick LS 7450 Date
Senior Land Surveyor, Field Engineering
My Registration Expires 12-31-2016



File: B11035_GUE&TCA_310-120-15&16
W.B.S. B-11035--October 2016

EXHIBIT 'B'

APNS: 310-120-15 AND 16

OWNER: ARE-11035/11075 ROSELLE STREET, LLC,
A DELAWARE LIMITED LIABILITY COMPANY

LEGEND

() INDICATES RECORD OR CALCULATED DATA PER MAP 7748

POB = INDICATES POINT OF BEGINNING

REFERENCES

MAP 7748; PM 6385, 12921
CITY DWG 19345-2-D

BASIS OF BEARINGS

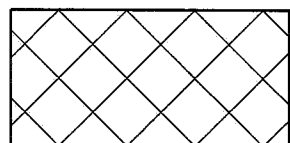
THE BASIS OF BEARINGS FOR THIS SURVEY IS
THE GRID BEARING FROM CITY GPS STATION
587 TO 17 PER ROS 14492 IE: S 38°03'08" E

EASEMENT NOTES

- ① 50' WIDE DRAINAGE EASEMENT GRANTED TO THE CITY OF SAN DIEGO PER MAP 7748
- ② 50' WIDE GENERAL UTILITY EASEMENT ACQUIRED
- ③ 15' WIDE DRAINAGE EASEMENT GRANTED TO THE CITY OF SAN DIEGO PER MAP 7748
- ④ 15' WIDE SEWER EASEMENT GRANTED TO THE CITY OF SAN DIEGO PER MAP 7748
- ⑤ PORTION OF ROSELLE STREET DEDICATED PER MAP 7748

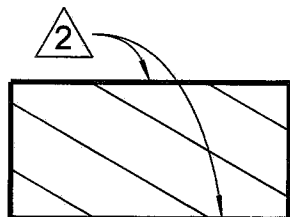
EASEMENTS TO SAN DIEGO GAS AND ELECTRIC
CO. RECORDED JULY 7, 1995 AS DOC. NO.
95-0288111 AND MARCH 19, 1981 AS DOC. NO.
81-083716 OF O. R. ARE NONPLOTTABLE

EASEMENT FOR WATER MAIN TO CITY OF SAN
DIEGO AS PER DOCUMENT RECORDED APRIL 19,
1992 IN BOOK 872, PAGE 423, OF DEEDS IS NOT
PLOTTABLE



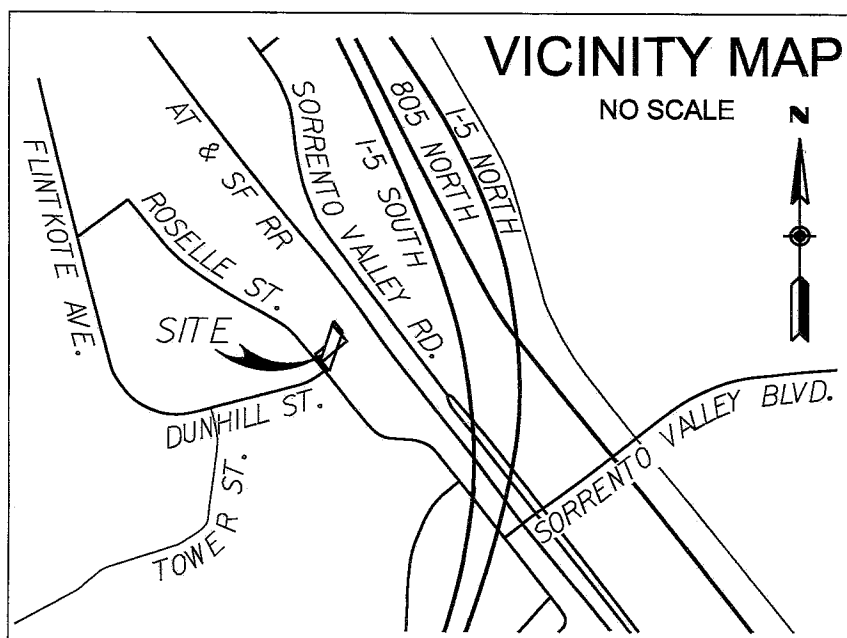
TEMPORARY CONSTRUCTION AREA
AREA = 7,907.95 SQ. FT., 0.1815 ACRE

OVERLAP WITH ① = 5,958.27 SQ. FT.
OVERLAP WITH ③ = 127.23 SQ. FT.



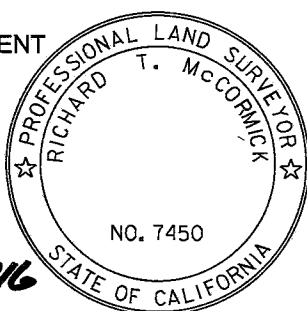
GENERAL UTILITY EASEMENT ACQUIRED
AREA = 9,935.26 SQ. FT., 0.2281 ACRE

OVERLAP WITH ① = 9,935.26 SQ. FT.
OVERLAP WITH ④ = 811.23 SQ. FT.



PREPARED BY:

THE CITY OF SAN DIEGO PUBLIC WORKS DEPARTMENT
FIELD DIVISION - SURVEY SECTION, UNDER THE
DIRECTION OF RICHARD T. McCORMICK, LS 7450,
SENIOR LAND SURVEYOR



Richard T. McCormick 10-27-2016

RESOLUTION No. _____

ADOPTED: _____

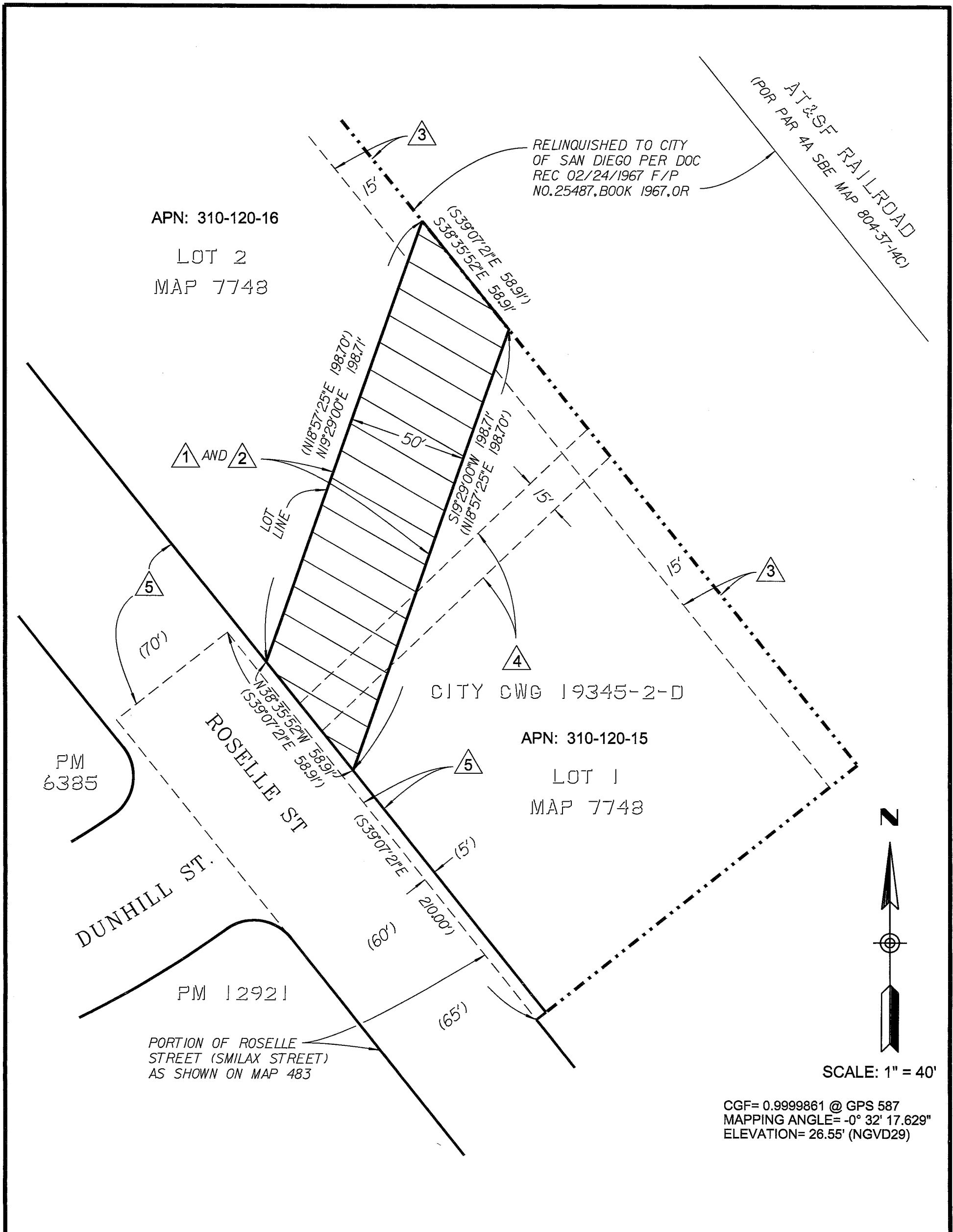
DOC. No. _____

RECORDED: _____

GENERAL UTILITY EASEMENT AND TEMPORARY CONSTRUCTION AREA: IN A PORTION OF LOTS 1 & 2 OF MAP 7748

DESCRIPTION	BY	APPROVED	DATE	FILMED	CITY OF SAN DIEGO, CALIFORNIA	T.M. _____
ORIGINAL	RM	RMc	10/16		SHEET 1 OF 3 SHEETS	W.B.S. B-11035
					<i>Richard T. McCormick</i> 10-27-2016 FOR CITY LAND SURVEYOR DATE	1908-6259 NAD83 COORDINATES
						138-1773 NAD27 COORDINATES
						39758-1-B
STATUS						

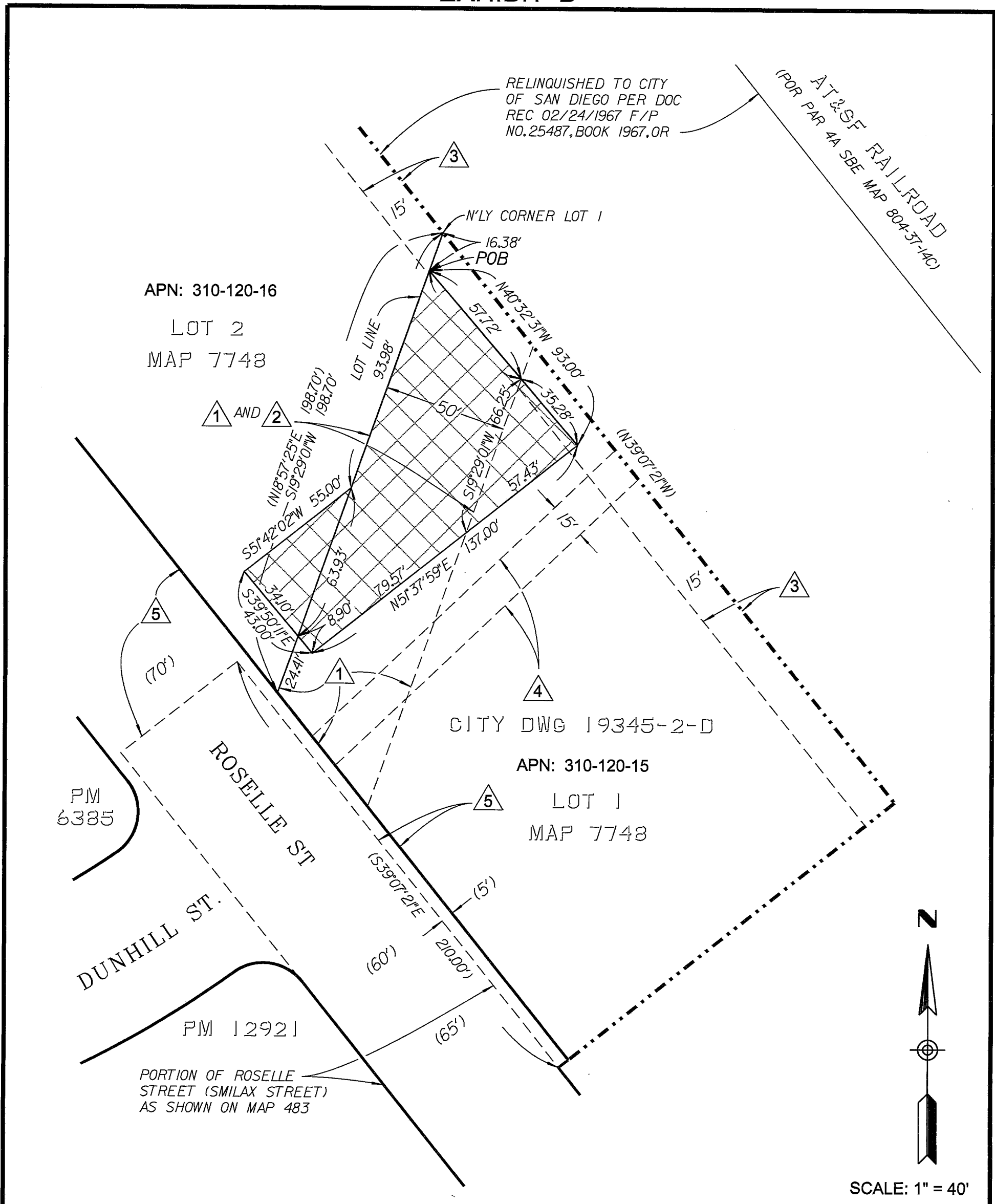
EXHIBIT 'B'



GENERAL UTILITY EASEMENT AND TEMPORARY CONSTRUCTION AREA:
IN A PORTION OF LOTS 1 & 2 OF MAP 7748

DESCRIPTION	BY	APPROVED	DATE	FILMED	CITY OF SAN DIEGO, CALIFORNIA	T.M.
ORIGINAL	RM	RMc	10-16			SHEET 2 OF 3 SHEETS
					<i>Rickard J. McYounis</i>	1908-6259
					FOR CITY LAND SURVEYOR	NAD83 COORDINATES
					10-27-2016	268-1698
					DATE	NAD27 COORDINATES
						39758-2-B
STATUS						

EXHIBIT 'B'



APN: 310-120-16
 LOT 2
 MAP 7748

CITY DWG 19345-2-D

APN: 310-120-15
 LOT 1
 MAP 7748

SCALE: 1" = 40'

CGF= 0.9999861 @ GPS 587
 MAPPING ANGLE= -0° 32' 17.629"
 ELEVATION= 26.55' (NGVD29)

GENERAL UTILITY EASEMENT AND TEMPORARY CONSTRUCTION AREA: IN A PORTION OF LOTS 1 & 2 OF MAP 7748

DESCRIPTION	BY	APPROVED	DATE	FILMED	CITY OF SAN DIEGO, CALIFORNIA	
ORIGINAL	RM	RMc	10-16		SHEET 3 OF 3 SHEETS	
					<i>Richard D. McNeill</i> 10-27-2016 FOR CITY LAND SURVEYOR DATE	
					T.M. _____ I.W.O. B-11035	
					1908-6259 NAD83 COORDINATES	
					268-1698 NAD27 COORDINATES	
					39758-3-B	
STATUS						

City of San Diego

CITY CONTACT: Antoinette Sanfilippo, Contract Specialist, Email: ASanfilippo@sandiego.gov
Phone No. (619) 533-3439, Fax No. (619) 533-3633

ADDENDUM B



WATER GROUP 939

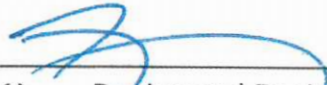
BID NO.: _____ K-18-1528-DBB-3
SAP NO. (WBS/IO/CC).: _____ B-11035
CLIENT DEPARTMENT: _____ 2000
COUNCIL DISTRICT: _____ 1
PROJECT TYPE: _____ KB

BID DUE DATE:

**2:00 PM
DECEMBER 19, 2017
CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTS
1010 SECOND AVENUE, 14th FLOOR, MS 614C
SAN DIEGO, CA 92101**

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:




1) Registered Engineer
(Responsible for Section 308)

12-7-2017
Date

Seal:





2) For City Engineer

12/7/17
Date

Seal:



A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

B. ADDENDUM

1. To **ADDENDUM A, DELETE** in its entirety.

C. BIDDER'S QUESTIONS

- Q1. The plans show 1 microtunnel from approximate station 3+00 to 6+60 and seems to be covered by line item #51. Please clarify what line item #32 is for.
 - A1. Bid Item 32 is not applicable and shall be deleted.
- Q2. Will the City allow the microtunneling contractor to work a 12 hour shift (i.e. 7:00 AM to 7:00 PM)?
 - A2. Yes. Microtunneling work hours may be extended to meet MTS/NCTD requirements.
- Q3. Has the Owner or the Engineer conducted systematic surface settlement Calculation for the microtunneling Crossing? If so, what was the overcut used in this calculation? What was the lubrication fill % of the overcut area used in this calculation? What was the anticipated Face Loss used in this Calculations? Would the Owner consider sharing the calculation with the bidders?
 - A3. Allowable settlement and heave values in the Contract Documents are dictated by the agencies.
- Q4. Has the Owner and or the Engineer conducted buoyancy Calculations for the microtunneling casing pipe and carrier pipe? Would the Owner share these calculations with the bidders?
 - A4. Allowable settlement and heave values in the Contract Documents are dictated by the agencies.
- Q5. Since this will be a pressurized water line, can the elevation of the microtunnel be lowered? This would accomplish two things. One, increase the distance from existing utilities. Two, increase depth

underneath the railroad tracks which in turn would minimize the likelihood of settlement due to systematic settlement.

- A5. The City may consider a design revision; however, this revision must be submitted by the Contractor during the submittal/review process for City review and consideration. Any approved changes would be done by the Contractor at no additional cost to the City. The City reserves the right to utilize the design included in the Contract Documents.
- Q6. Will a flagger be required for all microtunneling work including, but not limited to mobilization, drilling and demobilization.
- A6. An NCTD supplied railroad flag person is required when any work is to be performed above ground within the MTS/NCTD right of way. The limits of the MTS/NCTD right of way are shown on Sheet 6.
- Q7. We respectfully request that all manmade objects be listed as obstructions as well, regardless of size and strength.
- A7. See Section D, Supplementary Special Provisions, Items 3 and 4 of this Addendum.
- Q8. By, following installation does the City mean that welding should take place after the MTBM has been recovered, the tunnel has been stripped and after contact grouting?
- A8. Contractor's sequence of operations shall be performed as required to execute the Work as described within the Contract Documents.
- Q9. Please confirm that seal weld will not need to be performed by a certified welder
- A9. Per Specification Section 308-7.1.2, All welding shall be performed by qualified welding operators in accordance with the requirements of ANSI/AWS D1.1. See Section D, Supplementary Special Provisions, Item 5 of this Addendum.
- Q10. The final pipe, once complete will be pressurized. What economic harm will the City incur if the casing and / or carrier pipe is not installed within tolerance?
- A10. Contractor shall install casing and carrier pipe within the tolerances indicated in the Contract Documents.
- Q11. Processed slurry that has been ran through the separation plant and centrifuge is normally discharged to a sewer within the limits set forth by the sewer district. Please confirm that the microtunneling contractor will be able to discharge processed slurry to the sewer.

- A11. If Contractor elects to discharge to the City's sanitary sewer system, the Contractor shall be responsible for obtaining a Groundwater Discharge Permit from the City of San Diego and shall be responsible for all associated fees. The inability of the Contractor to obtain a Groundwater Discharge Permit, meet the discharge requirements established by the permit, or discharge to the sewer will not be cause for a change in the Contract price.
- Q12. Please confirm that the City will require the microtunneling contractor to work 24/7 only when the MTBM is within the railroad right-of-way.
- A12. Per Note 4 of the MTS and NCTD Jack and Bore General Notes on Sheet 18, the Contractor shall perform microtunneling operations on a 24-hour basis when operations are within the MTS/NCTD right of way. The Contractor, at its discretion, may perform microtunneling operations on a 24-hour basis outside of the MTS/NCTD right of way.
- Q13. Is a protective coating required for the microtunneling casing? If so, please provide a specification for the coating.
- A13. There is no protective coating required for the steel casing.
- Q14. Land is at a premium in this area. Will the City be providing a yard for office trailers, equipment, material and spoil storage?
- A14. No.
- Q15. The City does not show work areas for microtunneling. Please provide potential bidders the allowable work areas at each shaft location.
- A15. See Specification Section 308-9.5 for construction work area at Shaft 2. See Section D, Supplementary Special Provisions, Item 6 and Item 8 of this Addendum for the available temporary construction area at Shaft 1.
- Q16. The bore logs within Geotechnical Reports authored on 3/27/17 and 3/29/17 are incomplete. They are missing letters and in cases hard to decipher. We respectfully ask the City to provide legible bore logs.
- A16. Corrected Geotechnical Reports dated 3/7/17 and 3/29/17 will be provided.
- Q17. Is a permit required for microtunneling within the MTS / NCTD railroad right-of-way?
- A17. Yes.
- Q18. Will the City be supplying bid items for this project?
- A18. Bid per bid sheet.
- Q19. The quantity in Bid Item 45 for Cold Milling AC pavement does not match the contract plans. The Street Resurfacing Drawings show a total

of 75,892 SF of AC Overlay (22,942 SF on C-13 plus 52,950 SF on C-14). The quantity listed in Bid Item 45 is 201,861 SF. If the City wants the entire width of streets receiving AC overlays to be cold milled, the quantity should be changed to 75,892 SF. If the City only wants the 6' wide edges of each street to be cold milled, the quantity should be changed to about 35,328 LF (2944 LF x 2 sides x 6' wide). Please advise if the City wants the full width of each street to be cold-milled or only the 6' wide edges, and revise the quantity for Bid Item 45 accordingly.

- A19. Bid item #45 will be revise to show 75892 SF.
- Q20. The quantity in bid Item 17 for AC overlay does not match the contract plans. As noted above, the plans show 75,892 SF of AC Overlay. If the AC is placed 1.5" thick, the quantity in Bid Item 17 should be about 685 tons. The quantity listed is only 430 tons. Please revise the quantity in Bid Item 17 to match the quantity shown on the plans.
- A20. Bid item#17 will be revise and is 683 Tons.
- Q21. Bid Item 32 for 309 LF of "Water Main by Microtunneling with Steel Casing" appears to be a duplicate of the combination of Bid Items 51 and 52. Bid Item 51 is for 360 LF of "Steel Casing Installation via Microtunneling" and Bid Item 52 is for 381 LF of "Installation of Carrier Pipe Within Steel Casing". These bid items correspond to the quantities shown on Drawing C-05. Please delete Bid Item 32 from the Bid Schedule.
- A21. Bid Item 32 is not applicable and shall be deleted.
- Q22. Bid Items 50 for "Exploratory Horizontal Pilot Bores" and Bid Item 51 for "Steel Casing Installation via Microtunneling" are work activities that are typically performed by highly specialized subcontractors, and not by general engineering prime contractors. In accordance with the Greenbook Article 2-3.2, we request that Bid Items 50 and 51 be designated as "Specialty Items" in the contract specifications and Bid Schedule. We request that the value of these bid items be excluded from the calculation for self-performance and for SLBE/ELBE participation.
- A22. No revision to self-performance or SLBE/ELBE requirement.
- Q23. "Please confirm that the only cathodic protection work required on the 36" steel casing crossing the RR tracks is the test stations called out on drawing C-17."
- A23. Bid per plan.

- Q24. This question pertains to the undercrossing of the existing 54" RCP on Drawing C-04, Station 2+59.10. The note on the horizontal cross section calls out "DR-14 Pipe with no joints 10' back and 10' ahead of the storm drain". With the current location of the existing tee at 2+59.10 there does not seem to be 10' of separation from the existing 54" RCP, so there will necessarily be a joint closer than 10' where the pipe bolts to the tee. Does the City want fusible PVC pipe to be used at this location? If so, there is no bid item for fusible PVC. Please advise how to handle this situation.
- A24. Bid per plan.
- Q25. We asked that manmade objects be listed as an obstruction which the Owner would pay for to be removed, by the changes in Addendum A the Owner has now made the contractor responsible for manmade objects as an obstruction.
- A25. Yes, Section 308-6.4 was modified to include man-made obstructions for the MTBM. However, please see section 308-9.12, Pilot Tube Guided Boring and 308-13.3, Exploratory Horizontal Pilot Bores (Pilot Tube Guided Boring), and the 720 LF bid item "Exploratory Horizontal Pilot Bores (Pilot Tube Guided Boring)".
- Q26. Is the MTS/NCTD permit included in the current contract documents? If not, who will be responsible for pulling the required permits for the microtunneling work?
- A26. See Section D, Supplementary Special Provisions, Item 2 of this Addendum.

D. SUPPLEMENTARY SPECIAL PROVISIONS

1. To Attachment E, Supplementary Special Provisions, Section 6, Prosecution, Progress and Acceptance of Work, page 39, Subsection 6-7.1, General, Item 4, **DELETE** in its entirety and **SUBSTITUTE** with the following:
 4. Microtunneling operations as shown on sheet 38808-06-D shall be the first order of work. Contractor shall complete the microtunneling and restore pavement with striping to properties at 11045 and 11035 Roselle Street before beginning work at any other location.
2. To Attachment E, Supplementary Special Provisions, Section 7, Responsibilities of The Contractor, page 46, Subsection 7-5, Permits, Fees, and Notices, **ADD** the following:
 3. Contractor to obtain MTS/NCTD joint right of entry permit.

3. To Attachment E, Supplementary Special Provisions, page 56. Section 308, Microtunneling, Subsection 308-2, Definitions, **DELETE** Item "Obstruction", in its entirety and **SUBSTITUTE** with the following:

Obstruction: Objects located within the cross-sectional area to be excavated by the microtunneling machine that prevent the forward movement of the microtunneling machine after all diligent efforts to advance past the object by the Contractor have failed and in compliance with Section 308-6.4.

4. To Attachment E, Supplementary Special Provisions, Section 308, Microtunneling, Subsection 308-6.4, Obstructions, page 69, Item 3, **DELETE** in its entirety and **SUBSTITUTE** with the following:

3. The Contractor will receive no additional compensation for removing, clearing, or otherwise making it possible for the MTBM to advance past objects consisting of cobbles, boulders, wood, and other nonmetallic objects or debris both natural and/or manmade with maximum lateral dimensions less than thirty percent (30%) of the outer diameter of the MTBM or cutterhead, whichever is larger. Additionally, full-face, massive, jointed, and/or fractured rock up to 15,000 psi will not be considered an obstruction.

5. To Attachment E, Supplementary Special Provisions, Section 308, Microtunneling, page 71. Subsection 308-7.1.2, Quality Control, **ADD** the following:

9. All single-welded joints shall be tested by the liquid penetrant method. Tests shall be performed by an independent testing agency and be performed only by individuals qualified per AWS D1.1 for NDT Level 1 and working under the NDT Level 2 or individuals qualified for NDT Level 2. Liquid penetrant tests shall be performed in conformance with ASTM E165. Provide materials that are either washable or nonflammable. Acceptable products include Spotcheck by the Magnaflux Corporation or Met-L-Check Flaw-Findr by the Met-L-Check Company. Chip out all defects, reweld and retest the section affected until it shows no leaks or other defects. Costs for all tests and re-testing shall be borne by the Contractor.

6. To Attachment E, Supplementary Special Provisions, Section 308, Microtunneling, page 84, **ADD** the following:

308-9.5.2 Microtunneling construction zones on private property shall remain within the confines of the temporary construction easement. See Appendix P, Temporary Construction Area-Shaft 1.
7. To Attachment E, Supplementary Special Provisions Appendices, pages 217 through 297, Appendix H, Report of Geotechnical Investigation-Water Group 939 City of San Diego, **DELETE** in its entirety and **SUBSTITUTE** with pages 10 through 90 of this Addendum.
8. To Attachment E, Supplementary Special Provisions Appendices, **ADD** "Appendix P", "Temporary Construction Area", pages 91 through 97 of this Addendum.

E. ADDITIONAL CHANGES

1. The following are additional changes to the Line Items in the PlanetBids Tab:
For clarity where applicable, **ADDITIONS**, if any, have been Underlined and **DELETIONS**, if any, have been **Stricken out**.

Section	Item Code	Description	UoM	Quantity	Payment Reference	Unit Price
MAIN BID	237110	Water Main by Microtunneling with Steel Casing (16-Inch Pipe, 36-Inch Casing)	LF	309	308-13	
MAIN BID	237310	Asphalt Concrete Overlay	TON	430 683	302-5.9	
MAIN BID	237310	Cold Mill AC Pavement (0 Inch – 1½ Inch)	SF	201861 75892	302-1.12	

James Nagelvoort, Director
Public Works Department

Dated: *December 7, 2017*
San Diego, California

JN/JB/egz

**REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO**

Submitted to:

RICK ENGINEERING COMPANY
5620 Friars Road
San Diego, CA 92110

Prepared By:

ALLIED GEOTECHNICAL ENGINEERS, INC.
9500 Cuyamaca Street, Suite 102
Santee, California 92071-2685

March 29, 2016



March 29, 2016

Mr. Kevin Gibson, P.E.
Project Manager
Rick Engineering Company
5620 Friars Road
San Diego, CA 92110

**Subject: REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO
AGE Project No. 164 GS-14-E**

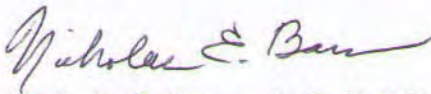
Dear Kevin:

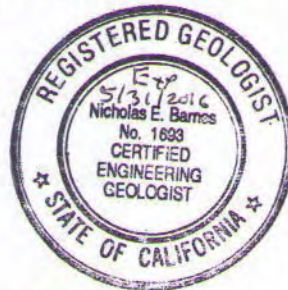
Allied Geotechnical Engineers, Inc. is pleased to submit the accompanying report to present the findings, opinions, and recommendations of a geotechnical investigation that was performed for the design of the proposed trenchless construction between Sorrento Valley Road and the intersection of Roselle Street and Dunhill Street.

If you have any questions regarding the contents of this report or if we may be of further assistance, please give us a call. We greatly appreciate the opportunity to be of service on this important project.

Respectfully submitted,

ALLIED GEOTECHNICAL ENGINEERS, INC.


Nicholas E. Barnes, P.G., C.E.G.
Senior Geologist





Sani Sutanto, P.E.
Project Manager



SS/TJL:sem
Distr. (1 electronic copy) Addressee

**REPORT OF GEOTECHNICAL INVESTIGATION
WATER GROUP 939
CITY OF SAN DIEGO**

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1.0 INTRODUCTION

Allied Geotechnical Engineers, Inc. (AGE) is pleased to submit this report to present the findings, conclusions and recommendations of a geotechnical investigation conducted in connection with the design of the City of San Diego (City) Water Group 939 Project. This report has been prepared for the exclusive use of Rick Engineering Company (Rick Engineering), the City and their design subconsultants in their design of the project as described herein. The information presented in this report is not sufficient for any other uses or the purposes of other parties

2.0 PROJECT DESCRIPTION

The project site is located in the Sorrento Valley area of San Diego, California (Figure 1 - Location Map). The Water Group 939 Project consists of the replacement of approximately 3,080 linear feet of cast iron water pipe and 1,330 linear feet of A.C. water pipe, and abandonment of approximately 3,800 linear feet of cast iron water pipe. The scope of the proposed project includes a proposed trenchless crossing which extends from the intersection of Roselle Street and Dunhill Street on the west and Sorrento Valley Road on the east. The approximately 550-foot long trenchless segment crosses beneath a business park on the east side of Roselle Street, railroad tracks and an existing drainage channel located between Roselle Street and Sorrento Valley Road, and the parking lot facility for the Metropolitan Transit System (MTS) station on the west side of Sorrento Valley Road. Surface elevation along the trenchless crossing ranges from a high of +35 feet above the mean sea level (msl) at Roselle Street to a low of +25 feet msl at the drainage channel. The subsurface geotechnical investigation was performed for the design of the trenchless crossing.

3.0 OBJECTIVE AND SCOPE OF INVESTIGATION

The objective of this investigation is to characterize the subsurface conditions beneath the proposed trenchless crossing segment in order to develop recommendations pertaining to the geotechnical aspects of the currently proposed project. The scope of our investigation included several tasks as described in more detail below.

3.1 Information Review

This task involved a review of readily available information pertaining to the project site, including published geologic literature and maps, topographic maps, and historical aerial photographs. A listing of the references that were reviewed as part of this geotechnical investigation is presented in Section 8.0.

3.2 Geotechnical Field Exploration

The field exploration program for this project was performed on March 11, 2016. A total of two (2) soil borings were performed at the approximate locations shown on the Site Plan (Figure 2). The borings were advanced using conventional hollow-stem auger drilling methods to depths of 30 feet and 32 feet below the existing ground surface (bgs). A more detailed description of the drilling and sampling activities, and logs of the borings are presented in Appendix A.

Prior to commencement of the field exploration activities, several site reconnaissance visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. Existing buried utilities in the vicinity of the project alignment and alternative include: potable water and sanitary sewer pipelines; storm drains; natural gas and electrical transmission lines; and cable, telephone, and fiber optic lines. Traffic control permits were obtained from the City of San Diego to perform the borings. In addition, AGE also obtained soil boring permit from the County of San Diego Department of Environmental Health.

3.3 Geotechnical Laboratory Testing

Selected soil samples obtained from the borings were tested in the laboratory to verify field classifications and evaluate certain engineering characteristics. The geotechnical laboratory tests were performed in general conformance with the American Society for Testing and Materials (ASTM) or other generally accepted testing procedures.

The laboratory tests included: in-place density and moisture content, maximum density and optimum moisture content, sieve (wash) analysis, shear strength, and consolidation. In addition, representative samples of the onsite soil materials were collected and delivered to Clarkson Laboratories and Supply, Inc. for chemical (analytical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A brief description of the tests that were performed and the final test results are presented in Appendix B.

4.0 GEOLOGIC CONDITIONS

4.1 Geologic Setting

The project site lies within the lower reaches of a broad and relatively flat to gently sloping, northwest-trending drainage valley of the Los Penasquitos, Carroll Canyon and Soledad Canyon drainage system. The valley is known as Soledad Valley, and is bounded by the Del Mar Mesa on the east and the Torrey Pines Mesa on the west. The valley floor is underlain by undifferentiated fluvial and colluvial sediments and estuary deposits of Holocene age. Older sedimentary formations are mapped in the valley walls which rise moderately to steeply from the valley floor. These sedimentary formations include the old paralic deposits of Holocene to late Pleistocene age, units of the La Jolla Group of Eocene age, and the very old paralic deposits of mid to early Pleistocene age which forms a cap on top of the mesas.

4.2 Geologic Units

Based on a review of the published geologic maps and compositional characteristics, the soil types anticipated to be encountered in the project study area can be categorized into four (4) distinct geologic units which include, in order of increasing age: fill materials; undifferentiated alluvium, slope wash and estuary deposits; old paralic deposits; and Ardath Shale. Brief descriptions of these units are presented below.

4.2.1 Fill Soils

Variable amounts of fill materials were placed during development of the areas along the proposed trenchless crossing segment. Areas where significant amounts of fill can be expected to occur

include the western edge of Sorrento Valley Road, and along the channel embankments and Roselle Street.

The depth of fill materials encountered in the borings range from 14 feet bgs in boring B-1 (Roselle Street) to 6 feet bgs in boring B-2 (Sorrento Valley Road). The fill materials encountered in the exploratory soil borings consist predominantly of silty sand.

4.2.2 Undifferentiated Alluvium, Slopewash and Estuary Deposits

Undifferentiated alluvial, slopewash and estuary deposits of Holocene to late Pleistocene age lie beneath the valley floor. The soils encountered in the borings consist of interbedded layers of loose/soft, brown to grayish brown and dark gray, silty sand, clayey sand, and lean sandy clay, which are interpreted as interfingering alluvial and estuary deposits.

Kennedy & Tan (2009) mapped the estuary deposits along the valley floor north of the proposed trenchless crossing. These deposits were encountered in the borings performed by Woodward-Clyde Consultants (1991) for the Carmel Valley Trunk Sewer project along Sorrento Valley Road and Roselle Street. These sediments were reportedly encountered beneath alluvial soils at depths ranging from 7 to 32 feet below the ground surface, and were described as soft, gray, lean to fat clay and loose silt to poorly graded sand.

4.2.3 Old Paralic Deposits

The old paralic deposits are mapped at the lower elevations along the base of the valley walls. This formation is typically composed of gray brown to brown, medium dense to dense silty, clayey, and poorly graded sands with interbedded gravel and cobble lenses or beds. It is not considered likely that the proposed trenchless crossing will encounter this unit.

4.2.4 Ardath Shale

The Ardath Shale is mapped along the western walls of the valley, generally above an elevation of about 60 feet above the mean sea level (MSL). It is not considered likely that the proposed trenchless crossing will encounter this unit.

4.3 **Groundwater**

Groundwater was encountered in both borings at the time of our field investigation at a depth of 8 feet in boring B-1 (+22 feet MSL) and 10 feet in boring B-2 (+15 feet MSL). In AGE borings and Cone Penetrometer Soundings (AGE, 1999) which were performed for the Sorrento Valley Trunk Sewer Replacement Project and Woodward-Clyde Consultants (1988 and 1991) borings, groundwater in the general area of the proposed trenchless crossing was measured at elevations ranging from +18 feet to +28 feet MSL.

5.0 DISCUSSIONS, OPINIONS, AND RECOMMENDATIONS

5.1 Potential Geologic Hazards

5.1.1 Faulting and Seismicity

The published geologic maps show the presence of a mapped fault in the vicinity of the project site. An unnamed branch of the Salk and Torrey Pines faults is mapped about 2,000 feet west of the proposed trenchless crossing segment (Kennedy & Tan, 2008 & City of San Diego, 2008). The fault is mapped as offsetting Pleistocene age and older units, and may be considered potentially active based on the fault classification criteria adopted by the California Geological Survey. This fault is not considered to pose a seismic risk to the subject project.

For the purpose of this project, we consider the Rose Canyon fault zone (RCFZ) to represent the most significant seismic hazard. The RCFZ is a complex set of anastomosing and en-echelon, predominantly strike slip faults that extend from off the coast near Carlsbad to offshore south of downtown San Diego (Treiman, 1993). Previous geologic investigations on the RCFZ in the Rose Creek area (Rockwell et. al., 1991) and in downtown San Diego (Patterson et. al., 1986) found evidence of multiple Holocene earthquakes. Based on these studies, several fault strands within the RCFZ have been classified as active faults, and are included in Alquist-Priolo Special Studies Zones. In San Diego Bay, this fault zone is believed to splay into multiple, subparallel strands; the most pronounced of which are the Silver Strand, Spanish Bight and Coronado Bank faults. The project site is not located within an Alquist-Priolo Earthquake Study Zone.

The location of the project alignment in relation to the active faults in the region is shown on the Regional Fault Map (Figure 3). The computer program EQFAULT (Blake, 2000, updated 2004) was used to approximate the distance of known faults to the project alignment. Seven (7) known active faults are identified within a search radius of 50 miles from the alignment. A summary of seismic source characteristics for faults that present the most significant seismic hazard potential to the alignment are presented in Table 1 below.

Table 1
Summary of Seismic Source Characteristics

Fault	Maximum Magnitude (Mw)	Peak Site Acceleration (g)	Closest Distance to Site (miles)
Rose Canyon	6.8	0.437	3.5
Coronado Bank	7.4	0.216	15.9
Newport-Inglewood (offshore)	6.9	0.121	21.1
Elsinore - Julian	7.7	0.086	33.6
Elsinore - Temecula	7.7	0.068	35.0
Earthquake Valley	6.5	0.045	42.1
Palos Verdes	7.1	0.059	48.9

5.1.2 Historical Seismicity

EQSEARCH is a program that performs automated searches of a catalog of historical Southern California earthquakes. As the program searches the catalog, it computes and prints the epicentral distance from a selected site to each of the earthquakes within a specified radius (100 kilometers). From the computed distance, the program also estimates (using an appropriate attenuation relation) the peak horizontal ground acceleration that may have occurred at the site due to each earthquake.

V_{s30} along the project at the project site was estimated to be on the order of 200 m/s. The shear wave velocity was calculated based on the corrected blow counts in AGE's borings, and using the correlation method developed by Ohta and Gotto (1978) for cohesive soil and David Boore (2004) extrapolation equation.

$$V_s = 86.9 (N_{60})^{0.333} \quad (\text{Ohta \& Goto, 1978})$$

$$V_{s30} = [1.45 - (0.015 \times d)] \times V_{s(d)} \quad (\text{David Boore, 2004})$$

Based on the estimated shear wave velocities and our visual classification of the geologic units encountered in the soil borings, site Class D attenuation was used for all of our analysis. We used a combined earthquake catalog for magnitude 5.0 or larger events which occur within 100 miles from the site between 1800 and December 1999. The earthquake catalog for events prior to about 1933 is limited to the higher magnitude events.

The search results indicate that the nearest earthquake of magnitude 6.5 occurred on November 22, 1800 located about 4.1 miles from the project site. This earthquake resulted in a calculated ground acceleration of 0.327 g which is also the largest calculated seismic ground acceleration from this search. The largest magnitude earthquake reported was a magnitude 7.0 event on December 16, 1858, located 77.3 miles from the project study area on the San Jacinto fault which resulted in a calculated ground acceleration of 0.048 g.

It is our opinion that the major seismic hazard affecting the project alignment would be seismic-induced ground shaking. The alignment will likely be subject to moderate to severe ground shaking in response to a local or more distant large magnitude earthquake occurring during the life of the proposed facilities. For project design purposes, we recommend that the RCFZ be considered as the dominant seismic source.

5.1.3 Fault Ground Rupture & Ground Lurching

There are no known (mapped) active or potentially active faults crossing the proposed trenchless crossing (Kennedy, 1975; City of San Diego, 2008). Therefore, the potential for fault ground rupture and ground lurching at the project site is considered insignificant.

5.1.4 Soil Liquefaction

Seismically-induced soil liquefaction is a phenomenon during which loose, saturated granular materials undergo matrix rearrangement, develop high pore water pressure, and lose shear strength due to cyclic ground vibrations induced by earthquakes. Manifestations of soil liquefaction at the project site can include loss of soil bearing capacity, ground subsidence and differential settlement, ground lurching and tilting in level ground, and instabilities in areas of sloping ground. Soil liquefaction can also result in increased lateral and uplift pressures on buried structures. Light-weight or unrestrained buried structures may float upward to the ground surface. Based on the blow counts, laboratory particle size analysis test results and depth to known groundwater, it is anticipated that the project site is underlain by liquefiable soil materials.

AGE previous performed an evaluation of liquefaction potential for the Sorrento Valley Trunk Sewer Replacement Project. The evaluation was performed based upon the results of the CPT soundings, the simplified procedure outlined by Seed, et al. (1983), and the modified procedure presented in NCEER Summary Report (1998). These procedures empirically correlate in-situ soil resistance with intensity of ground shaking from documented earthquake events to evaluate susceptibility to liquefaction. The liquefaction analysis was performed using a ground acceleration of 0.5g based on a magnitude 7 earthquake on the Rose Canyon fault. The results of the analysis indicate that the alluvial and estuary deposits below the groundwater table have a moderate to very high potential for liquefaction. An estimated maximum cumulative ground surface settlement of 13 inches was estimated at the project site. Liquefaction at the project site most likely would manifest itself as local ground subsidence and settlement. Due to the relatively level ground surface elevation, lateral flow is not likely to occur.

5.1.5 Landslides

The project site is not located on or near any known (mapped) ancient landslides. Landslides have been mapped in the hillsides on both sides of the valley (Kennedy, 1975; City of San Diego Seismic Safety Study, 2008). These landslides appear to be confined to areas that are underlain by the Ardath Shale, and are not considered to pose a significant hazard to the project as they are not located near the project site.

5.1.6 Differential Seismic-Induced Settlement

Differential seismic settlement occurs when seismic shaking causes one type of soil to settle more than another type. It may also occur within a soil deposit with largely homogeneous properties if the seismic shaking is uneven due to variable geometry or thickness of the soil deposit. Based on the results of our investigation, it is our opinion that the alluvial deposits possess a moderate to high potential of differential settlement.

5.1.7 Secondary Hazards

A review of the State of California Tsunami Inundation Map for Emergency Planning (2009) indicates that the project site is not located within the tsunami inundation area. It is our opinion that the potential of property damage from a seismic-induced tsunami at the project site is considered remote. The project site is located within the 100- and 500-year flood zone (FEMA Flood Insurance Rate Map, 2012). It is our opinion that the potential of property damage due to flooding is considered high.

5.2 Soil Corrosivity

In accordance with the City of San Diego Water Facility Design Guidelines, Book 2, Chapter 7, soil is generally considered aggressive to concrete if its chloride concentration is greater than 300 parts per million (ppm) or sulfate concentration is greater than 1,000 ppm, or if the pH is 5.5 or less.

Analytical testing was performed on a representative sample of the onsite soil materials to determine pH, resistivity, soluble sulfate, chlorides and bicarbonates content. The tests were performed in accordance with California Test Method Nos. 643, 417 and 422. A summary of the test results is presented in Table 5 below. Copies of the analytical laboratory test data reports are included in Appendix B.

Table 2
Summary of Corrosivity Test Results

	pH	Resistivity (ohm-cm)	Sulfate Conc. (ppm)	Chloride Conc. (ppm)	Bicarbonates Conc. (ppm)
B-1 Sample No. 8 @ 29'-30'	8.3	250	5,100	910	N/A
B-2 Sample No. 8 @ 27'-28'	8.1	630	160	190	N/A

The test results indicate that the onsite soil is considered highly aggressive toward concrete. Therefore, we recommend that Type V Portland Cement Concrete (high sulfate resistance) be used for proposed facilities at the project site. It should be noted here that the most effective way to prevent sulfate attack is to keep the sulfate ions from entering the concrete in the first place. This can be done by using mix designs that give a low permeability (mainly by keeping the water/cement ratio low) and, if practical, by placing moisture barriers between the concrete and the soil.

AGE does not practice in the field of corrosion engineering. In the event that corrosion sensitive facilities are planned, we recommend that a corrosion engineer be retained to perform the necessary corrosion protection evaluation and design.

5.3 Expansive Soil

Based on visual observations and the laboratory test results, the on-site materials are considered non-expansive.

5.4 Trenchless Construction

Since no changes to the existing ground surface along the proposed pipeline crossing are planned, the net stress change in the underlying soils is considered negligible. The native alluvial soil materials within the tunnel zone are not expected to pose a problem for the trenchless construction.

5.4.1 Excavation Characteristics

The existing fill materials and alluvial deposits can generally be readily excavated with conventional heavy-duty construction equipment.

5.4.2 Fill Materials

Fill materials should be free of biodegradable materials, hazardous substance contamination, other deleterious debris, and or rocks or hard lumps greater than 6 inches. If the fill materials contain rocks or hard lumps, at least 70 percent (by weight) of its particles shall pass a U.S. Standard $3/4$ -inch sieve. Fill materials should consist of predominantly granular soil (less than 40 percent passing the U.S. Standard #200 sieve) with Expansion Index of less than 50.

5.4.3 Placement and Compaction of Backfill

Prior to placement, all backfill materials should be moisture-conditioned, spread and placed in lifts (layers) not-to-exceed 6 inches in loose (uncompacted) thickness, and uniformly compacted to at least 90 percent relative compaction. During backfilling, the soil moisture content should be maintained at or within 2 to 3 percent above the optimum moisture content of the backfill materials. It is recommended that the upper 24 inches directly beneath the roadway pavement and the base materials be compacted to at least 95 percent relative compaction. The maximum dry density and optimum moisture content of the backfill materials should be determined in the laboratory in accordance with the ASTM D1557 testing procedures.

Small hand-operated compacting equipment should be used for compaction of the backfill materials to an elevation of at least 4 feet above the top (crown) of the pipes. Flooding or jetting should not be used to densify the backfill.

5.4.4 Trenchless Construction Considerations

Based on the conditions encountered in the borings, it is anticipated that the trenchless construction operation will encounter alluvial deposits which can be classified as flowing - saturated sand as described by the Tunnelman's Ground Classification System (Bickel & Kuesel, 1995). For assessing the stability of the trenchless tunnel, the alluvial deposits may be modeled as having an undrained shear strength of 1,500 psf (waiting for shear test results).

For following formula may be used to estimate ground deformation due to the trenchless operations.

$$d_{\max} = (2.5i/V_s)$$

d_{\max} is maximum ground settlement;

i is equal to K times the depth to the center of the pipe; and

V_s is the volume loss due to the excavation per foot of pipe.

For the formational units at the project site, we recommend using a K of 0.4 and a V_s equal to 2.5 percent of the excavated face. Ground settlement adjacent to the tunnel alignment may be estimated using the following equation.

$$d = d_{\max} \exp(-x^2/2i^2)$$

x is the distance from the centerline of the pipe (feet);

i is defined as Kz where z is the depth to the center of the pipe (feet); and

d is the ground displacement at x .

We recommend using a coefficient of 0.45 for steel casing against soil and 0.8 for concrete against soil. We further recommend using a unit weight of 130 pcf for calculating the normal pressure acting on the casing.

5.5 Buried Structures

It is recommended that any proposed buried structures be founded on firm native soils or approved compacted materials. In areas where loose or soft soils are encountered at the bottom of the box structure excavations, it is recommended that the loose/soft materials be removed to a minimum depth of 24 inches below the bottom of the excavation and replaced with 3/4-inch crushed rock materials wrapped in geotextile fabric such as Mirafi 600X or equivalent. The actual extent of over-excavation of any loose/soft soil materials should be evaluated and determined by the City's Resident Engineer during construction.

5.5.1 Placement and Compaction of Backfill

Fill materials used around buried structures should meet the criteria for “Fill Materials” presented in Section 5.4.2. Placement and compaction of backfill materials around the buried structures should be performed in accordance with the recommendations presented in Section 5.4.3 of this report.

5.5.2 Seismically-Induced Settlement

The project site is be subject to seismically-induced liquefaction settlement. Pipeline connections to buried structures be designed to accommodate as much as 4 inches of differential settlement.

5.5.3 Foundations

Bearing Capacity

An allowable soil bearing capacity of 1,000 psf should be used for buried structures supported on soft and loose estuary and alluvial deposits. This allowable soil bearing value is for total dead and live loads, and may be increased by one third when considering seismic loads.

Anticipated Settlement

Under static condition, total settlement of the slab foundation is estimated to be less than 0.5 inch. Differential settlement between the center and the edge of the slab foundation is expected to be within tolerable limits. No permanent deformation and/or post-construction settlement is anticipated, provided that backfill around the structures is properly compacted in accordance with the project specifications.

Resistance to Lateral Loads

Resistance to lateral loads may be developed by a combination of friction acting at the base of the slab foundation and passive earth pressure developed against the sides of the foundations below grade. Passive pressure and friction may be used in combination, without reduction, in determining the total resistance to lateral loads.

An allowable passive earth pressure of 300 and 200 psf per foot of foundation embedment below grade may be used for the sides of foundations placed against properly compacted fill materials, for above and below the groundwater level, respectively. The maximum recommended allowable passive pressure is 3,000 and 2,000 psf, respectively, for above and below the groundwater level. A coefficient of friction of 0.35 may be used for foundation cast directly on approved compacted materials or wrapped crushed rock as described above. An allowable passive earth pressure of 80 psf per foot of foundation embedment below grade should be used for sides of foundations placed against soft alluvial/estuary deposits. The maximum recommended allowable passive pressure in soft alluvial/estuary deposits should be limited to 800 psf.

5.5.3 Walls Below Grade

Lateral earth pressures for walls below grade for structures less than 48 inches in horizontal dimensions may be treated as a shaft structure. Walls below grade for structures larger than 48 inches in horizontal dimensions should be designed to resist the lateral earth pressures presented on the next page.

The following values may be used for preliminary design purposes.

- Groundwater Depth: 10 feet bgs
- Active Pressure: 35 pcf equivalent fluid weight (above GW level) and 20 pcf equivalent fluid weight (below GW level)
- Restrained Additive Term: 10H psf uniform load (above GW level) and 5H psf uniform load (below GW level)
- Hydrostatic Pressure: 62.4 pcf equivalent fluid weight

The following equation may be used to estimate the pseudostatic force ($P_{Eactive}$) acting on the wall under active loading conditions:

$$P_{Eactive} = 0.30 * (a_{max}/g) * H^2 * \tilde{a}_t$$

The following equation may be used to estimate the pseudostatic force ($P_{Eat-rest}$) acting on the wall under at-rest loading conditions:

$$P_{Eat-rest} = 0.45 * (a_{max}/g) * H^2 * \tilde{a}_t$$

$P_{Eactive}$ = horizontal pseudostatic force acting on active condition walls (lb)

$P_{Eat-rest}$ = horizontal pseudostatic force acting on at-rest condition walls (lb)

a_{max} = ground motion as a decimal (g).

H = height of the retaining wall (ft)

$\tilde{\alpha}_t$ = total unit weight of backfill soil (pcf)

The location of the pseudostatic force can be assumed to act at a distance of 0.6H above the base of the wall for active conditions and 0.65H above the base of the wall for at-rest conditions. We recommend that $a_{\max} = 0.29$ g and $\tilde{\alpha}_t = 120$ pcf be used for preliminary design purposes. It must be noted that actual seismic load will depend on the method of construction and how the excavation is shored.

Surcharge and foundation loads occurring within a horizontal distance equal to the wall height should be added to the lateral pressures as presented in Figures 4 and 5.

5.5.4 Uplift Resistance

Buried structures located below the groundwater table will be subject to buoyant uplift forces. Geotechnical parameters for use in calculating uplift resistance of the surrounding backfill soil materials is presented in Figure 6 and 7.

6.0 CONSTRUCTION-RELATED CONSIDERATIONS**6.1 Temporary Shoring**

Since excavations for the proposed project will be more than 5 feet below the ground surface, prevailing Federal and Cal OSHA safety regulations require that the excavations be either sloped (if sufficient construction space or easement is available), shored, braced, or protected with approved sliding trench shield. Limited construction space, the presence of other buried utilities, and the need to avoid excessive community disruption dictate that a shored excavation will be needed. For design of excavation which extend below the groundwater table, it is recommended that a continuous shoring system or solid sheet piles system be utilized to minimize water intrusion into the trench excavation. Design and construction of temporary shoring shall be the sole responsibility of the Contractor.

It must be noted that the contractor for the construction of the Sorrento Valley Trunk Sewer Replacement project experienced great difficulties in keeping the trenched excavations open due to very loose soil and high groundwater. It is anticipated that proposed excavations for this project will encounter similar conditions.

6.1.1 Settlement

Settlement of existing street improvements and/or utilities adjacent to the shoring may occur in proportion to both the distance between shoring system and adjacent structures or utilities and the amount of horizontal deflection of the shoring system. Vertical settlement will be maximum directly adjacent to the shoring system, and decreases as the distance from the shoring increases. At a

distance equal to the height of the shoring, settlement is expected to be negligible. Maximum vertical settlement is estimated to be on the order of 75 percent of the horizontal deflection of the shoring system. It is recommended that shoring be designed to limit the maximum horizontal deflection to 1/2-inch or less where existing structures or utilities are to be supported.

6.1.2 Lateral Earth Pressures

Temporary shoring should be designed to resist the pressure exerted by the retained soils and any additional lateral forces due to loads placed near the top of the excavation. For design of braced shorings supporting fill materials and/or bay deposits, the recommended lateral earth pressure should be $32H$ psf, where H is equal to the height of the retained earth in feet. Any surcharge loads would impose uniform lateral pressure of $0.3q$, where " q " equals the uniform surcharge pressure. The surcharge pressure should be applied starting at a depth equal to the distance of the surcharge load from the top of the excavation.

The above lateral earth pressures have been estimated based on the assumption that the shored earth is level at the surface, there are no hydrostatic pressures above the bottom of the excavation, and that the shoring system is temporary in nature.

6.1.3 Lateral Bearing Capacity

Resistance to lateral loads will be provided by passive soil resistance. An allowable passive earth pressure of 300 and 200 psf per foot may be used for properly compacted fill materials, for above and below the groundwater level, respectively. The maximum recommended allowable passive pressure is 3,000 and 2,000 psf, respectively, for above and below the groundwater level. An allowable passive earth pressure of 80 psf per foot should be used for soft alluvial/estuary deposits. The maximum recommended allowable passive pressure in soft alluvial/estuary deposits should be limited to 800 psf.

5.2 **Construction Dewatering**

It is anticipated that construction dewatering will be required for the construction of the proposed project. It is recommended that the selection, design, and construction of the specific dewatering system be performed by a qualified contractor specializing in construction dewatering.

5.3 **Unusual Subsurface Conditions**

The scope of AGE's investigation did not include the performance of a Phase I Environmental Site Assessment (Phase I ESA) to evaluate the possible presence of soil and/or groundwater contamination beneath the project alignment. During our subsurface investigation soil samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The field screening did not reveal elevated levels of volatile organics in the samples.

In the event that hazardous or toxic materials are encountered during the construction phase, the contractor should immediately notify the City and be prepared to handle and dispose of such materials in accordance with current industry practices and applicable Local, State and Federal regulations.

7.0 GENERAL CONDITIONS**7.1 Post-Investigation Services**

Post-investigation geotechnical services are an important continuation of this investigation, and we recommend that the City's Construction Inspection Division performs the necessary geotechnical observation and testing services during construction. In the event that the City is unable to perform said services, it is recommended that our firm be retained to provide the services.

Sufficient and timely observation and testing should be performed during excavation, pipeline installation, backfilling and other related earthwork operations. The purpose of the geotechnical observation and testing is to correlate findings of this investigation with the actual subsurface conditions encountered during construction and to provide supplemental recommendations, if necessary.

7.2 Uncertainties and Limitations

The information presented in this report is intended for the sole use of Rick Engineering and other members of the project design team and the City for project design purposes only and may not provide sufficient data to prepare an accurate bid. The contractor should be required to perform an independent evaluation of the subsurface conditions at the project site prior to submitting his/her bid.

AGE has observed and investigated the subsurface conditions only at selected locations along the project alignment. The findings and recommendations presented in this report are based on the assumption that the subsurface conditions beneath all project alignments do not deviate substantially from those encountered in the exploratory soil borings. Consequently, modifications or changes to the recommendations presented herein may be necessary based on the actual subsurface conditions encountered during construction.

California, including San Diego County, is in an area of high seismic risk. It is generally considered economically unfeasible to build a totally earthquake-resistant project and it is, therefore, possible that a nearby large magnitude earthquake could cause damage at the project site.

Geotechnical engineering and geologic sciences are characterized by uncertainty. Professional judgments and opinions presented in this report are based partly on our evaluation and analysis of the technical data gathered during our present study, partly on our understanding of the scope of the proposed project, and partly on our general experience in geotechnical engineering.

In the performance of our professional services, we have complied with that level of care and skill ordinarily exercised by other members of the geotechnical engineering profession currently practicing under similar circumstances in southern California. Our services consist of professional consultation only, and no warranty of any kind whatsoever, expressed or implied, is made or intended in connection with the work performed. Furthermore, our firm does not guarantee the performance of the project in any respect.

AGE does not practice or consult in the field of safety engineering. The contractor will be responsible for the health and safety of his/her personnel and all subcontractors at the construction site. The contractor should notify the City if he or she considers any of the recommendations presented in this report to be unsafe.

8.0 REFERENCES

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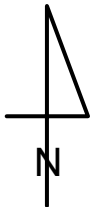
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Woodward-Clyde Consultants, "Liquefaction Evaluation, Proposed Carmel Valley Trunk Sewer Replacement Project, San Diego, California", unpublished consulting report dated December 18, 1992.

FIGURES



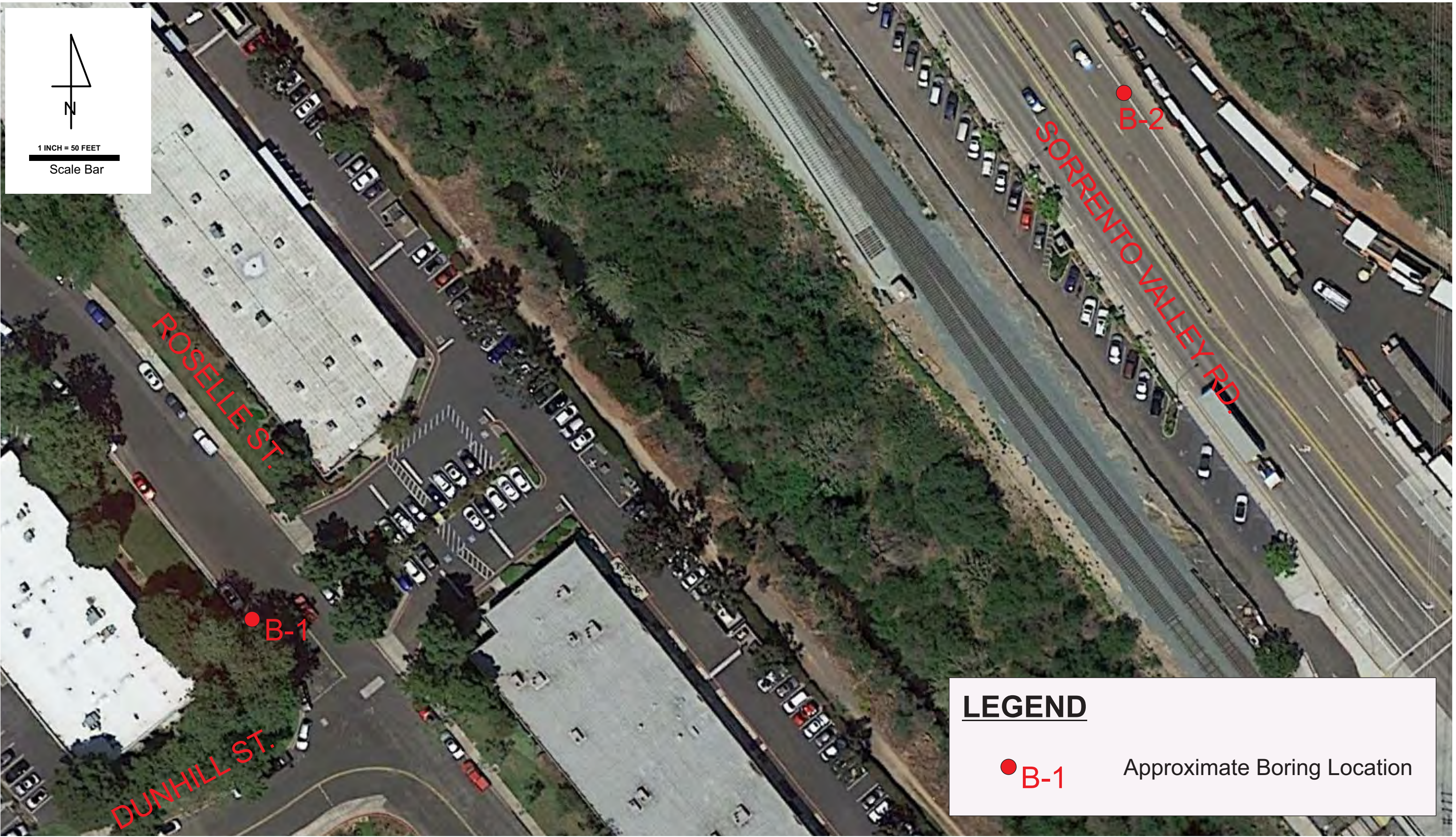
NOT TO SCALE

SOURCE:

SAN DIEGO & IMPERIAL
COUNTY THOMAS GUIDE, 2016

**LOCATION MAP
WATER GROUP 939**

<p>PROJECT NO. 164 GS-14-E</p>	<p>ALLIED GEOTECHNICAL ENGINEERS, INC.</p>	<p>FIGURE 1</p>
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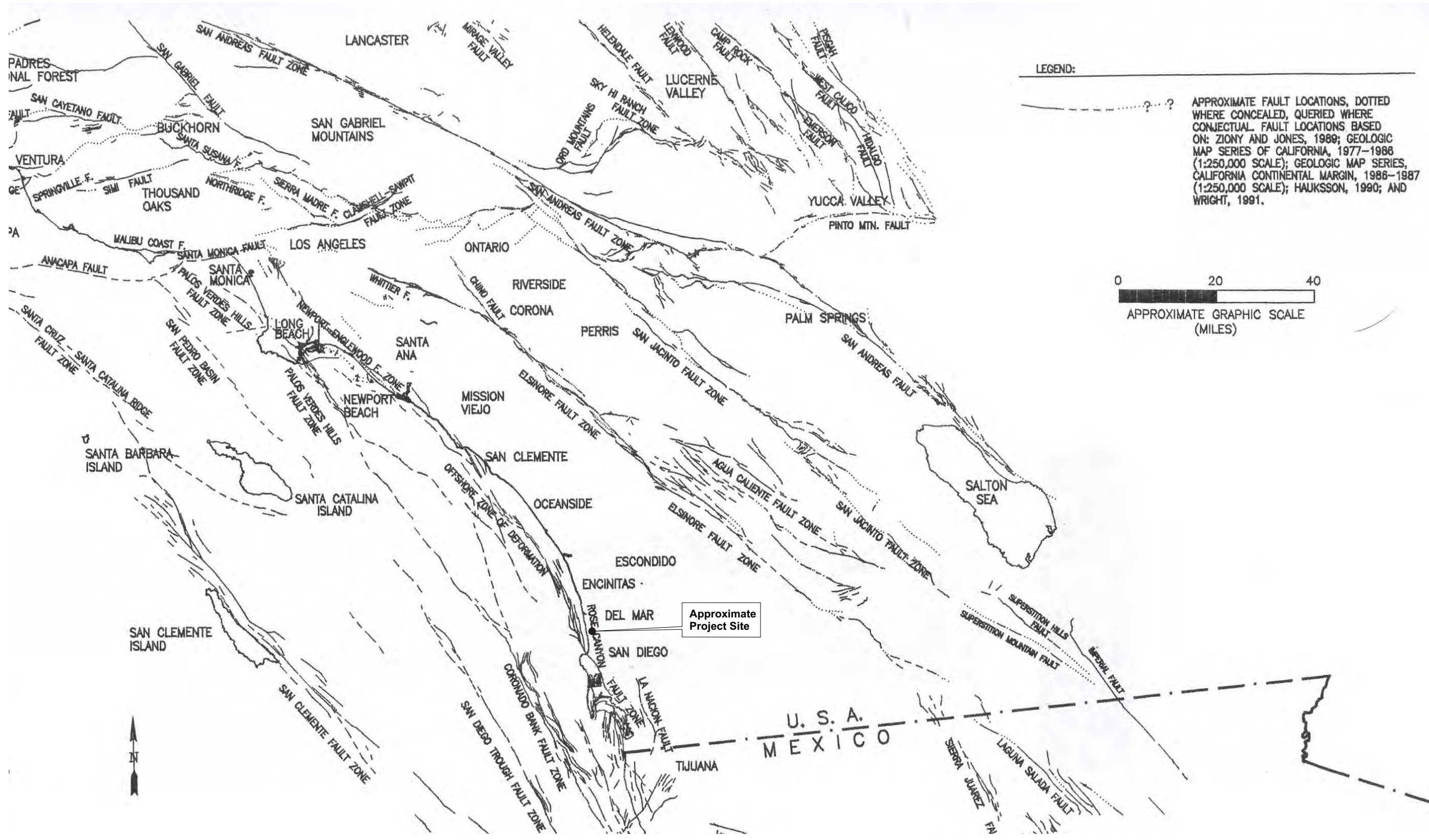
WATER GROUP 939

SITE PLAN

PROJECT NO.
164 GS-14-E

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 2



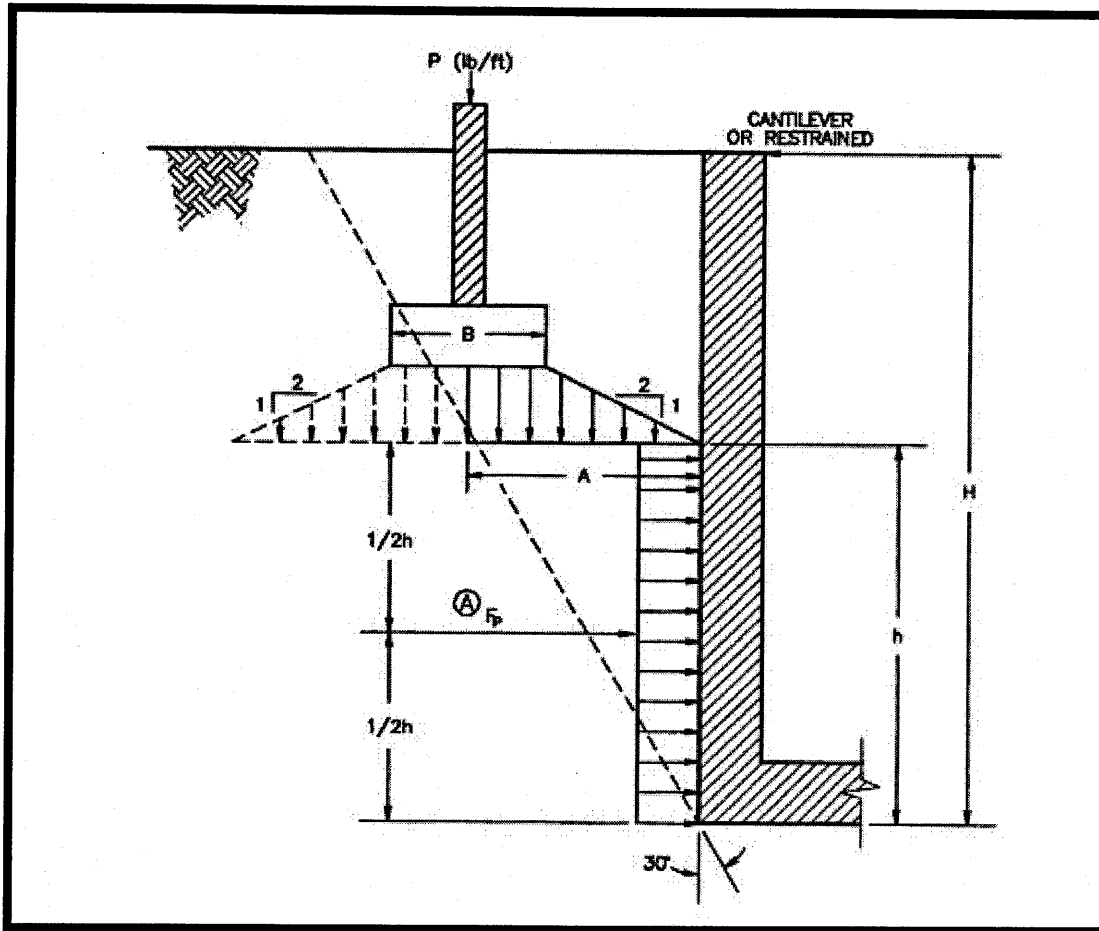
WATER GROUP 939

REGIONAL FAULT MAP

**PROJECT NO.
 164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 3



NON-EXPANSIVE BACKFILL

$$F_p = M (A/B) P, \text{ lb/ft}$$

$$A = h \tan 30^\circ, \text{ ft}$$

$$M = 0.3 \text{ for cantilever wall}$$

$$M = 0.4 \text{ for restrained wall}$$

NOTES:

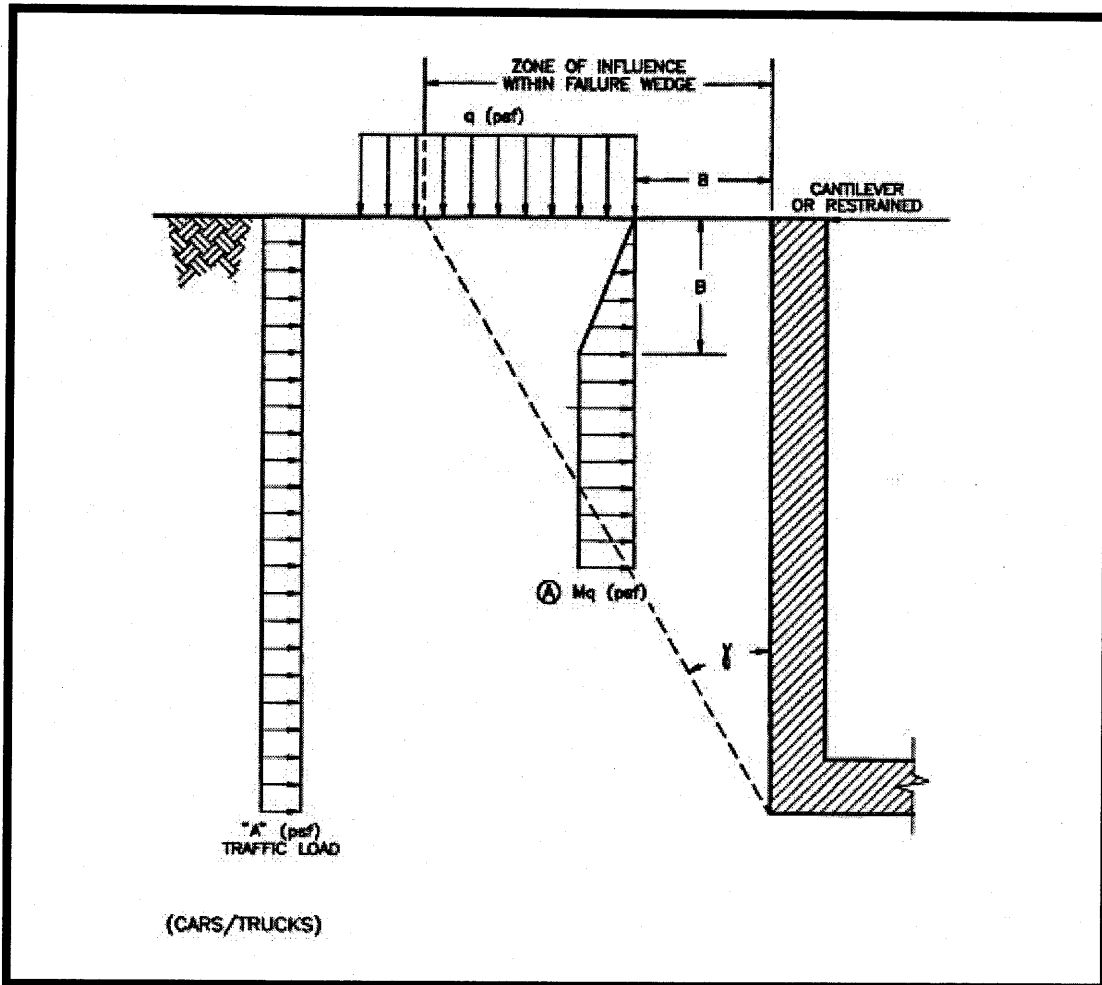
1. Surcharge pressure acting on wall is not affected by groundwater elevation.
2. Surcharge pressures shown are applicable for continuous footing only. Spread footings need to be evaluated individually.

**FOUNDATION INDUCED WALL PRESSURES
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 4



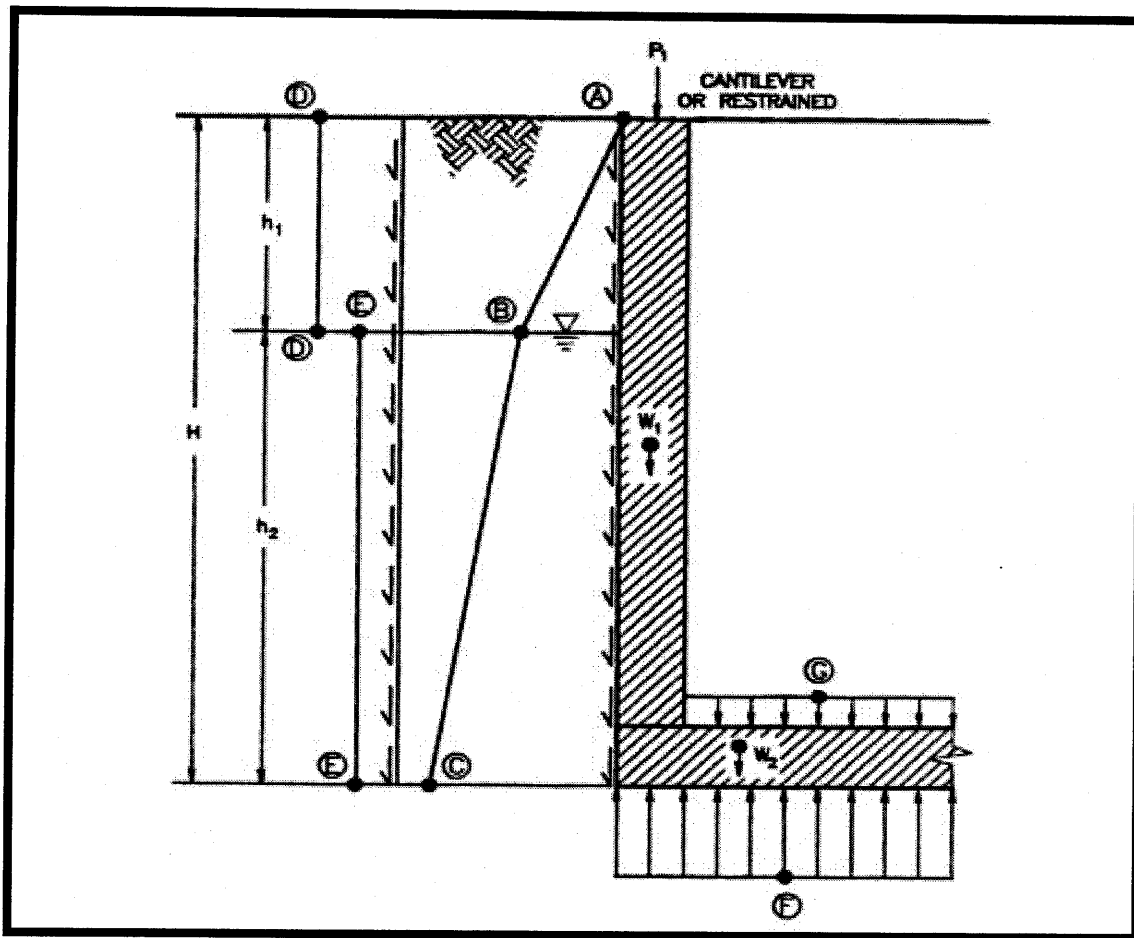
NON-EXPANSIVE BACKFILL

- q = surcharge load (psf)
- B = distance between wall and surcharge load, ft
- $M = 0.3$ for cantilever wall
- $M = 0.4$ for restrained wall
- Ⓐ = Mq , psf
- "A" = 75 psf
- $\gamma = 30^\circ$

NOTE: Surcharge pressure acting on wall is not affected by groundwater elevation.

**TRAFFIC AND SURCHARGE PRESSURES
WATER GROUP 939**

PROJECT NO. 164 GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE 5
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**PROPERLY COMPACTED
BACKFILL**

Soil Friction, psf

- Ⓐ = 0
- Ⓑ = $22h_1$
- Ⓒ = $22h_1 + 11h_2$
- Ⓓ = $7H^*$
- Ⓔ = $4H^*$

Hydrostatic Pressure, psf

- Ⓕ = $62.4 h_2$

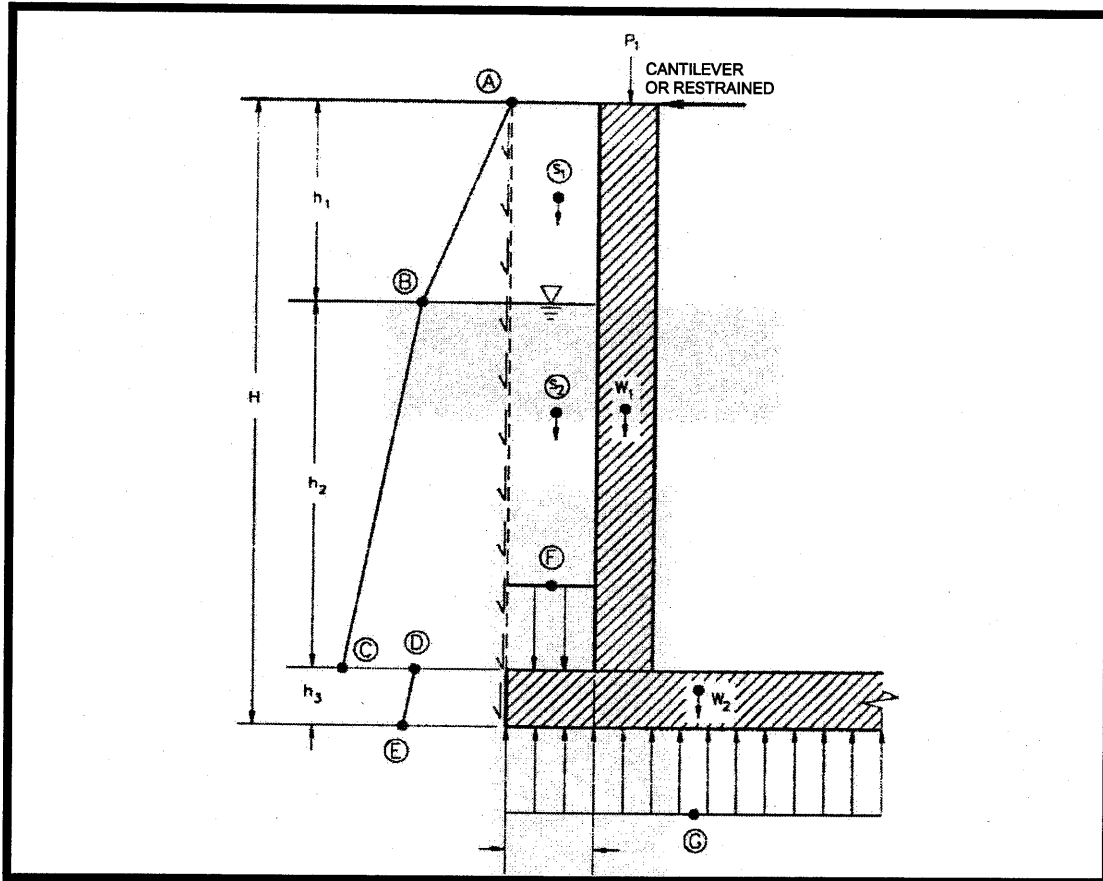
NOTE: * Ⓓ and Ⓔ are only applicable for restrained walls and should be ignored if walls are to be designed as simple cantilever

**UPLIFT RESISTANCE FOR WALLS WITHOUT EXTENSION
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 6



**PROPERLY COMPACTED
BACKFILL**

Soil Friction, psf

- Ⓐ = 0
- Ⓑ = $40h_1$
- Ⓒ = $40h_1 + 20 h_2$
- Ⓓ = $24h_1 + 12 h_2$
- Ⓔ = $24h_1 + 12 h_2 + 12 h_3$

Soil Weights - Within Vertical Prism, pcf

- Ⓐ₁ = 130 (above groundwater)
- Ⓐ₂ = 62 (below groundwater)

Hydrostatic Pressure, psf

- Ⓕ = $62.4 h_2$
- Ⓖ = $62.4 (h_2 + h_3)$

**UPLIFT RESISTANCE FOR WALLS WITH EXTENSION
WATER GROUP 939**

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 7

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

The field exploration program for this project was performed on March 11, 2016. Two (2) soil borings were performed at the approximate locations shown on Figure 2. The borings were advanced using conventional hollow-stem auger drilling methods to depths ranging from 30 feet to 32 feet below the existing ground surface (bgs) using conventional hollow-stem auger drilling methods. The borings were performed with a CME 95 truck-mounted drill rig or equivalent. The soils encountered in the borings were visually classified and logged. A Key to Logs is presented on Figure Nos. A-1 and A-2 and the logs of borings are included as Figure Nos. A-3 and A-4.

Prior to commencement of the field exploration activities, several site visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. Traffic control permits were obtained from the City of San Diego to perform the boring located on public right-of-way. In addition, we obtained soil boring permit from the County of San Diego Department of Environmental Health (DEH).

During drilling, Standard Penetration Tests (SPT) were performed at selected depth intervals. The SPT tests involve the use of a specially manufactured "split spoon" sampler which is driven into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. The number of blows required to penetrate each 6-inch increment was counted and recorded on the field logs, and have been used to evaluate the relative density and consistency of the materials. The blow counts were subsequently corrected for sample type, hammer model, groundwater and surcharge. The corrected blow counts are shown on the boring logs.

Relatively undisturbed samples were obtained by driving a 3-inch (OD) diameter standard California sampler with a special cutting tip and inside lining of thin brass rings into the soils at the bottom of the borehole. The sampler is driven a distance of 12 inches into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. A 6-inch long section of the soil samples that were retained in the brass rings were extracted from the sampling tube and transported to our laboratory in close-fitting, waterproof containers. The samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The OVM readings are indicated on the boring logs.

Following completion of the drilling and sampling activities, the borings were backfilled using bentonite grout to approximately 12 inches below the ground surface, and capped with rapid-set concrete to match the adjacent pavement surface.

KEY TO LOG OF BORING

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> 1 </div> <div style="position: absolute; top: 70%; left: 50%; transform: translate(-50%, -50%);"> 2 </div> <div style="position: absolute; top: 110%; left: 50%; transform: translate(-50%, -50%);"> 3 </div> </div>	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> 16 </div> <div style="position: absolute; top: 110%; left: 50%; transform: translate(-50%, -50%);"> 18 </div> </div>			<p>Sample identification number</p> <p>Approximate interval of bulk sample</p> <p>Approximate interval of Standard California Sampler (SCS).</p> <p>Number of blows required to advance sampler for the last foot, or distance indicated. Blow counts shown on boring logs have been corrected for dimensions of sampler, sample and ground water depth, and hammer type.</p> <p>Approximate interval of Standard Penetration Test (SPT).</p> <p> Groundwater level at the time of drilling</p> <p style="text-align: center;">(KEY TO LOG OF BORING CONTINUED ON FIGURE A-2)</p>			
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-1

KEY TO LOG OF BORING (CONTINUED)

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1					-?- -?- -?- APPROXIMATE GEOLOGIC CONTACT			
2				[Blank]	FILL			
3				[Blank]	SAND			
4				[Blank]	SILT			
5				[Blank]	CLAY			
6				[Blank]	GRAVELS & COBBLES			
7				[Blank]				
8								
9								
10					<u>GENERAL NOTES</u>			
11					1. Approximate elevations and locations of borings are based on GoogleEarth, 2016.			
12					2. Soil descriptions are based on visual classification made during the field exploration and, where deemed appropriate, have been modified based on the results of laboratory tests.			
13					3. Descriptions on the boring logs apply only at the specific boring locations and at the time the borings were performed. They are not warranted to be representative of subsurface conditions at other locations or times.			
14								
15								
16								
17								
18								
19								
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-2

BORING NO. B-1

DATE OF DRILLING: MARCH 11, 2016

TOTAL BORING DEPTH: 31.5 FEET

GENERAL LOCATION: SOUTHWEST SIDE OF ROSELLE STREET APPROXIMATELY 75 FEET NORTHWEST OF DUNHILL STREET

APPROXIMATE SURFACE ELEV.: +30 FEET MSL

DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..

DRILLING METHOD: 8 INCH HSA

LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 6" A.C. over 10" misc. base			
2					FILL: Yellowish brown, damp to wet, silty sand (SM) with traces of gravel up to 1/2" in maximum dimension			
3								
4								
5	1	11	0.4			17.1	109.7	
6	2							
7								
8								
9								
10	3	6	0.5			15.3		
11								
12								
13								
14								
15					UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARY DEPOSITS			
16	4	9	0.2		Dark gray to dark grayish brown, wet, medium stiff, sandy clay (CL) interlayered with yellow brown, fine-grained silty sand (SM).	26.2	95.7	
17								
18								
19								
20								
21	5	8						No sample recovery
22								
23								
24								
25	6	9	0.1		Dark grayish brown to dark bluish gray, wet, medium stiff, fine-grained, micaceous, sandy silt (ML).	27.4	96.2	
26								
27	7							
28								
29								
30	8				NOTES: Bottom of borehole at 32'			
31	9	2	1.1		Groundwater measured at 8.5' at completion of drilling operations	36.4		
32								

**PROJECT NO.
164GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE A-3

BORING NO. B-2

DATE OF DRILLING: MARCH 11, 2016	TOTAL BORING DEPTH: 30 FEET
GENERAL LOCATION: EAST SIDE OF SORRENTO VALLEY ROAD, APPROXIMATELY 1,475 FEET NORTH OF SORRENTO VALLEY BOULEVARD	
APPROXIMATE SURFACE ELEV.: +25 FEET MSL	DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..
DRILLING METHOD: 8 INCH HSA	LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVN READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 5" A.C., 12" misc. base			
2					FILL: Yellow brown, damp, silty sand (SM) with sub-rounded to sub-angular gravel up to 1" maximum dimension.	17.4	111.8	
3								
4								
5	1	18	0.1					
6								
7					UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARY DEPOSITS Olive brown to greenish gray, wet, medium stiff to stiff, sandy silt (ML). ▼ Soils become dark grayish brown to dark olive gray, and soft.	33.2		
8	2							
9								
10								
11	3	2	0.4					
12								
13								
14								
15								
16	5	7				22.2	103.9	
17								
18								
19								
20								
21	6	10	0.1		Dark gray brown, wet, medium dense, fine-grained, slightly micaceous silty sand (SM) and sandy silt (ML).			No sample recovery
22								
23								
24								
25								
26	7	13	0.5		Dark grayish brown, wet, medium dense, fine-grained, micaceous, silty sand (SM).	18.3		
27								
28	8							
29								
30								

NOTES:
 Bottom of borehole at 30 feet
 Groundwater measured at 9'-10" at completion of drilling operations

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-4
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APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Selected soil samples were tested in the laboratory to verify visual field classifications and to evaluate certain engineering characteristics. The testing was performed in accordance with the American Society for Testing and Materials (ASTM) or other generally accepted test methods, and included the following:

- Determination of in-place moisture content (ASTM D2216). The final test results are presented on the boring logs;
- Determination of in-place dry density and moisture content (ASTM D2937) based on relatively undisturbed drive samples. The final test results are presented on the boring logs;
- Sieve and hydrometer analyses (ASTM D422), and the final test results are plotted as gradation curves on Figure B-1;
- Direct shear test (ASTM D3080). The test results are presented on Figures B-2 and B-3;
- Expansion index (ASTM D4829). The final test results are presented in Table B-1; and
- Atterberg Limits (ASTM D4318) and the test results are presented in Table B-2.

In addition, representative samples of the onsite soil materials were delivered to Clarkson Laboratory and Supply, Inc. for analytical (chemical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. Copies of Clarkson's laboratory test data reports are included herein.

Table B-1

Summary of Expansion Index Test Results

Sample ID.	Expansion Index
B-1 #7 @ 25'-28'	26

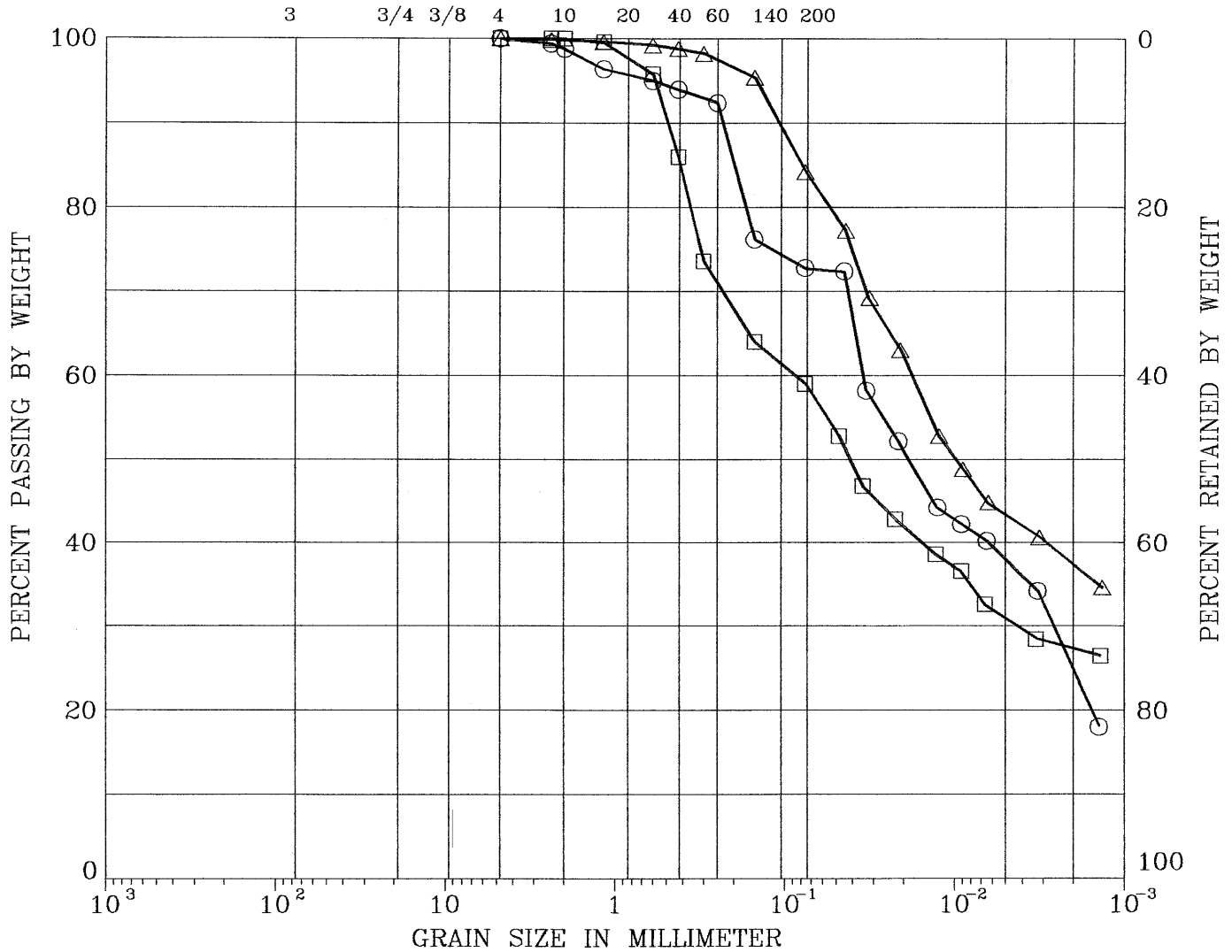
Table B-2

Summary of Atterberg Test Results

Sample ID.	LL (%)	PL (%)	PI (%)
B-2 #6 @ 21'-21.5'	28	21	7
B-1 #6 @ 26'-26.5'	40	23	17
B-2 #3 @ 11'-11.5'	39	20	19

UNIFIED SOIL CLASSIFICATION

<i>COBBLES</i>	<i>GRAVEL</i>		<i>SAND</i>			<i>SILT OR CLAY</i>
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B-1 #6	26-26.5	40	17	CLAY (CL)
□	B-2 36	21-21.5	28	7	CLAY (CL)
△	B-2 #3	11-11.5	39	19	CLAY (CL)

Remark :

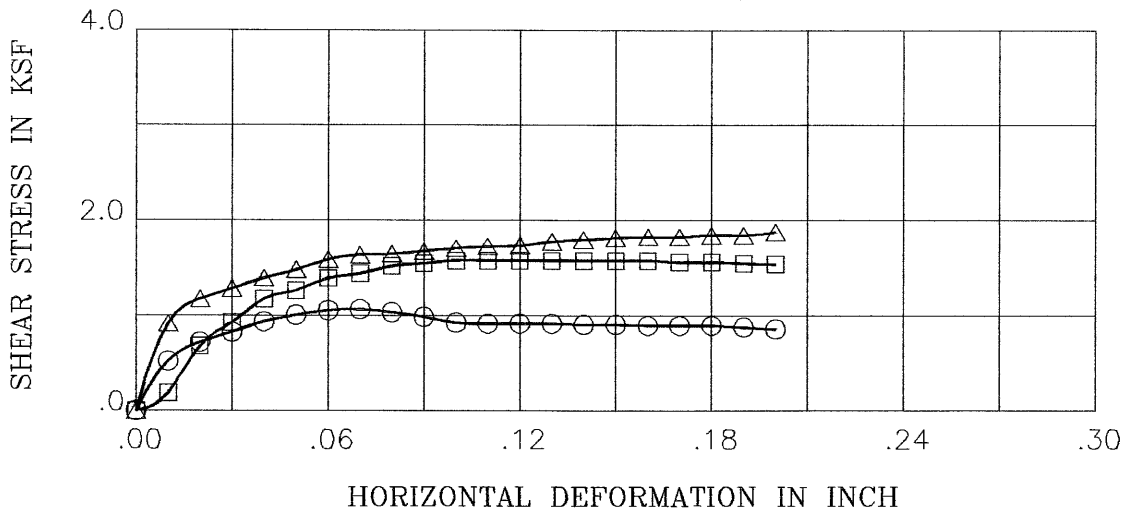
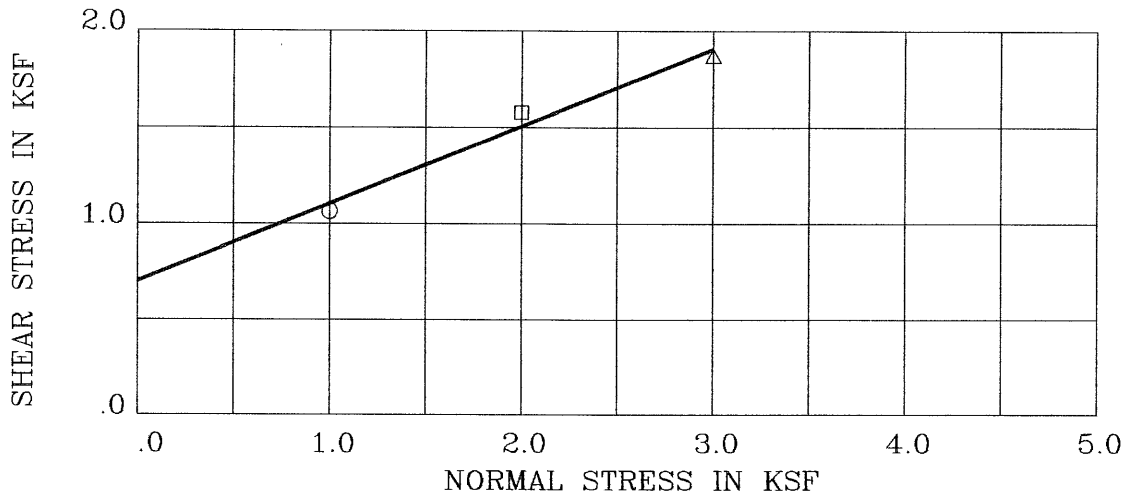
Project 164 GS-14E

WATER GROUP 939

ALLIED GEOTECHNICAL ENGINEERS, INC.
December 7, 2017
Water Group 939

GRAIN SIZE DISTRIBUTION
ADDENDUM B

Figure B-1
Page 64 of 97



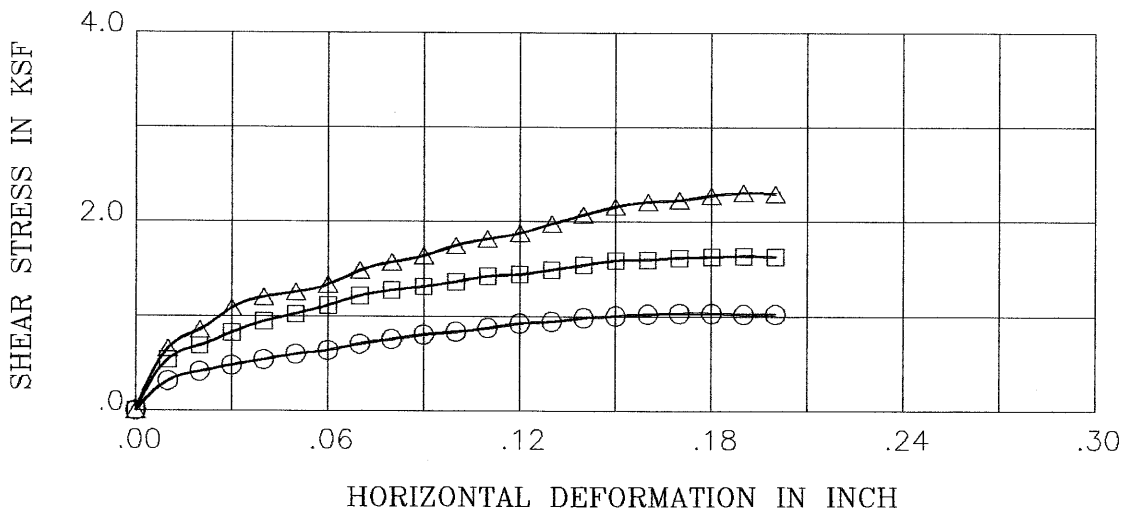
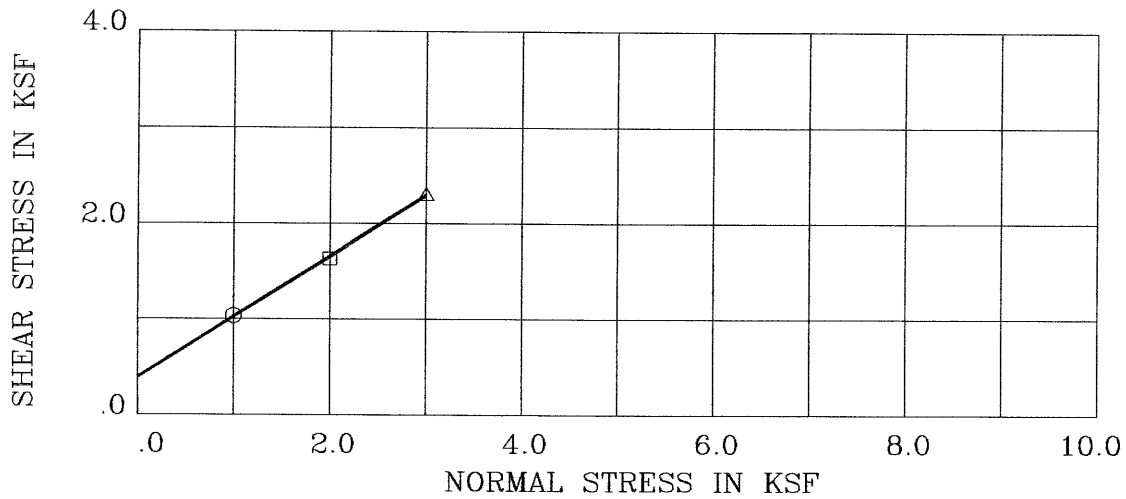
BORING/SAMPLE : B-1#6 DEPTH (ft) : 26-26.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .700 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 22.0 DEG

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	31.0	93.4	.804	1.00	1.07	.86
□	27.5	94.6	.781	2.00	1.58	1.54
△	29.4	92.2	.828	3.00	1.87	1.87

Remark :

Project 164 GS-14B	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC. December 7, 2017 Water Group 939	DIRECT SHEAR TEST <small>ADDENDUM B</small>

Figure B-2
Page 65 of 97



BORING/SAMPLE : B-2#6 DEPTH (ft) : 21-21.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .389 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 32.4 DEG

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	21.9	103.4	.629	1.00	1.04	1.02
□	22.3	103.4	.630	2.00	1.64	1.63
△	22.3	105.4	.598	3.00	2.31	2.30

Remark :

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 31, 2016
Purchase Order Number: 164 GS-14-E
Sales Order Number: 30727
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S05955-1 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 03/24/16 at 11:26am,
taken on 03/24/16 from Water Group 939 Project# 164-GS-14-E
marked as B-1#8@29'-30'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.3

Water Added (ml)	Resistivity (ohm-cm)
15	860
5	520
5	360
5	310
5	290
5	260
5	250
5	310
5	350

17 years to perforation for a 16 gauge metal culvert.
23 years to perforation for a 14 gauge metal culvert.
31 years to perforation for a 12 gauge metal culvert.
40 years to perforation for a 10 gauge metal culvert.
48 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.510% (5100ppm)
Water Soluble Chloride Calif. Test 422 0.091% (910ppm)
Bicarbonate (as CaCO₃) N/A
(In a saturated soil paste extract)

Note: N/A = Unable to determine due to the texture of the soil (Clay).


Laura Torres
LT/dbb

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993

Fax 425-7917

Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C .
 350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 31, 2016

Purchase Order Number: 164 GS-14-E

Sales Order Number: 30727

Account Number: ALLG

To:

Allied Geotechnical Engineers
 1810 Gillespie Way Ste 104
 El Cajon, CA 92020
 Attention: Sani Sutanto

Laboratory Number: S05955-2

Customers Phone: 449-5900

Fax: 449-5902

Sample Designation:

One soil sample received on 03/24/16 at 11:26am,
 taken on 03/24/16 from Water Group 939 Project#164-GS-14-E
 marked as B-2#8@27'-28'

Analysis By California Test 643, 1999, Department of Transportation
 Division of Construction, Method for Estimating the Service Life of
 Steel Culverts.

pH 8.1

Water Added (ml)

Resistivity (ohm-cm)

10	4100
5	1600
5	1200
5	770
5	640
5	630
5	650
5	670

25 years to perforation for a 16 gauge metal culvert.

33 years to perforation for a 14 gauge metal culvert.

46 years to perforation for a 12 gauge metal culvert.

58 years to perforation for a 10 gauge metal culvert.

71 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417

0.016% (160ppm)

Water Soluble Chloride Calif. Test 422

0.019% (190ppm)

Bicarbonate (as CaCO₃)

N/A

(In a saturated soil paste extract)

Note: N/A = Unable to determine due to the texture of the soil (Clay).

Laura Torres

Laura Torres

LT/dbb



March 7, 2017

Mr. Kevin Gibson, P.E.
Project Manager
Rick Engineering Company
5620 Friars Road
San Diego, CA 92110

**Subject: REPORT OF GEOLOGIC LOGGING AND
LABORATORY TESTING FOR
WATER GROUP 939
CITY OF SAN DIEGO
AGE Project No. 164 GS-14-E**

Dear Kevin,

Reference is made to our "Report of Geotechnical Investigation Water Group 939" dated March 29, 2016 in which we presented our findings, opinions and recommendations with regard to the design of the subject project. The scope of work included the advancement of two soil borings (borings B-1 and B-2).

In accordance with our proposal dated June 22, 2016, Allied Geotechnical Engineers, Inc. (AGE) has performed drilling, logging and sampling operations of two additional borings (borings B-3 and B-4) at the approximate locations shown on Figure 1. The borings were advanced to a depth of 51.5 feet below the existing ground surface (bgs) on February 17 and 18, 2017 using conventional hollow-stem auger drilling methods. A more detailed description of the drilling and sampling activities, and logs of the borings are presented in Appendix A.

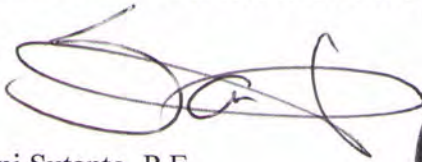
Selected soil samples obtained from the borings were tested in the laboratory to verify field classifications and evaluate certain engineering characteristics. The geotechnical laboratory tests were performed in general conformance with the American Society for Testing and Materials (ASTM) or other generally accepted testing procedures.

The laboratory tests included: in-place density and moisture content, maximum density and optimum moisture content, sieve (wash) analysis, Atterberg limits, shear strength, expansion index and consolidation. In addition, representative samples of the onsite soil materials were collected and delivered to Clarkson Laboratories and Supply, Inc. for chemical (analytical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A brief description of the tests that were performed and the final test results are presented in Appendix B.

We appreciate the opportunity to be of service on this project. If you have any questions regarding the content of this report or need further assistance, please feel free to contact our office.

Sincerely,

ALLIED GEOTECHNICAL ENGINEERS, INC.

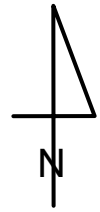


Sani Sutanto, P.E.
Senior Engineer



SS/TJL:cal
Distr. (1 electronic copy) Addressee




 1 INCH = 50 FEET
 Scale Bar

WATER GROUP 939

SITE PLAN

**PROJECT NO.
164 GS-14-E**

ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE 1

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

APPENDIX A

DRILLING AND SAMPLING ACTIVITIES

The field exploration program for this project was performed on February 17 and 18, 2017. Two (2) soil borings were performed at the approximate locations shown on Figure 1. The borings were advanced using conventional hollow-stem auger drilling methods to a depth of 51.5 feet below the existing ground surface (bgs) using conventional hollow-stem auger drilling methods. The borings were performed with a Diedrich D-120HT/HS truck-mounted drill rig. The soils encountered in the borings were visually classified and logged. A Key to Logs is presented on Figure Nos. A-1 and A-2 and the logs of borings are included as Figure Nos. A-3 and A-6.

Prior to commencement of the field exploration activities, several site visits were performed to observe existing conditions and to select suitable locations for the borings. Subsequently, Underground Service Alert (USA) was contacted to coordinate clearance of the proposed boring locations with respect to existing buried utilities. A traffic control permit was obtained from the City of San Diego to perform the boring located on Sorrento Valley Road. An Access Agreement was obtained from ARE-11025/11075 Roselle Street, LLC for the boring located behind the office building located at 11045 Roselle Street. In addition, AGE also obtained soil boring permit from the County of San Diego Department of Environmental Health (DEH).

During drilling, Standard Penetration Tests (SPT) were performed at selected depth intervals. The SPT tests involve the use of a specially manufactured "split spoon" sampler which is driven into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. The number of blows required to penetrate each 6-inch increment was counted and recorded on the field logs, and have been used to evaluate the relative density and consistency of the materials. The blow counts were subsequently corrected for sample type, hammer model, groundwater and surcharge. The corrected blow counts are shown on the boring logs.

Relatively undisturbed samples were obtained by driving a 3-inch (OD) diameter standard California sampler with a special cutting tip and inside lining of thin brass rings into the soils at the bottom of the borehole. The sampler is driven a distance of 12 inches into the soils at the bottom of the borehole by dropping a 140-pound weight from a height of 30 inches. A 6-inch long section of the soil samples that were retained in the brass rings were extracted from the sampling tube and transported to our laboratory in close-fitting, waterproof containers. The samples were field screened for the presence of volatile organics using a RAE Systems MiniRAE 3000 organic vapor meter (OVM). The OVM readings are indicated on the boring logs.

Following completion of the drilling and sampling activities, the borings were backfilled using bentonite grout to approximately 12 inches below the ground surface, and capped with rapid-set concrete to match the adjacent pavement surface.

KEY TO LOG OF BORING

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> 1 </div> <div style="position: absolute; top: 70%; left: 50%; transform: translate(-50%, -50%);"> 2 </div> <div style="position: absolute; top: 110%; left: 50%; transform: translate(-50%, -50%);"> 3 </div> </div>	<div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 30%; left: 50%; transform: translate(-50%, -50%);"> 16 </div> <div style="position: absolute; top: 110%; left: 50%; transform: translate(-50%, -50%);"> 18 </div> </div>			<p>Sample identification number</p> <p>Approximate interval of bulk sample</p> <p>Approximate interval of Standard California Sampler (SCS).</p> <p>Number of blows required to advance sampler for the last foot, or distance indicated. Blow counts shown on boring logs have been corrected for dimensions of sampler, sample and ground water depth, and hammer type.</p> <p>Approximate interval of Standard Penetration Test (SPT).</p> <p> Groundwater level at the time of drilling</p> <p style="text-align: center;">(KEY TO LOG OF BORING CONTINUED ON FIGURE A-2)</p>			
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-1

KEY TO LOG OF BORING (CONTINUED)

DEPTH (FEET)	SAMPLES	BLOW COUNTS (BLOWS/FOOT)	OVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE (% DRY WT.)	DRY DENSITY (PCF)	REMARKS
1					-?- -?- -?- APPROXIMATE GEOLOGIC CONTACT			
2				[Blank]	FILL			
3				[Blank]	SAND			
4				[Blank]	SILT			
5				[Blank]	CLAY			
6				[Blank]	GRAVELS			
7				[Blank]				
8								
9								
10					<u>GENERAL NOTES</u>			
11					1. Approximate elevations and locations of borings are based on GoogleEarth, 2016.			
12					2. Soil descriptions are based on visual classification made during the field exploration and, where deemed appropriate, have been modified based on the results of laboratory tests.			
13					3. Descriptions on the boring logs apply only at the specific boring locations and at the time the borings were performed. They are not warranted to be representative of subsurface conditions at other locations or times.			
14								
15								
16								
17								
18								
19								
PROJECT NO. 164 GS-14-E					ALLIED GEOTECHNICAL ENGINEERS, INC.			FIGURE A-2

BORING NO. B-3

DATE OF DRILLING: FEBRUARY 17, 2017

TOTAL BORING DEPTH: 51.5 FEET

GENERAL LOCATION: WEST SIDE OF SORRENTO VALLEY ROAD APPROXIMATELY 1,500 FEET NORTH OF SORRENTO VALLEY BOULEVARD

APPROXIMATE SURFACE ELEV.: +35 FEET MSL

DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..

DRILLING METHOD: 8 INCH HSA

LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVN READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 5" A.C. over 12" misc. base.			
2					FILL			
3					Yellow brown, damp to wet, silty sand (SM) with sub-angular to sub-rounded gravels up to 2" in maximum dimension.			
4								
5	1	26	0.0			12.5	113.2	
6	2							
7								
8				? - - - - - ? - - - - - ?				? - - - - - ? - - - - - ?
9					UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS			
10	3							
11	4	6	0.2		Dark gray to black, wet, soft to medium stiff, sandy clay (CL) containing trace amounts of organics and displaying a faint odor of decomposed vegetation.	26.5		
12					No odor of decomposed vegetation odors noted below depth of 12'.			
13								
14								
15								
16	5	6	0.0		Dark olive gray to black, slightly micaceous, low plasticity sandy clay (CL).	33.1	92.3	
17								
18					▼			
19								
20								
21	6	6	0.1		Very dark grayish brown to dark olive gray, wet, micaceous, sandy clay/sandy silt (CL/ML) with traces of sub-angular gravels up to 1/4" in maximum dimension.	22.9		
22								Driller adding bentonite grout inside auger to maintain stability of hole bottom
23								
24								
25								
26	7	17	0.0		Grayish brown to dark gray, wet, medium dense, slightly micaceous, fine-grained, silty sand (SM).	19.9	111.3	
27								
28								
29	8							

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-3
-----------------------------------	--	-------------------

BORING NO. B-3(Continued)

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	QVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
31	9	18	0.2		UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS At 31', soil grades into grayish brown, wet, medium dense, fine-grained, poorly graded sand with silt (SP-SM).	22.2		
32								
33								
34								
35	10	61	0.0		Soil becomes very dense, medium grained.	20.0	106.1	
36								
37								
38								
39								
40	11	8	0.1	At 41', soil makes a sharp transition to grayish brown, wet, medium stiff, sandy clay (CL).	25.8			
41								
42								
43								
44								
45	12	15	0.0	Grayish brown to olive gray, wet, stiff, sandy silt (ML).	24.6	103.5		
46								
47								
48	13							
49								
50					Grayish brown to dark olive gray, wet, soft, sandy silt (ML).			
51	14	2	0.1			25.9		

NOTES:

Bottom of borehole at 51.5 feet.

Groundwater encountered at 18 feet during drilling operations.

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-4
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BORING NO. B-4

DATE OF DRILLING: FEBRUARY 18, 2017	TOTAL BORING DEPTH: 51.5 FEET
GENERAL LOCATION: PARKING AREA LOCATED BEHIND THE OFFICE BUILDING AT 11045 ROSELLE STREET	
APPROXIMATE SURFACE ELEV.: +35 FEET MSL	DRILLING CONTRACTOR: TRI-COUNTY DRILLING, INC..
DRILLING METHOD: 8 INCH HSA	LOGGED BY: NICK BARNES

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	OVN READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS
1					EXISTING PAVEMENT: 4" A.C., no base.			
2					FILL			
3					Yellow brown to reddish yellow, damp, fine to medium-grained silty sand (SM) with scattered sub-angular to sub-rounded gravels, up to 3" in maximum dimension.			
4								
5								
6	1	17	0.1			11.7		
7								
8								
9								
10					----- ? -----	?		?
11	2	9	0.1		UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS	29.9	91.4	
12					Olive to dark olive gray, wet, medium stiff, sandy silt (ML).			
13								
14					▼			
15								
16	3	3	0.0		Dark greenish brown, wet, loose, fine to medium-grained, slightly micaceous, silty sand (SM).	26.3		
17	4							
18								
19								
20								
21	5	8	0.1		Very dark gray, wet, medium stiff, slightly micaceous, low plasticity sandy silt (ML) grading into sandy clay (CL).	23.3	108.8	
22								
23	6							
24								
25	7	3	0.5		Soil becoming soft/loose sandy clay/clayey sand (CL/SC).	23.9		
26								
27	8							
28								
29								

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-5
-----------------------------------	--	-------------------

BORING NO. B-4(Continued)

DEPTH (FEET)	SAMPLES	BLOW COUNTS BLOWS/FOOT	QVM READING (PPM)	GRAPHIC LOG	SOIL DESCRIPTION	FIELD MOISTURE % DRY WT.	DRY DENSITY LBS./CU. FT.	REMARKS	
31	9	49	0.0		UNDIFFERENTIATED ALLUVIAL, SLOPEWASH AND ESTUARINE DEPOSITS At 30', transition to a yellow brown, wet, dense, medium-grained, slightly micaceous, poorly graded sand with silt (SP-SM).	24.1	102.5		
32									
33									
34									
35	10	100+	0.4		Soil is dense to very dense.	21.7			
36									
37									
38									
39									
40	11	11	0.0	Olive green to olive, wet, stiff, sandy silt (ML) with trace of sub-angular gravel up to 1/2" in maximum dimension.	28.7	99.0			
41									
42									
43	12								
44									
45	13	8	0.1	Olive to olive gray, no gravel observed.	28.7				
46									
47									
48									
49									
50	14	35	0.0	At 51', soil grades into olive green to dark olive gray, wet, dense, fine to medium-grained, slightly micaceous, poorly graded sand with silt (SP-SM).	21.1	114.8			
51									

NOTES:

Bottom of borehole at 51.5 feet.

Groundwater encountered at 14 feet during drilling operations.

PROJECT NO. 164GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE A-6
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APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Selected soil samples were tested in the laboratory to verify visual field classifications and to evaluate certain engineering characteristics. The testing was performed in accordance with the American Society for Testing and Materials (ASTM) or other generally accepted test methods, and included the following:

- Determination of in-place moisture content (ASTM D2216). The final test results are presented on the boring logs;
- Determination of in-place dry density and moisture content (ASTM D2937) based on relatively undisturbed drive samples. The final test results are presented on the boring logs;
- Maximum Density and Optimum Moisture Content test (ASTM D1557). The test results are plotted as curves on Figures B-1 and B-2;
- Sieve analyses (ASTM D422). The test results are plotted as gradation curves on Figure B-3;
- Atterberg Limits (ASTM D4318). The test results are shown on Figure B-3;
- Direct shear test (ASTM D3080). The test results are presented on Figures B-4 and B-5;
- Consolidation test (ASTM D2435). The test results are plotted as a curve on Figure B-6; and
- Expansion index (ASTM D4829). The final test results are presented in Table B-1.

In addition, representative samples of the onsite soil materials were delivered to Clarkson Laboratory and Supply, Inc. for analytical (chemical) testing to determine soil pH and resistivity, soluble sulfate and chloride concentrations, and bicarbonate content. A summary of the corrosivity test results is shown on Table B-2. Copies of Clarkson's laboratory test data reports are included herein.

Table B-1

Summary of Expansion Index Test Results

Sample	Expansion Index
B-3 #3 @ 9'-11'	24

Table B-2

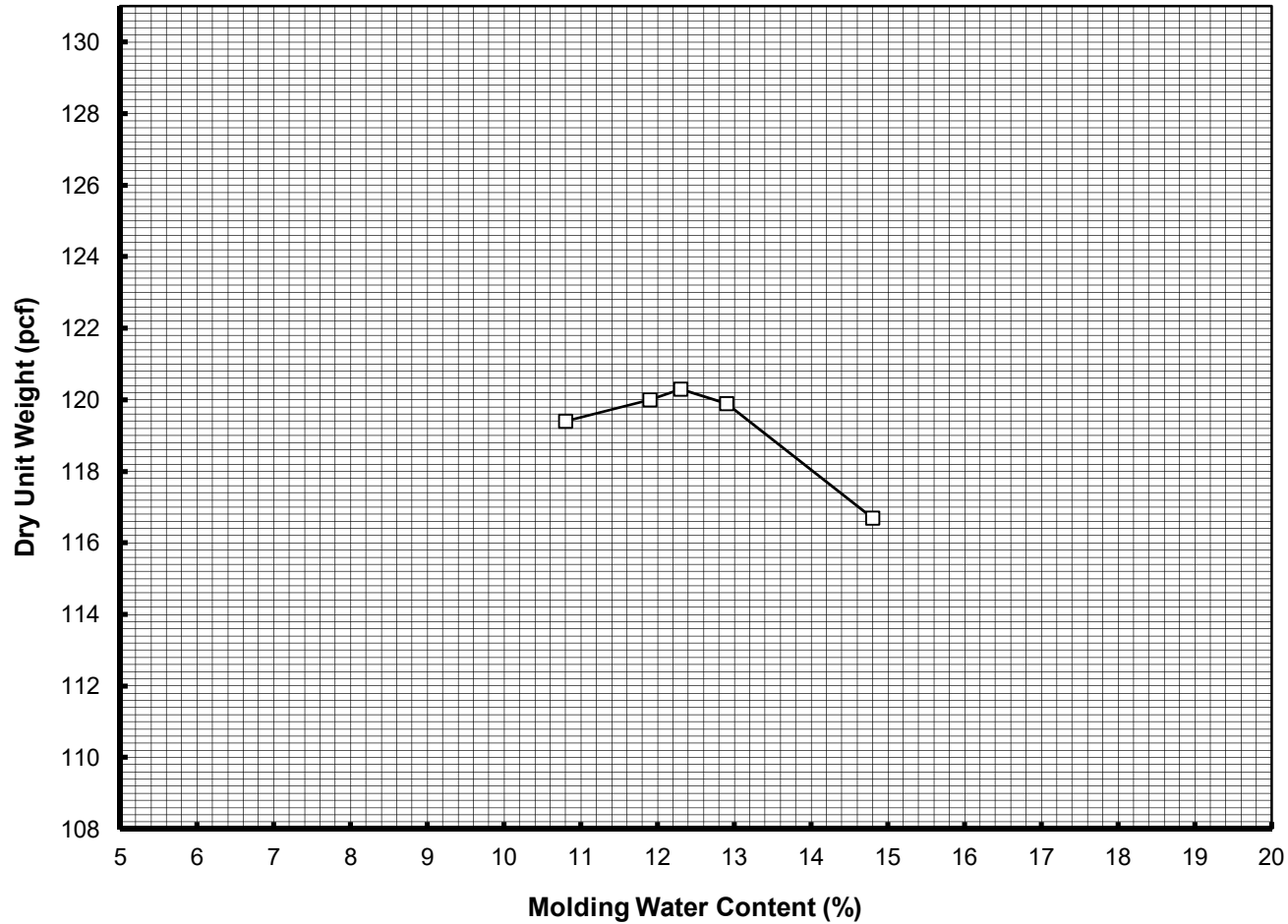
Summary of Corrosivity Test Results

	pH	Resistivity (ohm-cm)	Sulfate Conc. (ppm)	Chloride Conc. (ppm)	Bicarbonates Conc. (ppm)
B-3 Sample No. 13 @46'-50'	8.2	820	330	200	50
B-4 Sample No. 12 @43'-44'	8.0	410	2,280	530	34

COMPACTION CURVE

Test Method: ASTM D 1557

Compaction Procedure: B Specimen Preparation Method: Moist or Dry



5

Boring No.	Sample No.	Depth (ft)	OPT. WC (%)	MAX. DUW (pcf)	LL	PI	Description and/or Classification
B-3	8	27-30	12.3	120.3			Very dark gray sandy clay

**WATER GROUP 939
CITY OF SAN DIEGO**

PROJECT NO. 164 GS-14-E

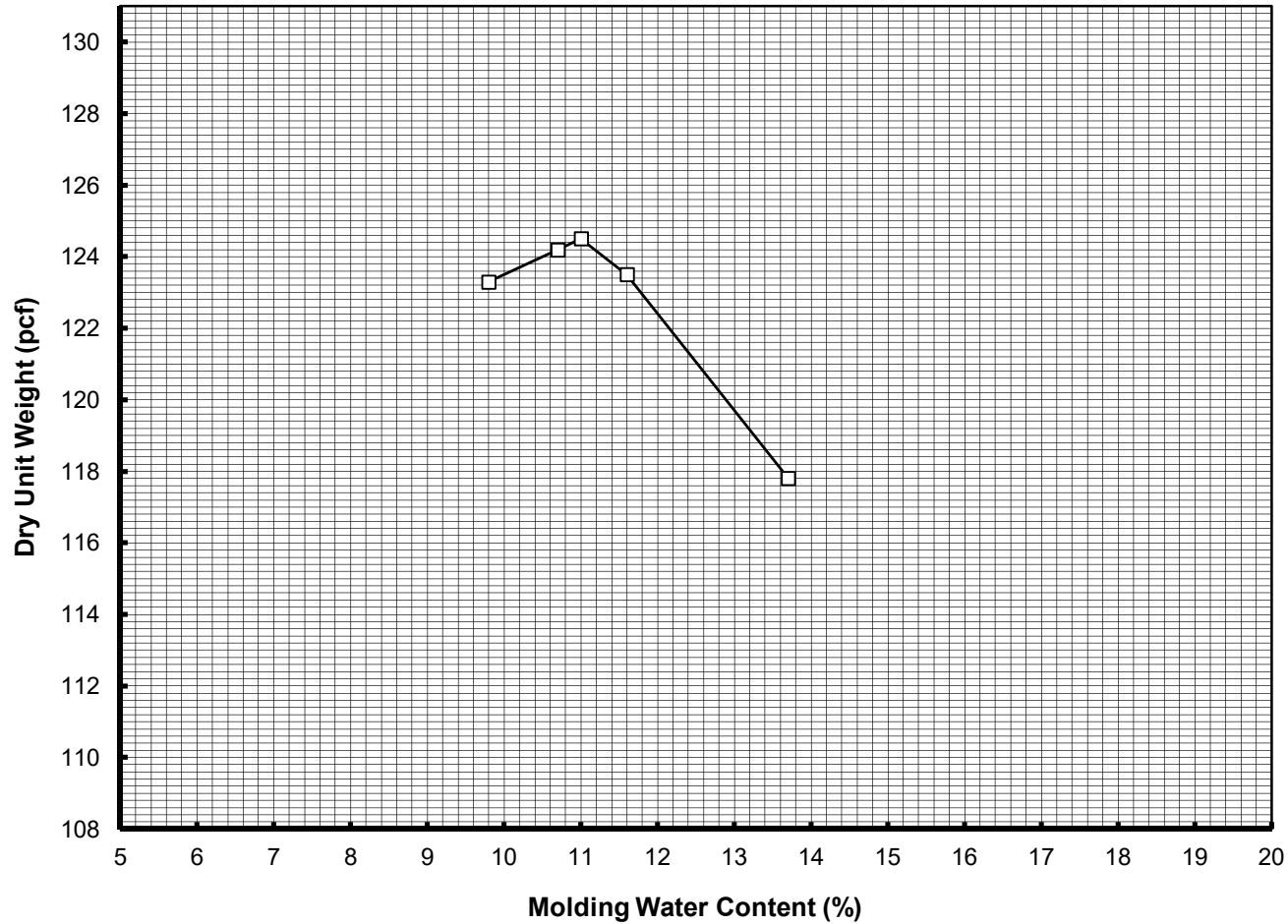
ALLIED GEOTECHNICAL ENGINEERS, INC.

FIGURE B-1

COMPACTION CURVE

Test Method: ASTM D 1557

Compaction Procedure: B Specimen Preparation Method: Moist or Dry



5

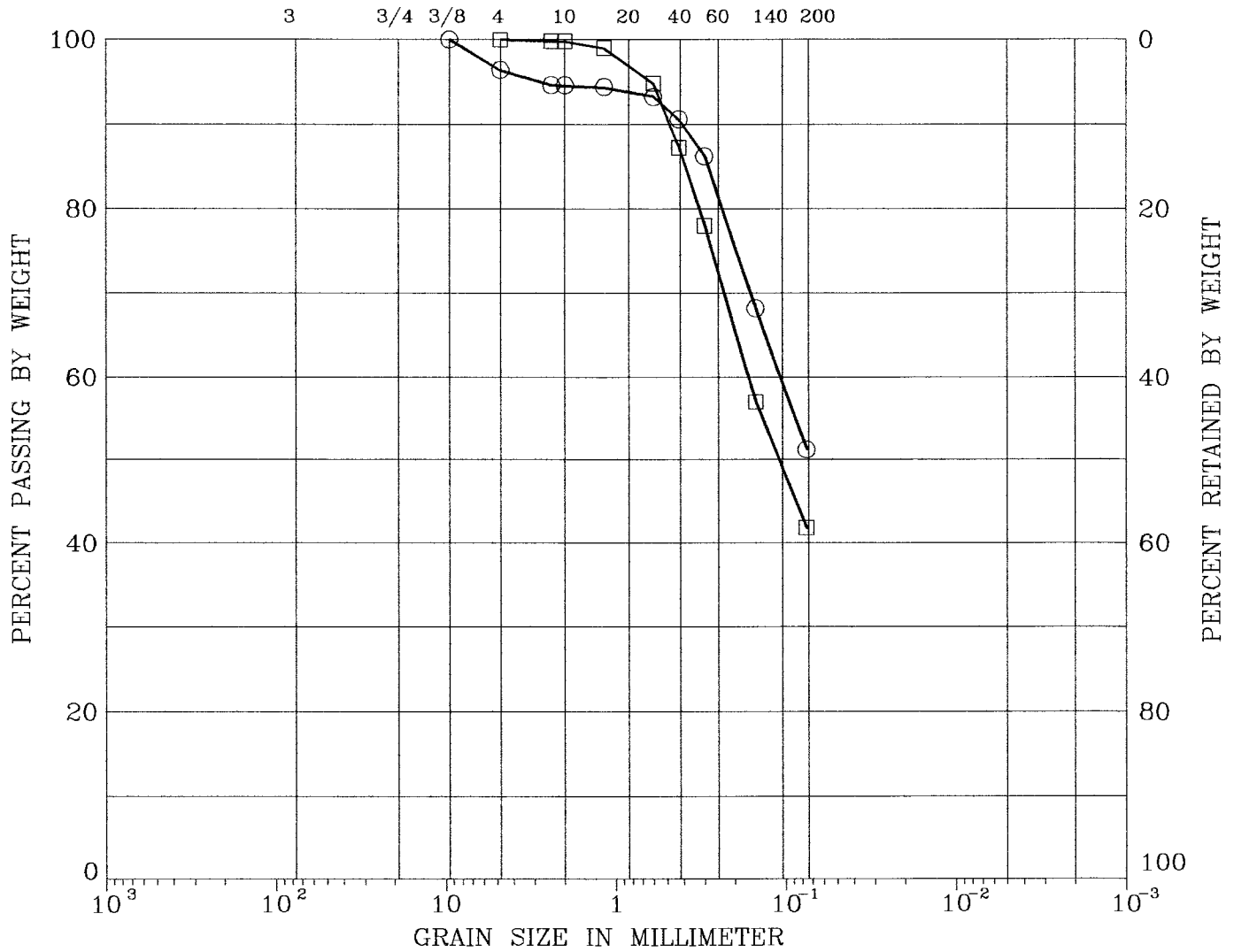
Boring No.	Sample No.	Depth (ft)	OPT. WC (%)	MAX. DUW (pcf)	LL	PI	Description and/or Classification
B-4	4	15-18	11.0	123.0			Grayish brown sandy clay

**WATER GROUP 939
CITY OF SAN DIEGO**

PROJECT NO. 164 GS-14-E	ALLIED GEOTECHNICAL ENGINEERS, INC.	FIGURE B-2
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UNIFIED SOIL CLASSIFICATION

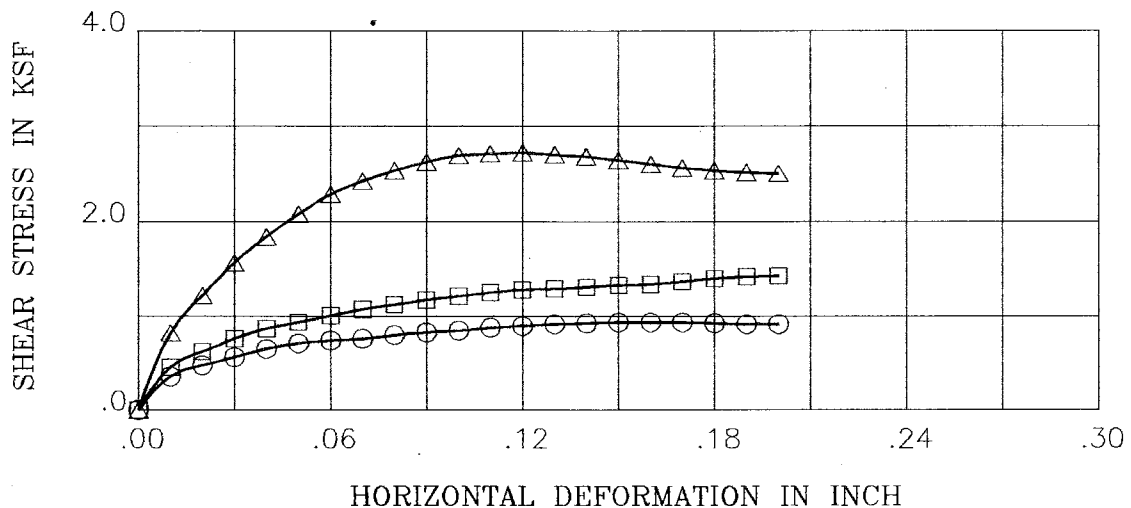
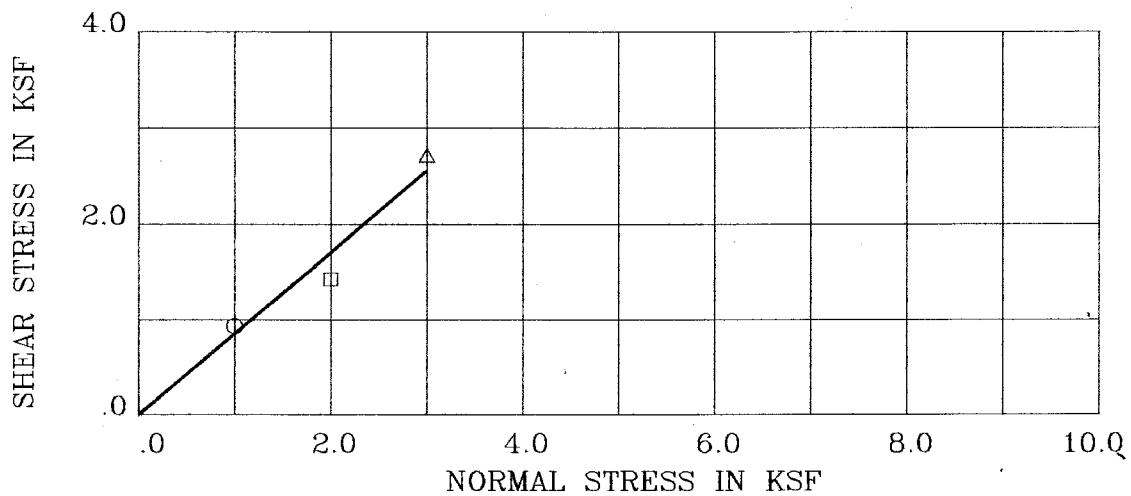
COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B-3 #6	21-21.5	34	16	CLAY (CL)
□	B-4 #7	26-26.5	32	16	CLAYEY SAND (SC)

Remark :

Project 164 GS-14E	WATER GROUP 939	
ALLIED GEOTECHNICAL ENGINEERS, INC.	GRAIN SIZE DISTRIBUTION	Figure B-3
December 7, 2017	ADDENDUM B	Page 85 of 97

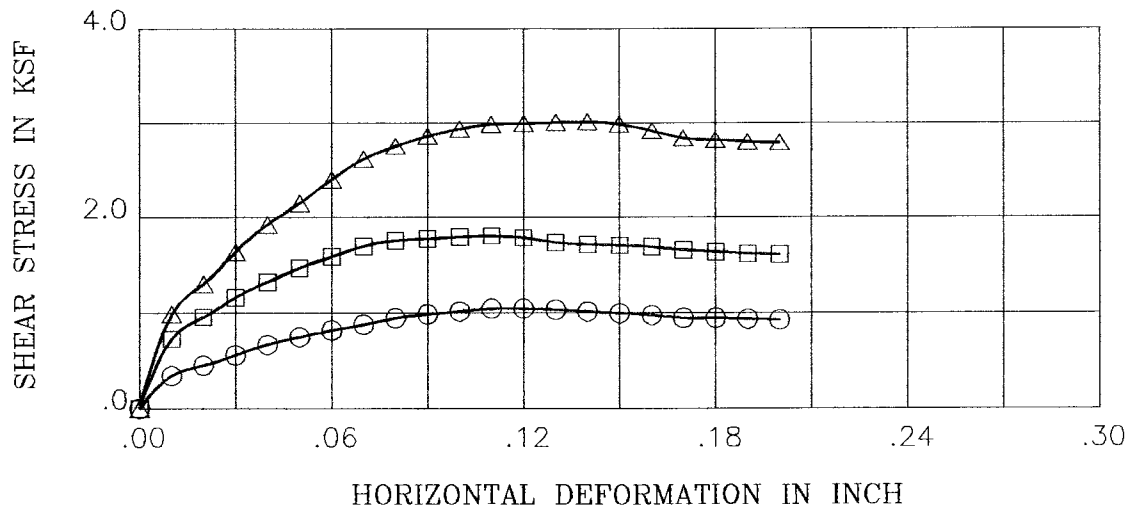
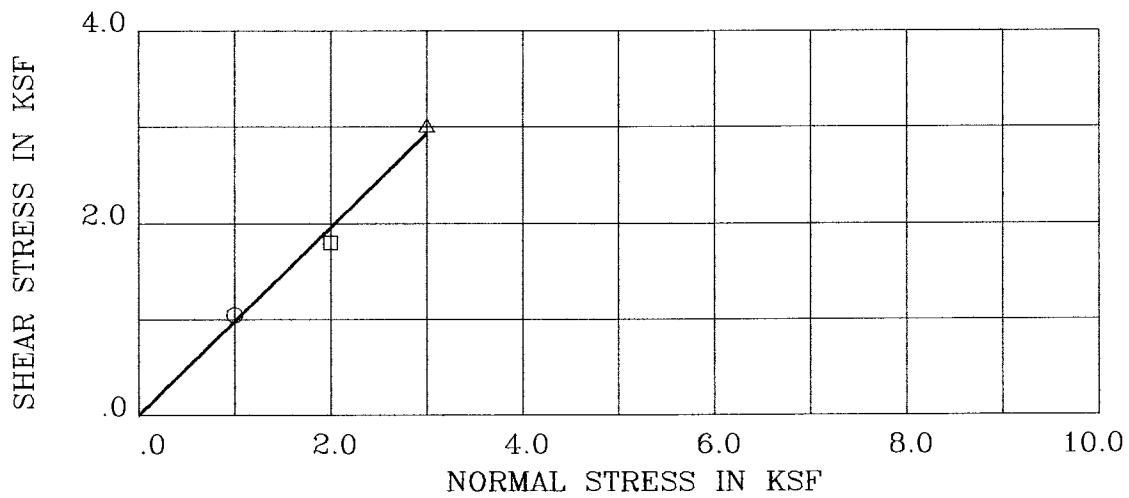


BORING/SAMPLE : B-3 #12 DEPTH (ft) : 46-46.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .000 KSF
 FRICTION ANGLE (PHI) : 40.5 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	25.7	103.6	.566	1.00	.94	.92
□	27.7	98.6	.645	2.00	1.43	1.43
△	27.4	100.5	.614	3.00	2.72	2.50

Remark :

Project 164 GS-14E	WATER GROUP 939
ALLIED GEOTECHNICAL ENGINEERS, INC. December 7, 2017 Water Group 939	DIRECT SHEAR TEST ADDENDUM B Figure B-4 Page 86 of 97

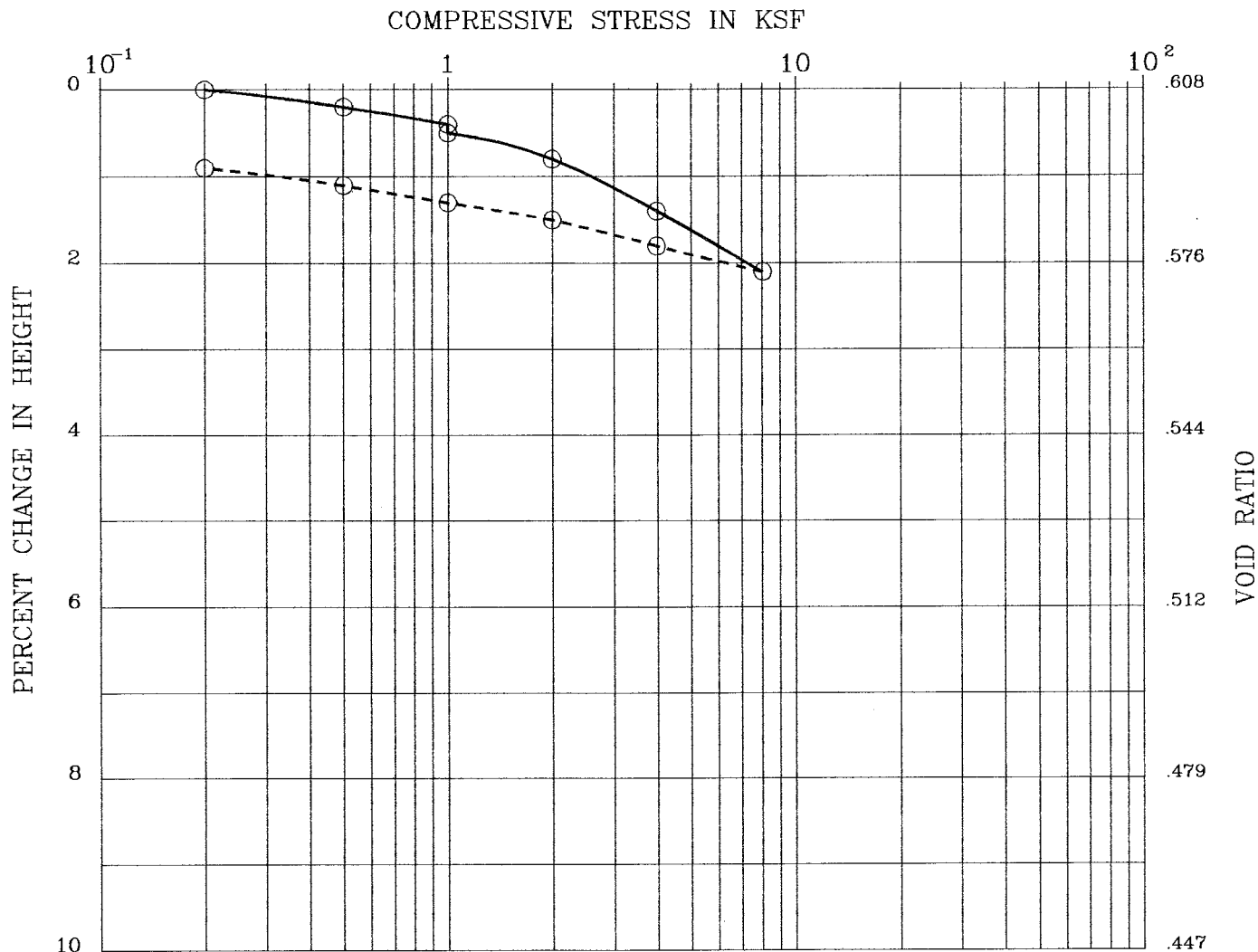


BORING/SAMPLE : B-4 #11 DEPTH (ft) : 41-41.5
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .000 KSF
 FRICTION ANGLE (PHI) : 44.4 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	29.7	101.0	.607	1.00	1.05	.93
□	30.1	102.0	.591	2.00	1.80	1.61
△	31.2	99.6	.629	3.00	3.02	2.79

Remark :

Project 164 GS-14E	WATER GROUP 939	
ALLIED GEOTECHNICAL ENGINEERS, INC. December 7, 2017 Water Group 939	DIRECT SHEAR TEST ADDENDUM B	Figure B-5 Page 87 of 97



BORING : B-3#10
 DEPTH (ft) : 36-36.5
 SPEC. GRAVITY : 2.75

DESCRIPTION :
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	21.4	106.9	97	.608
FINAL	21.4	108.1	100	.590

Remark :

Project 164 GS-14E	WATER GROUP 939		
ALLIED GEOTECHNICAL ENGINEERS, INC. December 7, 2017 Water Group 939	CONSOLIDATION TEST ADDENDUM B		Figure B-6 Page 88 of 97

LABORATORY REPORT

Telephone (619) 425-1993 Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
ANALYTICAL AND CONSULTING CHEMISTS

Date: February 24, 2017
Purchase Order Number: 164GS14-E
Sales Order Number: 34751
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S06304-1 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 02/22/17 at 9:20am,
taken on 02/17/17 from Project# 164GS14-E Water Group 939
marked as B-3#13@46'-50'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.2

Table with 2 columns: Water Added (ml) and Resistivity (ohm-cm). Rows show values for 10ml (4200), 5ml (2200), 5ml (1100), 5ml (900), 5ml (850), 5ml (820), 5ml (850), 5ml (890).

28 years to perforation for a 16 gauge metal culvert.
37 years to perforation for a 14 gauge metal culvert.
51 years to perforation for a 12 gauge metal culvert.
65 years to perforation for a 10 gauge metal culvert.
79 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.033% (330 ppm)
Water Soluble Chloride Calif. Test 422 0.020% (200 ppm)
Bicarbonate (as CaCO3) 50 ppm
(In a saturated soil paste extract)

Rosa M. Bernal signature
Rosa M. Bernal
RMB/dbb

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993

Fax 425-7917

Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: February 24, 2017
Purchase Order Number: 164GS14-E
Sales Order Number: 34751
Account Number: ALLG

To:

Allied Geotechnical Engineers
1810 Gillespie Way Ste 104
El Cajon, CA 92020
Attention: Sani Sutanto

Laboratory Number: S06304-2 Customers Phone: 449-5900
Fax: 449-5902

Sample Designation:

One soil sample received on 02/22/17 at 9:20am,
taken on 02/17/17 from Project# 164GS14-E Water Group 939
marked as B-4#12@43'-44'.

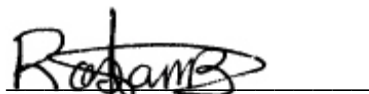
Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.0

Water Added (ml)	Resistivity (ohm-cm)
20	800
5	540
5	500
5	480
5	450
5	420
5	410
5	420
5	440

21 years to perforation for a 16 gauge metal culvert.
28 years to perforation for a 14 gauge metal culvert.
38 years to perforation for a 12 gauge metal culvert.
49 years to perforation for a 10 gauge metal culvert.
59 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.228% (2280 ppm)
Water Soluble Chloride Calif. Test 422	0.053% (530 ppm)
Bicarbonate (as CaCO ₃) (In a saturated soil paste extract)	34 ppm



Rosa M. Bernal

RMB/dbb

APPENDIX P
TEMPORARY CONSTRUCTION AREA

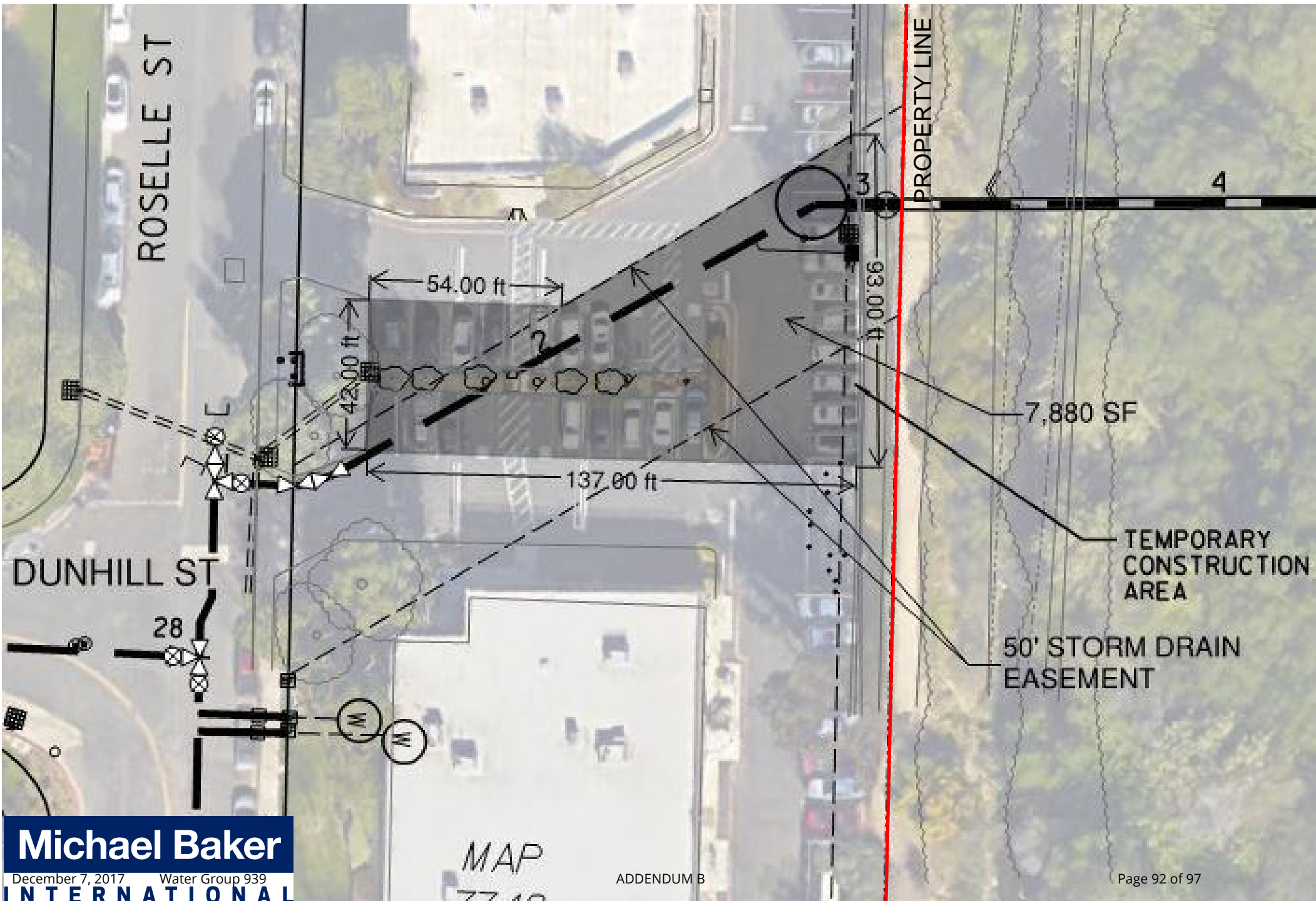


EXHIBIT "A"

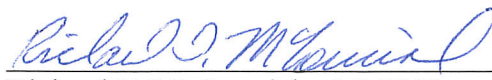
GENERAL UTILITY EASEMENT

APN: 310-120-15

All that portion of Lot 1 of Pacific Sorrento Industrial Park, in the City of San Diego, County of San Diego, State of California, according to the Map thereof No. 7748, filed in the Office of the County Recorder of San Diego County on September 25, 1973, identical in extent to that area of land shown therein said Lot 1 as "50' Drainage Easement Granted Hereon," being the northwesterly 50 feet of said Lot 1.

The above described General Utility Easement consisting of 9,935.26 square feet, 0.2281 acre.

Exhibit 'B' (City of San Diego Drawing No. 39758-B) attached, and by this reference is made a part hereto.

 10-27-2016
Richard T. McCormick LS 7450 Date
Senior Land Surveyor, Field Engineering
My Registration Expires 12-31-2016



File: B11035_GUE&TCA_310-120-15&16
W.B.S. B-11035--October 2016

EXHIBIT "A"

TEMPORARY CONSTRUCTION AREA

APN: 310-120-15 & 16

All that portion of Lots 1 and 2 of Pacific Sorrento Industrial Park, in the City of San Diego, County of San Diego, State of California, according to the Map thereof No. 7748, filed in the Office of the County Recorder of San Diego County on September 25, 1973, described as follows:

Beginning at a point in the northwest line of said Lot 1, distant thereon South 19°29'01" West 16.38 feet from the most northerly corner of said Lot; Thence continuing along said northwest line South 19°29'01" West 93.98 feet; Thence leaving said northwest line South 51°42'02" West 55.00 feet; Thence South 39°50'11" East 43.00 feet; Thence North 51°37'59" East 137.00 feet; Thence North 40°32'31" West 93.00 feet to the **Point of Beginning**.

The above described Temporary Construction Area consisting of 7,907.95 square feet, 0.1815 acre.

Exhibit 'B' (City of San Diego Drawing No. 39758-B) attached, and by this reference is made a part hereto.

Richard T. McCormick 10-27-2016

Richard T. McCormick LS 7450 Date
Senior Land Surveyor, Field Engineering
My Registration Expires 12-31-2016



File: B11035_GUE&TCA_310-120-15&16
W.B.S. B-11035--October 2016

EXHIBIT 'B'

APNS: 310-120-15 AND 16

OWNER: ARE-11035/11075 ROSELLE STREET, LLC,
A DELAWARE LIMITED LIABILITY COMPANY

LEGEND

() INDICATES RECORD OR CALCULATED DATA PER MAP 7748

POB = INDICATES POINT OF BEGINNING

REFERENCES

MAP 7748; PM 6385, 12921
CITY DWG 19345-2-D

BASIS OF BEARINGS

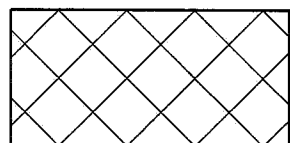
THE BASIS OF BEARINGS FOR THIS SURVEY IS
THE GRID BEARING FROM CITY GPS STATION
587 TO 17 PER ROS 14492 IE: S 38°03'08" E

EASEMENT NOTES

- ① 50' WIDE DRAINAGE EASEMENT GRANTED TO THE CITY OF SAN DIEGO PER MAP 7748
- ② 50' WIDE GENERAL UTILITY EASEMENT ACQUIRED
- ③ 15' WIDE DRAINAGE EASEMENT GRANTED TO THE CITY OF SAN DIEGO PER MAP 7748
- ④ 15' WIDE SEWER EASEMENT GRANTED TO THE CITY OF SAN DIEGO PER MAP 7748
- ⑤ PORTION OF ROSELLE STREET DEDICATED PER MAP 7748

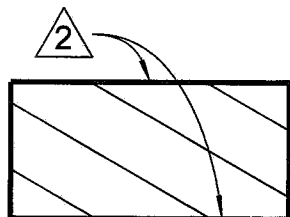
EASEMENTS TO SAN DIEGO GAS AND ELECTRIC
CO. RECORDED JULY 7, 1995 AS DOC. NO.
95-0288111 AND MARCH 19, 1981 AS DOC. NO.
81-083716 OF O. R. ARE NONPLOTTABLE

EASEMENT FOR WATER MAIN TO CITY OF SAN
DIEGO AS PER DOCUMENT RECORDED APRIL 19,
1992 IN BOOK 872, PAGE 423, OF DEEDS IS NOT
PLOTTABLE



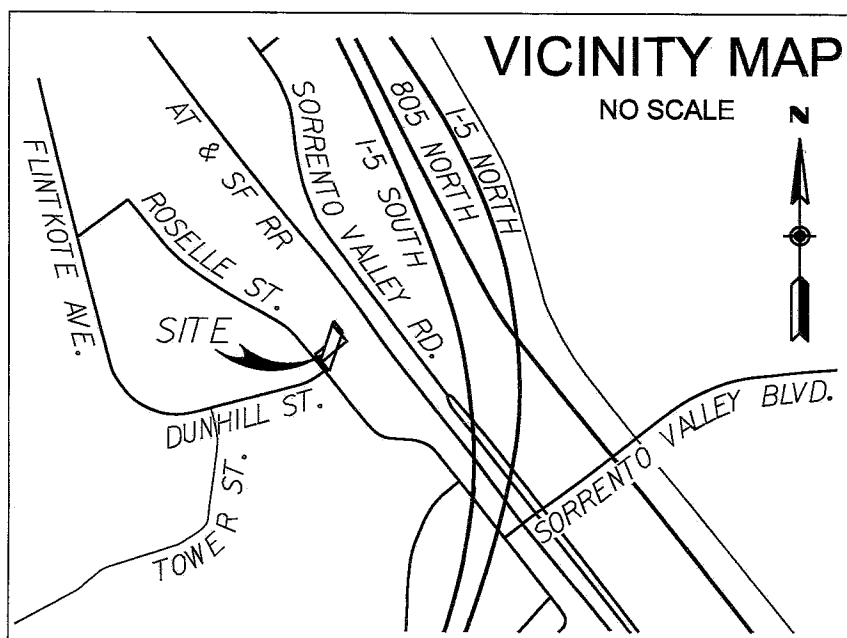
TEMPORARY CONSTRUCTION AREA
AREA = 7,907.95 SQ. FT., 0.1815 ACRE

OVERLAP WITH ① = 5,958.27 SQ. FT.
OVERLAP WITH ③ = 127.23 SQ. FT.



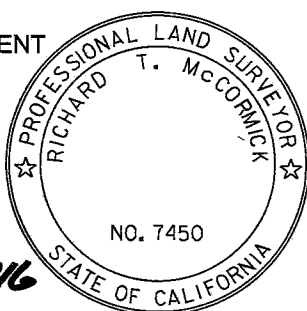
GENERAL UTILITY EASEMENT ACQUIRED
AREA = 9,935.26 SQ. FT., 0.2281 ACRE

OVERLAP WITH ① = 9,935.26 SQ. FT.
OVERLAP WITH ④ = 811.23 SQ. FT.



PREPARED BY:

THE CITY OF SAN DIEGO PUBLIC WORKS DEPARTMENT
FIELD DIVISION - SURVEY SECTION, UNDER THE
DIRECTION OF RICHARD T. McCORMICK, LS 7450,
SENIOR LAND SURVEYOR



Richard T. McCormick 10-27-2016

RESOLUTION No. _____

ADOPTED: _____

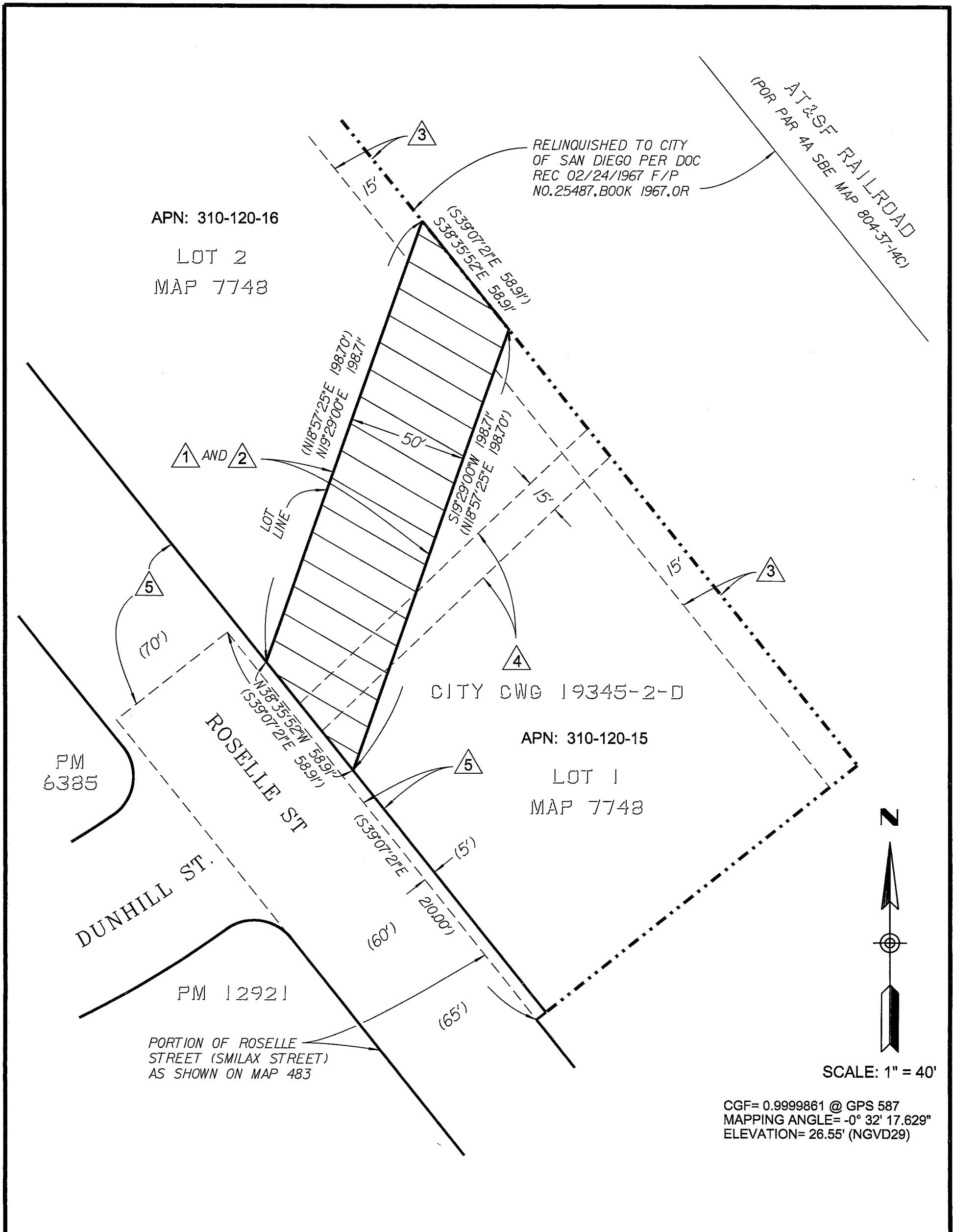
DOC. No. _____

RECORDED: _____

GENERAL UTILITY EASEMENT AND TEMPORARY CONSTRUCTION AREA: IN A PORTION OF LOTS 1 & 2 OF MAP 7748

DESCRIPTION	BY	APPROVED	DATE	FILMED	CITY OF SAN DIEGO, CALIFORNIA	T.M. _____
ORIGINAL	RM	RMc	10/16		SHEET 1 OF 3 SHEETS	W.B.S. B-11035
					<i>Richard T. McCormick</i> 10-27-2016 FOR CITY LAND SURVEYOR DATE	1908-6259 NAD83 COORDINATES
						138-1773 NAD27 COORDINATES
						39758-1-B
STATUS						

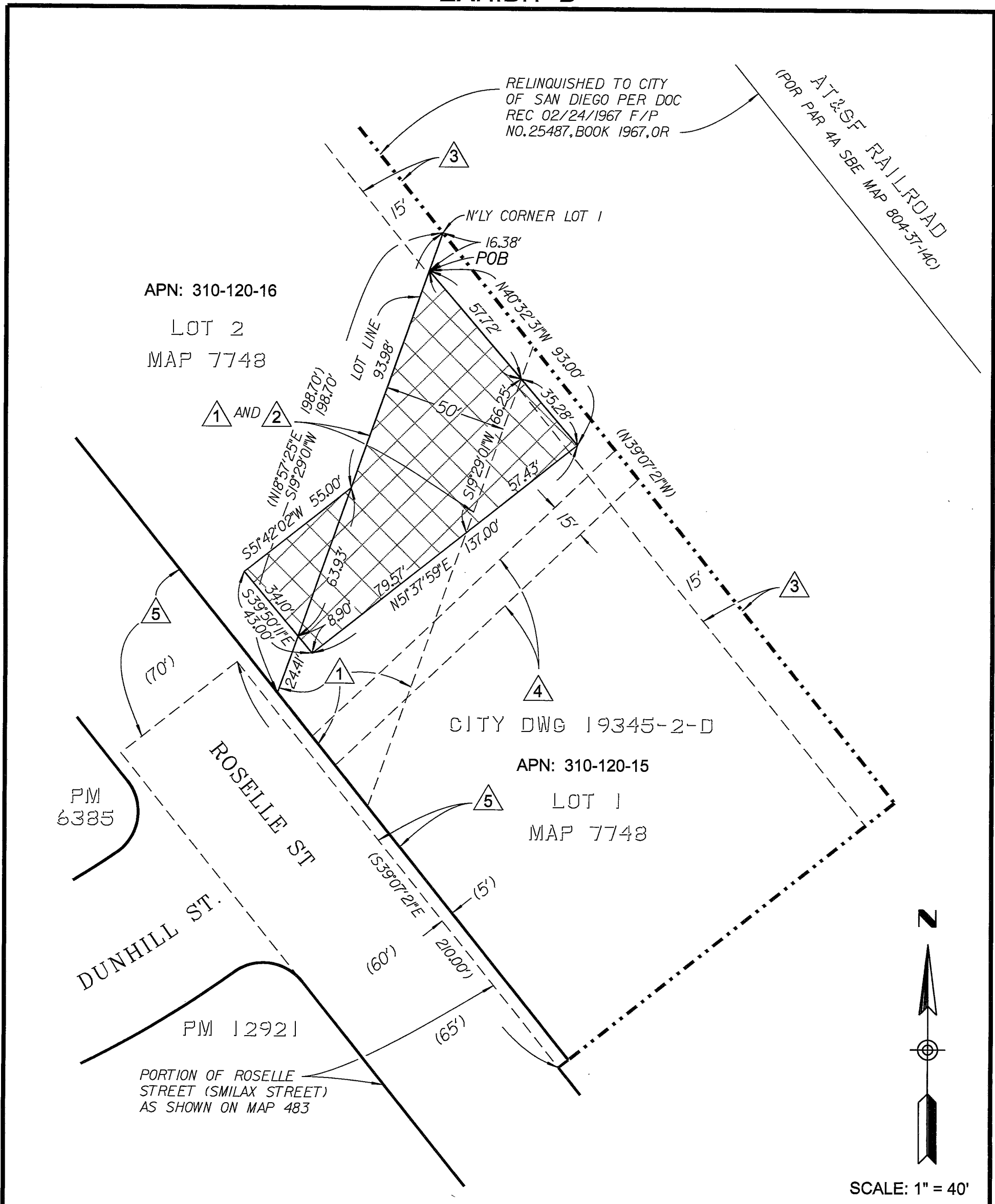
EXHIBIT 'B'



GENERAL UTILITY EASEMENT AND TEMPORARY CONSTRUCTION AREA:
IN A PORTION OF LOTS 1 & 2 OF MAP 7748

DESCRIPTION	BY	APPROVED	DATE	FILMED	CITY OF SAN DIEGO, CALIFORNIA		T.M.
ORIGINAL	RM	RMc	10-16		SHEET 2 OF 3 SHEETS		B-11035
					<i>Rickard J. McYounis</i> 10-27-2016		1908-6259
					FOR CITY LAND SURVEYOR DATE		NAD83 COORDINATES
							268-1698
							NAD27 COORDINATES
							39758-2-B
STATUS							

EXHIBIT 'B'



GENERAL UTILITY EASEMENT AND TEMPORARY CONSTRUCTION AREA: IN A PORTION OF LOTS 1 & 2 OF MAP 7748

DESCRIPTION	BY	APPROVED	DATE	FILMED	CITY OF SAN DIEGO, CALIFORNIA		T.M.
ORIGINAL	RM	RMc	10-16		SHEET 3 OF 3 SHEETS		I.W.O. B-11035
					<i>Richard D. McNeill</i> 10-27-2016		1908-6259
					FOR CITY LAND SURVEYOR DATE		NAD83 COORDINATES
							268-1698
							NAD27 COORDINATES
							39758-3-B
STATUS							

City of San Diego

CITY CONTACT: Antoinette Sanfilippo. Contract Specialist, Email: ASanfilippo@sandiego.gov

Phone No. (619) 533-3439, Fax No. (619) 533-3633

ADDENDUM "C"



FOR

WATER GROUP 939

BID NO.: _____ K-18-1528-DBB-3
SAP NO. (WBS/IO/CC): _____ B-11035
CLIENT DEPARTMENT: _____ 2000
COUNCIL DISTRICT: _____ 1
PROJECT TYPE: _____ KB

BID DUE DATE:

**2:00 PM
DECEMBER 19, 2017
CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTS
1010 SECOND AVENUE, 14th FLOOR, MS 614C
SAN DIEGO, CA 92101**

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. ATTACHMENTS

1. To Attachment D, Prevailing Wages, pages 28 through 30, **DELETE** in their entirety and **SUBSTITUTE** with pages 3 of 7 of this Addendum.

James Nagelvoort, Director
Public Works Department

Dated: *December 15, 2017*
San Diego, California

JN/as

**ATTACHMENT D
PREVAILING WAGES**

1. PREVAILING WAGE RATES: Pursuant to San Diego Municipal Code section 22.3019, construction, alteration, demolition, repair and maintenance work performed under this Contract is subject to State prevailing wage laws. For construction work performed under this Contract cumulatively exceeding \$25,000 and for alteration, demolition, repair and maintenance work performed under this Contract cumulatively exceeding \$15,000, the Contractor and its subcontractors shall comply with State prevailing wage laws including, but not limited to, the requirements listed below.

1.1. Compliance with Prevailing Wage Requirements. Pursuant to sections 1720 through 1861 of the California Labor Code, the Contractor and its subcontractors shall ensure that all workers who perform work under this Contract are paid not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). This includes work performed during the design and preconstruction phases of construction including, but not limited to, inspection and land surveying work.

1.1.1. Copies of such prevailing rate of per diem wages are on file at the City and are available for inspection to any interested party on request. Copies of the prevailing rate of per diem wages also may be found at <http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>. Contractor and its subcontractors shall post a copy of the prevailing rate of per diem wages determination at each job site and shall make them available to any interested party upon request.

1.1.2. The wage rates determined by the DIR refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, then the published rate of wage shall be in effect for the life of this Contract. If the published wage rate refers to a predetermined wage rate to become effective upon expiration of the published wage rate and the predetermined wage rate is on file with the DIR, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to this Contract in the same manner as if it had been published in said publication. If the predetermined wage rate refers to one or more additional expiration dates with additional

predetermined wage rates, which expiration dates occur during the life of this Contract, each successive predetermined wage rate shall apply to this Contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this Contract, such wage rate shall apply to the balance of the Contract.

- 1.2. Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed. This shall be in addition to any other applicable penalties allowed under Labor Code sections 1720 – 1861.
- 1.3. Payroll Records.** Contractor and its subcontractors shall comply with California Labor Code section 1776, which generally requires keeping accurate payroll records, verifying and certifying payroll records, and making them available for inspection. Contractor shall require its subcontractors to also comply with section 1776. Contractor and its subcontractors shall submit weekly certified payroll records online via the City's web-based Labor Compliance Program. Contractor is responsible for ensuring its subcontractors submit certified payroll records to the City.
 - 1.3.1.** Contractor and their subcontractors shall also furnish records specified in Labor Code section 1776 directly to the Labor Commissioner in the manner required by Labor Code section 1771.4.
- 1.4. Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor is held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.
- 1.5. Working Hours.** Contractor and their subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on contractors and subcontractors of \$25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections 1810 through 1815.

- 1.6. Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.
- 1.7. Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that "I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract."
- 1.8. Labor Compliance Program.** The City has its own Labor Compliance Program authorized in August 2011 by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred. For questions or assistance, please contact the City of San Diego's Equal Opportunity Contracting Department at 619-236-6000.
- 1.9. Contractor and Subcontractor Registration Requirements.** This project is subject to compliance monitoring and enforcement by the DIR. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid or proposal, subject to the requirements of section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.
- 1.9.1.** A Contractor's inadvertent error in listing a subcontractor who is not registered pursuant to Labor Code section 1725.5 in response to a solicitation shall not be grounds for filing a bid protest or grounds for considering the bid non-responsive provided that any of the following apply: (1) the subcontractor is registered prior to bid opening; (2) within twenty-four hours

after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5; or (3) the subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

1.9.2. By submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the DIR in compliance with Labor Code sections 1771.1 and 1725.5, and Contractor shall provide proof of registration for themselves and all listed subcontractors to the City at the time of bid or proposal due date or upon request.

1.10. Stop Order. For Contractor or its subcontractors engaging in the performance of any public work contract without having been registered in violation of Labor Code sections 1725.5 or 1771.1, the Labor Commissioner shall issue and serve a stop order prohibiting the use of the unregistered contractors or unregistered subcontractor(s) on ALL public works until the unregistered contractor or unregistered subcontractor(s) is registered. Failure to observe a stop order is a misdemeanor.

1.11. List of all Subcontractors. The City may ask Contractor for the most current list of subcontractors (regardless of tier), along with their DIR registration numbers, utilized on this Agreement at any time during performance of this contract, and Contractor shall provide the list within ten (10) working days of the City's request. Additionally, Contractor shall provide the City with a complete list of all subcontractors utilized on this contract (regardless of tier), within ten working days of the completion of the contract, along with their DIR registration numbers. The City shall withhold final payment to Contractor until at least 30 days after this information is provided to the City.

1.12. Exemptions for Small Projects. There are limited exemptions for installation, alteration, demolition, or repair work done on projects of \$25,000 or less. The Contractor shall still comply with Labor Code sections 1720 et. seq. The only recognized exemptions are listed below:

1.12.1. Registration. The Contractor will not be required to register with the DIR for small projects. (Labor Code section 1771.1)

1.12.2. Certified Payroll Records. The records required in Labor Code

section 1776 shall be required to be kept and submitted to the City of San Diego, but will not be required to be submitted online with the DIR directly. The Contractor will need to keep those records for at least three years following the completion of the Contract. (Labor Code section 1771.4).

- 1.12.3.** List of all Subcontractors. The Contractor shall not be required to hire only registered subcontractors and is exempt from submitting the list of all subcontractors that is required in section 4.20.11 above. (Labor code section 1773.3).

Bid Results

Bidder Details

Vendor Name James W. Fowler Co.
Address 12775 Westview Drive
 Dallas, OR 97338
 United States

Respondee Patti Senger
Respondee Title Estimating Coordinator
Phone 503-623-5373 Ext. 307
Email pattis@jwfowler.com
Vendor Type PQUAL
License # 777391
CADIR

Bid Detail

Bid Format Electronic
Submitted December 19, 2017 1:56:41 PM (Pacific)
Delivery Method
Bid Responsive
Bid Status Submitted
Confirmation # 126779
Ranking 0

Respondee Comment

Buyer Comment

Attachments

File Title	File Name	File Type
JWF Contractor's Certification of Pending Actions	Contractor's Certification of Pending Actions.pdf	Contractors Certification of Pending Actions
JWF Alternate Deductive Form	Alternate Deductive Form.pdf	Alternate / Deductive Form
JWF Bid Bond	Bid Bond.pdf	Bid Bond

Line Items

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
	Main Bid					
1	Bonds (Payment and Performance)					
	524126	LS	1	\$28,700.00	\$28,700.00	
2	Paleontological Monitoring Program					
	541690	LS	1	\$21,000.00	\$21,000.00	
3	WPCP Development					
	541330	LS	1	\$5,000.00	\$5,000.00	
4	WPCP Implementation					
	237990	LS	1	\$38,000.00	\$38,000.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
5	Video Recording of Existing Conditions					
	238990	LS	1	\$3,000.00	\$3,000.00	
6	Mobilization					
	237310	LS	1	\$600,000.00	\$600,000.00	
7	Field Orders (EOC Type II)					
		AL	1	\$99,397.00	\$99,397.00	
8	Additional Pavement Removal and Disposal					
	237310	CY	30	\$170.00	\$5,100.00	
9	Adjust Existing Gate Valve Frame and Cover to Grade					
	237310	EA	1	\$2,000.00	\$2,000.00	
10	Adjust Survey Monument to Grade					
	237310	EA	2	\$1,000.00	\$2,000.00	
11	Asphalt Pavement Repair					
	237310	TON	30	\$480.00	\$14,400.00	
12	Miscellaneous Asphalt Patching					
	237310	TON	15	\$500.00	\$7,500.00	
13	Rubber Polymer Modified Slurry (RPMS) Type II					
	237310	SF	128919	\$0.50	\$64,459.50	
14	Rubber Polymer Modified Slurry (RPMS) Type III					
	237310	SF	128919	\$0.70	\$90,243.30	
15	Stripping					
	237310	LS	1	\$5,000.00	\$5,000.00	
16	Pavement Restoration Adjacent to Trench					
	237310	SF	10433	\$13.00	\$135,629.00	
17	Asphalt Concrete Overlay					
	237310	TON	683	\$130.00	\$88,790.00	
18	Crack Seal					
	237310	LB	775	\$1.00	\$775.00	
19	Removal or Abandonment of Existing Water Facilities					
	237110	LF	5052	\$5.00	\$25,260.00	
20	Water Main 8-Inch					
	237110	LF	2811	\$80.00	\$224,880.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
21	Water Main 16-Inch					
	237110	LF	3851	\$120.00	\$462,120.00	
22	Water Main (8-Inch, Class 305)					
	237110	LF	500	\$131.00	\$65,500.00	
23	Water Main (16-Inch, Class 305)					
	237110	LF	70	\$186.00	\$13,020.00	
24	Butterfly Valve (16-Inch, Class 150B)					
	237110	EA	15	\$5,000.00	\$75,000.00	
25	Fire Hydrant Assembly and Marker 6-Inch					
	237110	EA	16	\$7,000.00	\$112,000.00	
26	Fire Service Connection and Assembly 8-Inch					
	237110	EA	1	\$10,500.00	\$10,500.00	
27	Fire Service Connection and Assembly 6-Inch					
	237110	EA	4	\$6,200.00	\$24,800.00	
28	Fire Service Connection and Assembly 4-Inch					
	237110	EA	1	\$6,000.00	\$6,000.00	
29	Water Service (1-Inch)					
	237110	EA	9	\$3,800.00	\$34,200.00	
30	Water Service (1-1/2-Inch)					
	237110	EA	1	\$6,900.00	\$6,900.00	
31	Water Service (2-Inch)					
	237110	EA	5	\$9,300.00	\$46,500.00	
32	Microtunneling Obstruction Allowance (EOC Type II)					
	237110	AL	1	\$250,000.00	\$250,000.00	
33	Blow-Off Valve Assembly (2-Inch)					
	237110	EA	4	\$6,400.00	\$25,600.00	
34	Air and Vacuum (Air Release) Valve Assembly (1-Inch, Class 150)					
	237110	EA	3	\$5,800.00	\$17,400.00	
35	Air and Vacuum (Air Release) Valve Assembly (2-Inch, Class 150)					
	237110	EA	1	\$6,900.00	\$6,900.00	
36	Thrust Blocks and Anchor Blocks for 16-Inch and Larger Water Mains					
	237110	EA	20	\$6,250.00	\$125,000.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
37	Traffic Control					
	237310	LS	1	\$100,000.00	\$100,000.00	
38	Contractor Furnished Materials for City Forces Connection, Cut and Plug, and Cut-in Work for Mains 16-Inch and Larger					
	237110	LS	1	\$15,000.00	\$15,000.00	
39	Temporary Resurfacing for High-lining					
	237110	TON	15	\$450.00	\$6,750.00	
40	Curb Ramp Type A with Stainless Steel Detectable Warning Tiles					
	237310	EA	1	\$10,000.00	\$10,000.00	
41	Preparation of Hazardous Waste Management Plan and Reporting					
	238990	LS	1	\$5,000.00	\$5,000.00	
42	Gate Valve 6-Inch					
	237110	EA	2	\$2,000.00	\$4,000.00	
43	Gate Valve 8-Inch					
	237110	EA	6	\$2,300.00	\$13,800.00	
44	Cold Mill AC Pavement (0 Inch - 1½ Inch)					
	237310	SF	75892	\$0.20	\$15,178.40	
45	Decomposed Granite (DG)					
	561730	SF	18300	\$0.70	\$12,810.00	
46	Pavement Restoration for Final Connection					
	237110	SF	700	\$15.00	\$10,500.00	
47	Construction of Jacking Pit (Shaft 1)					
	237110	LS	1	\$175,000.00	\$175,000.00	
48	Construction of Receiving Pit (Shaft 2)					
	237110	LS	1	\$150,000.00	\$150,000.00	
49	Exploratory Horizontal Pilot Bores (Pilot Tube Guided Boring)					
	237110	LF	720	\$185.00	\$133,200.00	
50	Steel Casing Installation Via Microtunneling					
	237110	LF	360	\$1,800.00	\$648,000.00	
51	Installation of Carrier Pipe Within Steel Casing					
	237110	LF	381	\$260.00	\$99,060.00	
52	Installation of 16-Inch PVC Pipe Within Shaft 1 and Shaft 2					
	237110	LF	29	\$1,245.00	\$36,105.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
53	Dewatering Permit and Discharge Fees (EOC Type 1)					
	237110	AL	1	\$10,000.00	\$10,000.00	
54	Dewatering Non-Hazardous Contaminated Water					
	237110	LS	1	\$700,000.00	\$700,000.00	
55	Vehicular and Pedestrian Access					
	237310	LS	1	\$8,000.00	\$8,000.00	
56	Joint Right of Entry Permit (MTS / NCTD) (EOC Type II)					
	237310	AL	1	\$5,000.00	\$5,000.00	
57	High-lining Removed by the Contractor					
	237110	LS	1	\$42,000.00	\$42,000.00	
58	Temporary Resurfacing					
	237310	TON	75	\$175.00	\$13,125.00	
59	Contractor Furnished Materials for the City Forces High-line Work					
	237110	LF	5683	\$3.83	\$21,765.89	
				Subtotal	\$4,976,868.09	
	Alternate A Items					
60	High-lining Installation by the Contractor					
	237110	LS	1	\$61,000.00	\$61,000.00	
61	Temporary Resurfacing for High-lining (Main Bid Item)					
	237110	TON	-15	\$177.00	(\$2,655.00)	
62	Contractor Furnished Materials for the City Forces High-line Work (Main Bid Item)					
	237110	LF	-5683	\$4.00	(\$22,732.00)	
63	Furnished Materials for Contractor High-line Work					
	237110	LS	1	\$22,000.00	\$22,000.00	
				Subtotal	\$57,613.00	
	Alternate B Items					
64	Connections to The Existing System by Contractor (8-Inch Through 12-Inch)					
	237110	EA	1	\$16,500.00	\$16,500.00	
65	Connections to The Existing System by Contractor (16-Inch)					
	237110	EA	3	\$15,000.00	\$45,000.00	
66	Cut and Plug by Contractor					
	237110	EA	10	\$7,300.00	\$73,000.00	
67	Contractor Furnished Materials for City Forces Connection, Cut and Plug, and Cut-in Work for Mains 16-Inch and Larger (Main Bid Item)					
	237110	LS	-1	\$15,000.00	(\$15,000.00)	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
68	Cut-in Tee by Contractor (16- Inch)					
	237110	EA	1	\$20,000.00	\$20,000.00	
				Subtotal	\$139,500.00	
				Total	\$5,173,981.09	

Subcontractors

Name & Address	Description	License Num	CADIR	Amount	Type
Brian F. Smith and Associates Inc 14010 Poway Road, Suite A Poway, CA 92064 United States	Archeo/Paleo	n/a	1000010486	\$19,620.00	SDB
HUDSON SAFE-T-LITE RENTALS 777 GABLE WAY EL CAJON, CA 92020 United States	TCP	788289	1000004051	\$1,500.00	SLBE
JPS Legal Video 455 S. Oakhurst Dr. #6 Beverly Hills, CA 90212 United States	PreconstructionVideo	n/a	n/a	\$2,490.00	
Soclaris Contracting 7437 Lowell Ct. La Mesa, CA 91942 United States	Hazmat	793838	1000011964	\$5,000.00	CAU,MALE,SLBE,D VBE,CADIR,SDVSB
Cell-Crete Corporation 135 E Railroad ave Monrovia, CA 91016 United States	Annular Grouting	243404	1000000262	\$14,540.80	
L C Paving & Sealing, Inc. 996 Borden Rd San Marcos, CA 92069 United States	Paving	621610	1000004325	\$270,391.69	LAT,MALE,SLBE,DB E,MBE,CADIR,PQUAL L
Payco Specialties Inc. 120 North Second Ave Chula Vista, CA 91910 United States	Striping	298637	1000003515	\$3,577.00	CAU,FEM,PQUAL,M BE,SDB,WBE,WOSB
EnviroApplications, Inc 2831 Camino Del Rio South, Suite 214 San Diego, CA 92108 United States	WPCP	900796	1000038634	\$3,500.00	CADIR,SLBE
Maxim Construction Co., Inc. 8005 Royal Gardens Place El Cajon, CA 92021 United States	Trucking, Dewatering, Shafts, slurry seal	1000689	1000048900	\$900,000.00	Asian,ELBE,FEM,WO SB