

City of San Diego

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NB/CG/RIR

REQUEST FOR PROPOSAL



FOR

RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

RFQ NO.: As-Needed Design-Build Services for the Engineering & Capital Projects Department – 5151DB

RFP NO.: 5541DBA

TASK ORDER NO.: 11DB02

BID NO.: K-12-5541-DBA-3

SAP NO. (WBS): S-10010

CLIENT DEPARTMENT: 2013

COUNCIL DISTRICT: CITYWIDE

PROJECT TYPE: HC

PROPOSAL DUE:

12:00 NOON

MARCH 9, 2012

CITY OF SAN DIEGO

PUBLIC WORKS CONTRACTING GROUP

1200 THIRD AVENUE, SUITE 200, MS 56P

SAN DIEGO, CA 92101

ATTN: CONTRACT SPECIALIST

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1.0 INTRODUCTION

- 1.1 This is the City of San Diego's (City) second step (in a 2-step process) in the selection process to provide Design-Build services for the **Recycled Water System Upgrades Design-Build Contract**, (Project).
- 1.2 This RFP is being issued to the selected firms for this selection process exclusively. These firms are:
1. Ahrens Corporation/Lee & Ro
 2. Arrieta Construction/Tran Consulting
 3. Cas Construction/Rick Engineering
 4. Orion Construction/Harris & Associates
 5. Ortiz Corporation/RBF

Proposals from any other firms will not be considered for this process and will be rejected as unsolicited Proposals.

Class "A" contractor's license will be required.

The Design-Builder shall ensure that Design-Builder's license(s) shall be valid when Proposal is submitted. Failure to comply with this requirement will result in:

- 1) The rejection of the Proposal.
- 2) Removal of the Design-Builder from the short-list (for As-Needed Design-Build project).

- 1.3 Engineer's Estimate – The Engineer's estimate of the most probable price for this contract is \$910,000.
- 1.4 This RFP describes the Project, the required scope of Work and Services, the Design-Builder selection process, and the minimum information that shall be included in the Proposal. Failure to submit information in accordance with this RFP's requirements and procedures may be cause for disqualification.
- 1.5 Any architectural firms, engineering firms, specialty consultants, or individuals retained by the City to assist in drafting the RFPs or the Project's preliminary design shall not be eligible to participate in the competition with any Design-Build Entity without the prior written consent of City. Any architectural firms, engineering firms, specialty consultants, or individuals retained by the City to assist in drafting any Reference Documents, such as the Water Department's Master Plan and any other document that was not prepared specifically for this contract, are considered to be eligible to participate.

2.0 EQUAL OPPORTUNITY

- 2.1 All information provided and requirements set forth in Section 2 of the Request for Qualifications (RFQ) for the Project shall apply to this RFP process. The Design-Builder shall review the information, data, and documentation provided in the Design-Builder's Statement of Qualification (SOQ) and changes shall be identified in

the Proposal; otherwise the information, as previously submitted, will be deemed complete and accurate.

- 2.2 As set forth in this RFP, the City is dedicated to the principles of equal opportunity in the workplace and in subcontracting. It is the City's expectation that firms doing business with the City have, and are able to demonstrate, the same level of commitment.
- 2.3 The Design-Builders are encouraged to take positive steps to diversify and expand their subcontractor solicitation base and to offer contracting opportunities to all eligible certified Subcontractors in accordance with the City's EOCP requirements included in the Contract Documents.
- 2.4 The City has determined a **10% mandatory SLBE-ELBE** subcontracting participation. The City has also determined a **voluntary subcontractor participation of 10%**, equating to **20% in total subcontractor participation**, to enhance competition and maximize subcontracting opportunities. Percentages are based on the Contract Price, less Field Orders, Additive, Deductive, and Allowance Bid items

The Proposal shall be deemed **non-responsive** if it fails to meet the mandatory subcontracting participation shown above on the Subcontractor and Supplier listings submitted with the Bid or to submit good faith effort documentation within 3 Working Days after the Public Ranking meeting if Contractor fails to meet the SLBE-ELBE goal.

The Design-Builders' commitment to the City's principles of equal opportunity in achieving the desired subcontractor participation levels will be evaluated as specified in the RFP. See Attachment B, "Proposal Submittal Requirements and Selection Criteria" for more information.

3.0 **PROJECT BACKGROUND AND DESCRIPTION**

See Attachment A.

4.0 **SCOPE OF WORK AND SERVICES**

Work and Services required of the Design-Builder include those during design and construction. The Design-Builder shall provide all management, supervision, labor, services, equipment, tools, supplies, temporary facilities, and any other item of every kind and description required for the complete design and construction of the Project, as described in Attachment A.

5.0 **SELECTION PROCESS**

Each Design-Builder shall submit separate "Technical" and "Price" Proposals as described in this RFP.

5.1 Technical Proposal Requirements

5.1.1 Failure to comply with this section will render the Design-Builder's submittal invalid and disqualify it from this selection process.

5.1.2 The Technical Proposal shall be concise and well organized and shall demonstrate the Design-Builder's qualifications and experience applicable to the Project. Type size and margins for text pages shall be in accepted standard formats for desk top publishing and word processing and result in no more than 500 words per page.

NOTE: A cover letter may be submitted but SHALL not contain any information that is a required element of the Technical Proposal (i.e. acknowledgement of addenda)

5.1.3 The Design-Builder shall certify that the documentation required under the Work Force Report and Equal Employment Opportunity (EEO) Plan and the Subcontractor Documentation of the RFQ remains correct and accurate. If any changes or modifications are required to the aforementioned documents, they shall be documented in the Work Force Report and EEO Plan forms included in the Contract Documents as attachments and submitted with the Proposal.

The EOCP information not revealing the Contract Price shall be submitted with the Technical Proposal.

5.1.4 The Technical Proposals submitted in response to this RFP shall be in accordance with the requirements listed in Attachment B. The contents of the Proposal shall be organized consistent with the Attachment B.

5.2 Price Proposal Requirements

5.2.1 One executed original, clearly marked on the cover, of the Price Proposal shall be submitted in a separate sealed envelope. Refer to Attachment 'D' of this RFP for the Price Proposal form to be used.

5.2.2 The Price Proposal shall be signed by an individual or individuals authorized to execute legal documents on behalf of the Design-Builder.

5.2.3 The lowest proposed price is not the determining factor for award of this contract. See Attachment 'B' for criteria from which the proposals will be evaluated.

5.2.4 In case of discrepancies, written numbers will govern over numerical. The summation of all lump sum, unit prices, allowances and any other priced items will govern over the total price in case of discrepancies between the two.

5.2.5 Certain EOCP information (i.e., Subcontractors and Suppliers listings) that indicates the dollar value of the portions of the work to be performed by the Subcontractors and Suppliers shall be submitted as part of the Price Proposal.

5.3 Submittal Requirements

5.3.1 Technical Proposal

5.3.1.1 The Technical Proposal shall be received no later than the time and date shown on the cover of this RFP.

5.3.1.2 One executed original, clearly and conspicuously marked on the cover, and 6 copies are to be submitted in a sealed package marked “Technical Proposals” clearly and conspicuously in its face. The following information will be clearly marked on the outside of each package:

Name of Design-Builder
Project Title
“Technical Proposal” Package Number (e.g., 1 of 16, 2 of 16, etc.)
Marked “CONFIDENTIAL” (in red)

5.3.1.3 The Technical Proposal shall be signed by an individual or individuals authorized to execute legal documents on behalf of the Design-Builder.

The Design-Builder shall provide the names of the principal individual owners of the firm. In the event the firm is employee owned or publicly held, then the fact shall be stated and the names of the firm’s principals or officers shall be provided.

5.3.1.4 Failure to comply with the requirements of this RFP may result in disqualification.

5.3.1.5 Technical Proposals and modifications thereto received subsequent to the hour and date specified above will render the Design-Builder’s submittal invalid and will cause its disqualification from this selection process.

5.3.1.6 Proposals that deviate from the RFP and Bridging Documents supersede the RFP in accordance with 2-5.2, “Precedence of Contract Documents.”

Design elements which deviate from the scope of Work, City’s design guidelines, or material substitution which differs from the Approved Material List shall be highlighted in accordance with Attachment B, “Exception to this RFP” of the Proposal and brought to City’s attention during the presentation and interview.

5.3.1.7 Questions about the meaning or intent of the Contract Documents as related to the scope of Work and of technical nature shall be directed to the Project Manager prior to the Proposal due date. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda, which will be uploaded to City’s online service(s) e.g.,

e-Bidboard (or mailed or delivered to all parties recorded by the City as having received the Contract Documents).

Questions received less than 14 days prior to the Proposal due date may not be answered. Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. It is the Bidder's responsibility to become informed of any addenda that have been issued and to include all such information in its Proposal.

5.3.2 Price Proposal

5.3.2.1 The Price Proposal shall be submitted separately from the Technical Proposal and shall be received no later than the time and date shown on the cover of this RFP.

Submittal of the Price Proposal after the date stipulated in this section will be cause for rejection of the entire Proposal and disqualification of the Design-Builder for this selection process.

5.3.2.2 The Price Proposal is to be submitted in sealed packages with the following information clearly marked on the outside of each package:

Name of Design-Builder

Project Title

“Price Proposal” Marked “CONFIDENTIAL” (in red)

5.3.2.3 Failure to comply with the requirements of this RFP may result in disqualification.

5.3.2.4 Price Proposals or modifications thereto received subsequent to the hour and date specified above will render the Design-Builder's submittals invalid and will cause their disqualification in the selection process.

5.4 Review of Technical Proposal

5.4.1 Following the receipt of the Technical Proposal, the City anticipates allotting 2 weeks for review of the Technical Proposals.

5.4.2 Subsequent to receipt, the City will provide written notice of the schedule for technical presentations. This schedule will be on a "random draw" basis and has no bearing on the potential for award.

5.5 Technical Presentation

5.5.1 The interview will consist of a 30 minute presentation by the Design-Builder and 30 minutes of questions by the Panel. The presentation shall be presented by the Design-Builder's key personnel who will be continuously involved on site or in San Diego, in relative proportion to their level of

involvement. Based on the Design-Builder's Proposal, interview and the Project's Evaluation Criteria, the Panel will rank the Design-Builder's of its qualifications.

5.5.2 The Design-Builders are responsible for bringing any and all equipment and materials that are required for the presentation. The City will not provide any equipment or materials for presentations.

5.6 Final Selection (Adjusted Low Bid)

5.6.1 The ranking of each Design-Builder during the Technical Proposal review and the Interviews will serve as a divisor of the Price Proposal submitted thereby determining weighted price.

5.6.2 Selection will be based on "Adjusted Low Bid". Following review of the Technical Proposals and the oral presentations/interviews, the resulting qualitative evaluation scores will be totaled on a scale of 0 to 100, and will be converted to a decimal (e.g., score of 85 is written as 0.85). After the scores have been calculated, each Design-Builder's price envelope will be opened. The price will be divided by the score (expressed as a decimal) to yield the "Adjusted Low Bid". The lowest adjusted bid will be recommended for Contract award. The adjustment to the Price Proposal is for selection purposes only. The Price Proposal as submitted is the actual Contract Price.

The following example summarizes and illustrates the process:

Design-Builder	Qualitative Score (100 Maximum)	Price Proposal	Adjusted Price *
A	0.85	\$1,000,000.00	\$1,176,471
B	0.95	\$1,300,000.00	\$1,368,421
C	0.65	\$900,000.00	\$1,384,615
* The adjustment to the Proposal is for selection only. Firm "A" has Adjusted Lowest Bid. The Price Proposal is the actual Contract amount.			

5.6.3 The Design-Builders will be notified in writing of the City's final decision.

6.0 POLICIES, PROCEDURES AND GUIDELINES

6.1 The Program's Selection Process is based on the policies, procedures and guidelines contained in the City Municipal Code Chapter 2, Article 2, Division 33.

6.2 A Ranking Panel (Panel) will be established for this project and will include representatives from the City and may include other interested parties (e.g., Participating Agencies, representative from the Community at Large, as required and other agencies e.g., the State Water Resource Control Board, etc.).

- 6.3** The Panel will review all proposals received and when required interview each Design-Builder in accordance with Attachment ‘B’ of this RFP. Based on the Design-Builder's Proposal, interview and the Project’s Evaluation Criteria, the Panel will rank the Design-Builders as to qualifications in a public meeting. The Panel will forward its ranked listing of Design-Builders to the Mayor or designee. The public meeting will be held at **2:30 PM** at Public Works Contracting Group, 1200 Third Avenue, Suite 200, San Diego, California, 92101 as scheduled in Section 8.
- 6.4** The Mayor or designee will make the final recommendation to City Council concerning the proposed agreement. The City Council has the final authority to approve the Contract.

7.0 EVALUATION CRITERIA

The evaluation criteria and the respective weights that will be given to each criterion are attached as Attachment ‘B’.

8.0 SELECTION AND AWARD SCHEDULE

The City anticipates that the process for selecting a Design-Builder, and awarding the contract, will be according to the following tentative schedule:

8.1	Pre-Proposal Meeting	February 21, 2012
8.2	Proposal Due Date	March 9, 2012
8.3	Interviews	March 14, 2012
8.4	Public Ranking Meeting	March 15, 2012
8.5	Selection and Notification	March 20, 2012
8.6	Receipt of Bonds and Insurance Certificates	April 30, 2011
8.7	Notice to Proceed	May 31, 2012

9.0 PRE-PROPOSAL ACTIVITIES

9.1 Questions Concerning RFP

All questions regarding the RFP shall be presented in writing to the PM at the USPS or the e-mail address identified on the cover sheet of the RFP.

9.2 Pre-Proposal Meeting

A Pre-Proposal meeting will be held from 10:00 AM to 11:00 AM, at 1200 Third Avenue, Suite 200, large conference room, San Diego, CA, 92101. All potential responders are **encouraged** to attend. Any materials distributed at the meeting will be issued to all RFP recipients in the form of an addendum to this RFP. It is not necessary for all members of a Design-Builder’s team to be present at the Pre-Proposal Meeting, however, the Design-Builder will be held accountable for receiving and applying all information discussed at the Pre- Proposal Meeting.

Bid shall be considered non-responsive if the Design-Builder fails to attend the Pre-Proposal Meeting as evidenced by the City’s meeting sign-in sheet when such a meeting has been specified to be required.

9.3 Pre-Proposal Site Visit.

The Design-Builders are encouraged to visit the Work Site with the Engineer. The purpose of the Site Visit is to acquaint Design-Builders with the Site conditions. To request a sign language or oral interpreter for this visit, call the Public Works Contracting Group at (619) 236-6000 at least 5 Working Days prior to the meeting to ensure availability. A Pre-Proposal Site Visit is scheduled as follows:

Time: 9:00 a.m.

Date: February 28, 2012

Location: Governor Drive Pressure Reducing Station: corner of I-805 and Governor Drive (V-2A)

9.3 Revision to the RFP

The City reserves the right to revise the RFP prior to the date that Proposals are due. Revisions to the RFP will be mailed to all RFP holders. The City reserves the right to extend the date by which the Proposals are due.

10.0 SPECIAL CONDITIONS

10.1 Reservations

This RFP does not commit the City to award a contract, to defray any costs incurred in the preparation of a Proposal pursuant to this RFP, or to procure or contract for Work.

10.2 Public Records

After the selection process is complete and a contract is signed between the City and the winning Design-Builder, all Proposals submitted in response to this RFP become the property of the City and public records, and as such may be subject to public view.

10.3 Right to Cancel

The City reserves the right to cancel, in part or in its entirety, this RFP including but not limited to: selection schedule, submittal date, and submittal requirements. If the City cancels or revises the RFP, all Design-Builders will be notified in writing by the City.

10.4 Additional Information

The City reserves the right to request additional information or clarifications from or interview any or all Design-Builders.

10.5 Public Information

Release of Public Information - Selection announcements, contract awards, and all data provided by the City shall be protected from public disclosure. Design-Builders

desiring to release information to the public, shall receive prior written approval from the City.

10.6 Changes to Key Personnel and Substitution of Subcontractors

10.6.1 The Design-Builder shall not change or substitute any individual that is identified as “key personnel” in its SOQ and Proposal without the written consent of the City.

10.6.2 The Design-Builder shall not change or substitute any material, Supplier Subconsultants, or Subcontractor identified in its SOQ and Proposal without written consent of the City.

10.7 Use of Reference Documents and Pre-Design Reports

10.7.1 The City has made available As-Built Plans and Reference Documents related to the Project. Use of these reports shall be for general project background information only, and shall be used at the Design-Builder’s risk. No responsibility is assumed by the City for the completeness or accuracy of these reports.

10.7.2 The following documents are attached to the Scope of Work (Attachment ‘A’):

- a. Attachment A – Section I – General Requirements
- b. Attachment A – Section II – Design Criteria
- c. Attachment A - Reclaimed Water Vault Drain Relocation/Installation (Scope Modification) Planning Study – December 2010

10.8 Use of Computer Aided Drafting and Design (CADD)

The Design-Builder shall use CADD. CADD drawings, figures, and other work shall be produced by the Design-Builder using MicroStation software. Conversions of CADD work from any other non-standard CADD format to City standard MicroStation format shall not be acceptable in lieu of this requirement unless specified otherwise in the Contract Documents. Refer to City’s CADD Standards for detailed requirements.

10.9 Scheduling and Management Reporting Systems

The Design-Builder will be required to use the latest version of the Primavera Project Management and Scheduling Software or equal.

10.9.1 The City will require the Design-Builder to submit and maintain a task-oriented computerized schedule for completing the Work over the life of the Project.

10.9.2 The Design-Builder shall anticipate that the development of this schedule will require at least 3 steps; (1) development of a work breakdown structure by the Design-Builder and submittal to the City for review; (2) development of interface procedures (and software, if necessary) to communicate from the Design-Builder's computer networking software to the City's networking software (Primavera), and (3) development of an activity network for submittal to the City for review and concurrence.

10.9.3 The Design-Builder shall be required to furnish activity status and network updates on disks in a format that will interface with the City's scheduling system. The City will utilize the schedule information supplied by the Design-Builder in to review progress payments and to monitor the progress of the project against the agreed schedule requirements.

10.10 Project Schedule

10.10.1 The City has established the following tentative milestones for the Project:

- | | | |
|----|--------------------------------------|------------|
| a. | Approve project schedule (Primavera) | May 2012 |
| b. | Issue Notice of Completion | April 2014 |

For the Contract Time refer to Contract Front End Volume 1, Invitation to Bids (see Attachments).

10.11 Acknowledgement of Addenda

The Design-Builder shall confirm in its Proposal the receipt of all addenda issued to this RFP. Failure to acknowledge all addenda issued, will result in the Proposal being considered **non-responsive** and ineligible for further consideration.

10.14 The agreement, terms and conditions are included in The City's Front End Contract Documents Volume 1 and 2, The GREENBOOK Part 1, and The WHITEBOOK e.g., the City Supplement.

ATTACHMENT A

**PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND
BRIDGING DOCUMENTS**

PUBLIC WORKS DEPARTMENT

ATTACHMENT A

**PROJECT DESCRIPTION, SCOPE OF WORK TECHNICAL SPECIFICATIONS, AND
BRIDGING DOCUMENTS**

PUBLIC WORKS DEPARTMENT

SECTION I – GENERAL REQUIREMENTS

- A PROJECT DESCRIPTION
- B SCOPE OF WORK
- C REFERENCE STANDARDS

SECTION II - DESIGN CRITERIA

- A GENERAL
- B DESIGN RESPONSIBILITIES
- C GEOTECHNICAL INVESTIGATION
- D POTHOLING
- E REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS
- F LOCAL CONDITIONS
- G ACCESS TO THE WORK
- H SUPERVISION
- I AUTHORIZATION TO PROCEED
- J DESIGN CALCULATIONS
- K PLAN CHECKS

ATTACHMENT A

SECTION I – GENERAL REQUIREMENTS.

A. PROJECT DESCRIPTION

The Recycled Water System Upgrades Project is part of the City of San Diego Public Utilities Capital Improvements Program. The purpose of this project is to ensure that nuisance water and spills from the City’s recycled water system complies with the California Water Code Section 13529.2. Currently, 15 pressure-reducing recycled water vaults located throughout the City, discharge drainage into the storm water system. These pressure reducing stations will be retrofitted to divert the drainage inside the vault away from storm drain and into the sewer system.

B. SCOPE OF WORK.

A total of 15 vaults have been identified as needing drainage re-design and construction modifications. A solution recommendation for each vault is located in Appendix A. The nuisance water collecting in the vault will be removed by means of a drain pipe to a sewer manhole or a City suction truck.

C. REFERENCE STANDARDS.

Except as otherwise noted or specified, the Work shall be completed in accordance with the following standards:

1. STANDARD SPECIFICATIONS

Document No.	Filed	Description
PITS0504091	05-04-09	Standard Specifications for Public Works Construction (The GREENBOOK), 2009 Edition
PITS090110-1	09-01-10	City of San Diego Standard Specifications for Public Works Construction (The WHITEBOOK), 2010 Update *
AEC1231064	12-31-06	California Department of Transportation, Manual of Uniform Traffic Control Devices (MUTCD 2006)
769023	09-11-84	Standard Federal Equal Employment Opportunity Construction Contract Specifications and the Equal Opportunity Clause

NOTE: The City of San Diego Supplement, 2010 Update now consolidates various City Public Works Construction Standard Specifications which in the past were included in the Supplementary Special Provisions. The Bidders’ attention is directed to this edition of the City Supplement for a close review to ensure no important information is missed for the preparation of the Bids.

2. STANDARD DRAWINGS

Document No.	Filed	Description
AEC1230163	12-31-06	City of San Diego Standard Drawings*
N/A	Varies	City Standard Drawings - Updates Approved For Use (when specified)*
AEC0925061	09-25-06	Caltrans 2006 U.S. Customary Unit Standard Plans

NOTE: *Available online under Engineering Documents and References at: <http://www.sandiego.gov/engineering-cip>.

3. University City Subsystem Reclaimed Water Distribution System “As-Built” drawing 27987-D.
 Plans for the Improvement of Towne Center Drive “As-built” drawing 16773-D
 Sorrento Valley/Carroll Canyon Reclaimed Water Distribution Subsystem “As-Built” drawing 28211-D
 G-W Industrial Park Unit No. 1 “As-Built” drawing 14444-D
 G-W Industrial Park Unit No. 3 “As-Built” drawing 16530-D
 G-W Planned Industrial Development drawing 16980-D
 Reclaimed Water Distribution System Scripps Ranch Boulevard/I-15 Subsystem “As-Built” drawing 28007-D
 Plans for the Improvement of Meanley Drive in Scripps Ranch Business Park, Phase III “As-Built” drawing 23837-D
 Plans for the Improvement of Scripps Westview “As-Built” drawing 19337-D
 Black Mountain Ranch Recycled Water – Phase 2 “As-Built” drawing 31697-D
 Black Mountain Ranch 12” Recycled Water “As-Built” drawing 31414-D
 Carmel Valley Road & El Vestido Street Improvements “As-Built” drawing 20556-D
 Black Mountain Ranch Unit 1 “As-Built” drawing 30287-D
 Camino Ruiz Improvements “As-Built” drawing 31702-D

ATTACHMENT A

SECTION II - DESIGN CRITERIA.

A. GENERAL

The design criteria presented herein shall apply to the design and new construction of the Recycled Water Vault System Upgrades project, as outlined in the Bridging Documents.

B. DESIGN RESPONSIBILITIES.

Design-Builder shall provide all Services for the Project. The Services shall include preparing the final 100% design for the Project [Final Design], including all necessary design and Construction Documents. The Services shall also include those required during construction, startup, and closeout. The Services shall be performed in accordance with all Applicable Laws and City policies.

1. Design-Builder shall provide complete design for all elements of the Project (as applicable) such as: civil, geotechnical, environmental and specialty consulting areas. Design-Builder shall evaluate alternative construction approaches to ensure economical designs which optimize constructability yet meet all requirements of this Contract, including all Applicable Laws and applicable architectural concepts, and conceptual designs.
2. Design-Builder shall incorporate the requirements of permitting agencies as may become apparent in the course of Project design. Design-Builder shall apply for and secure all permits and provide all necessary reports, studies, and support required to obtain the permits. Permit and utility fees, if any, will be paid by City.
3. With prior authorization from City, Design-Builder shall provide additional geotechnical investigations and potholing to the extent Design-Builder determines that they are necessary for Final Design.
4. Design-Builder shall furnish support to a City QA/QC and constructability review team at the 30% and /or 75% Design completion stage. Design-Builder shall incorporate results of this review into the design.

C. GEOTECHNICAL INVESTIGATION.

Design-Builder shall prepare geotechnical reports and testing required in designing and constructing the Project in accordance with the Contract requirements. Design-Builder shall secure and be financially responsible for any cost associated with all necessary local, state and federal permits and/or approvals prior to construction. The Design-Builder shall pay all governmental charges and inspection fees necessary for execution of the work. Any geologic hazard issue shall be adequately addressed through appropriate engineering design. Cost of preparing geotechnical investigation and reports shall be part of Engineering and Design Services.

D. POTHOLING.

Design-Builder shall have full responsibility for assessing, reviewing and verifying existing utility information and data. Design-Builder shall excavate sufficient potholes to verify locations and elevations at utility crossings and existing piping to be removed or replaced in the Project. These potholes may be made using small diameter vacuum-type equipment, if appropriate. Design-Builder shall immediately notify City of any damage caused to the pipe during potholing activities.

1. Design-Builder shall provide all services related to the excavation and backfilling of potholes. Pothole excavations shall be in compliance with CAL-OSHA and City safety requirements, and any excavations left open shall be covered with steel plates.
2. Design-Builder shall restore and clean-up all work sites.
3. At the completion of examining each pothole, Design-Builder shall:
 - a. Replace the pipe bedding which was removed. Tamp and compact to provide suitable support for the pipe.
 - b. Backfill and cover the pipe with native soil.
 - c. For those pothole excavations located in the roadway, provide a six to eight inch concrete cap over the pipe.
 - d. Repair the street disturbed by the pothole excavation with a thin, Class F asphalt wearing surface feathered into the existing asphalt street surface.
4. Design-Builder shall provide construction staging, noise and dust control, and traffic control as required during excavation for potholing to minimize impacts on local neighborhoods.
5. Design-Builder shall restore to their in-kind condition, as determined by City, all streets, curbs, gutters, sidewalks, and other improvements damaged as a result of Design-Builder's activities.
6. Design-Builder shall submit potholing information to the City Representative for review.
7. Design-Builder shall not perform any additional potholing unless authorized in writing by City.

E. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS.

Design-Builder shall conduct field investigations, including potholing of underground facilities, take field measurements, and verify field conditions. Design-Builder shall carefully compare such field conditions and other information known to Design-Builder with the Contract Documents before commencing Work and/or Services. Design-Builder is solely responsible for investigation and discovery of all field conditions notwithstanding any information provided by City in the Contract Documents or otherwise. City has made an effort to eliminate errors, omissions, and inconsistencies in the Contract Documents. Design-Builder, however, shall bring to City's attention for clarification any errors, omissions, or inconsistencies prior to submission of Design-Builder's Proposal. Otherwise, Design-Builder shall take responsibility for any costs or delays associated with such error, omission, or inconsistency.

F. LOCAL CONDITIONS.

Design-Builder warrants that it has taken steps reasonably necessary to ascertain the nature and location of the Work, and that it has investigated and satisfied itself as to the general and local conditions that are applicable to the Work, including but not limited to:

1. Conditions bearing on transportation, disposal, handling, and storage of materials;
2. The availability of labor, materials, water, power, and roads;
3. Weather conditions;
4. Physical conditions at the Project Site;
5. The surface conditions of the ground; and
6. The character of equipment and facilities needed prior to and during the performance of the Work.

G. ACCESS TO THE WORK.

Design-Builder shall provide City and utility owners with access to the Project Site and provide coordination and time for utility work to be accomplished during normal working hours.

H. SUPERVISION.

Design-Builder shall supervise and direct the Work in accordance with accepted standards of professional skill and attention. Design-Builder shall be solely responsible for and have control over design and construction means, methods, techniques, sequences, and procedures. Design-Builder shall not be relieved of obligations to perform the Work in accordance with the Contract Documents by tests, inspections, acceptances, or approvals required or performed by persons other than Design-Builder. Design-Builder shall employ a competent superintendent and a necessary assistant who shall be present at the Project Site at all times that Work is being performed. The superintendent shall represent Design-Builder, and communications given to the superintendent shall be as binding as if given to Design-Builder.

I. AUTHORIZATION TO PROCEED.

Following each design review, Design-Builder shall meet with the City Representative to:

1. Discuss the comments and responses, and to resolve all open issues and disagreements;
2. Confirm the next level of design development ;
3. Obtain written authorization to proceed with the next design level;
4. Obtain written authorization to proceed with construction.

J. DESIGN CALCULATIONS.

Design-Builder shall include design calculations, catalog cuts, computations, telephone and facsimile records, and other similar documents supporting all elements of Design-Builder's design with Design-Builder's final signed and stamped calculations. Design-Builder shall provide catalog cuts and manufacturer's data included with the final Project calculations for each approved material listed in the specifications or identified on the drawings.

K. PLAN CHECKS.

At major completion levels, Design-Builder shall submit written estimates of plan checks required to complete the Project. In the written estimates, Design-Builder shall:

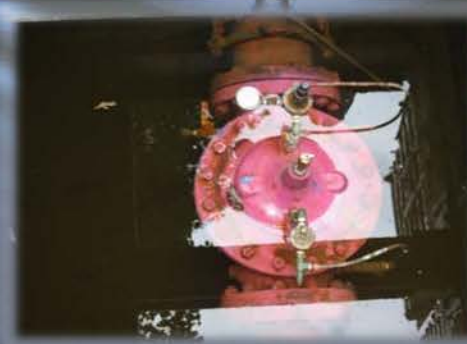
1. Identify all authorities having jurisdiction, including but not limited to the City Planning and Development Review Department, the City Traffic Control Division, the City Fire Marshal, and other utilities. City will prepare plan check applications and submit the applications to the authorities having jurisdiction. Payment for plan check applications shall be made by the Design Builder.
2. Submit hard and electronic copies of written design submittal comments from City and other utilities or agencies, annotated to indicate Design-Builder's responses, final disposition of comments, and incorporate into the Final Design documents.

ATTACHMENT A

**RECLAIMED WATER VAULT DRAIN RELOCATION/INSTALLATION
(SCOPE MODIFICATION) PLANNING STUDY –DECEMBER 2010**



Reclaimed Water Vault Drain Relocation / Installation (SCOPE MODIFICATION) PLANNING STUDY



Public Utilities Department
Engineering and Program Management Division
10% Design Section



City of San Diego
Public Utilities Department
Engineering and Program
Management Division

Reclaimed Water Vault Drain Relocation/Installation

(Scope Modification)

Planning Study

December 2010

Prepared By: Hudson McLintock, P.E., Assistant Civil Engineer
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Contributions: Nelson Sellona, Associate Civil Engineer
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1.0 Introduction

Official Project Name	WBS #	Council	Community Planning Area	Water CIP Priority Rank
Recycled Water System Upgrade	S-10010	1, 5, 7	Black Mountain Ranch Miramar Ranch North Mira Mesa Scripps Miramar Ranch University	82

1.1 General

A study to remove nuisance water from the reclaimed water vaults (vaults) and add SCADA was requested by the Recycled Water Operation and Maintenance Section. The removal of nuisance water has to meet the California Water Code: Section 13529.2 (see Appendix B), which basically states that nuisance water from vaults cannot be discharged to water of the states. This means the water will have to be discharge to the sewer or be removed using a suction truck and treated.

The Recycled Water Operation and Maintenance Section asked us to review eighteen vaults. Seven of the vaults currently do not have an internal mechanism (pump or drain) to remove the nuisance water. Four of the vaults had an internal mechanism (pump or drain) to remove the nuisance water that either discharged to the street or the storm drain. Four of the vaults drain to the sewer, but the drain size is too large (8”) and could cause flooding in the sewer. Three of the vaults were removed from the recommendation list either because they are a part of a pump station, they are pads (not underground) or being addressed by another study (Penasquitos Views Trunk Sewer Replacement – Canyonside Recycled Water Pump Station Drain Relocation). Six of the vaults have no SCADA, six of the vaults have partial SCADA, and three of the vaults have SCADA. A total of fifteen vaults were studied and a solution recommendation for them is located in Table 2-1 and Appendix A. The nuisance water will be removed by means of a drain or a suction truck. A suction truck will be sent when there is enough nuisance water that the floating switch will activate an alarm. See Table 2-3 for recommended nuisance water removal method (drain or suction truck). For location of all fifteen studied vaults see Exhibit 1.

Table 2-1: List of Studied Reclaimed Water Vaults

Number	Name	Appendix	Solution	Special Notes
1	Towne Center Dr Pressure Reducing Station	V-1A	Drain	
2	Towne Centre Dr Pressure Relief Station	V-1B	Drain	Partial SCADA installed
3	Governor Dr Pressure Reducing Station	V-2A	Suction Truck	
4	Governor Dr Pressure Relief Station	V-2B	Suction Truck	
5	Regents Road Pressure Reducing Station	V-3	Pump	
6	Production Ave Pressure Reducing Station	V-4A	Drain	
7	Production Ave Pressure Relief Station	V-4B	Drain	
8	Meanley Dr Pressure Reducing Station	V-5	Drain	8" discharges into SD; Partial SCADA Facilities installed
9	Scripps Ranch Blvd. Near Scripps Lake Dr. Pressure Reducing Station	V-6	Drain	8" discharges into sewer; Partial SCADA Facilities installed
10	Mira Mesa Blvd. Pressure Reducing Station	V-7	Drain	8" discharges into sewer; Partial SCADA Facilities installed
11	Scripps Westview Way Pressure Reducing Station	V-8	Drain	8" discharges into sewer; Partial SCADA Facilities installed
12	Scripps Poway Parkway Pressure Reducing Station	V-9	Drain	8" discharges into sewer; Partial SCADA Facilities installed
13	Carmel Valley Rd Pressure Reducing Station	V-10	Suction Truck	SCADA Facilities installed; Not transmitting
14	Camino Del Sur Pressure Reducing Station	V-11	Suction Truck	SCADA Facilities installed; Not transmitting
15	San Dieguito Rd. Pressure Reducing Station	V-12	Suction Truck	SCADA Facilities installed; Not transmitting

Table 2-2: List of Removed Reclaimed Water Vaults

Number	Name	Appendix	Reason for Exemption
1	Canyonside Pump Station	V-13	Already a part of another project
2	SBWRP Reclaimed Water Pump Station	V-16	Pad
3	SBWRP Reclaimed Water Metering Station	V-17	Pad

Table 2-3: List of Details of Studied Reclaimed Water Vaults

Number	Name	Existing					Proposed					Notes
		Sump	Drain	Pump	SCADA Facilities	Instruments	Remove Water	Length of Drain (ft)	Drain Size (in)	Final Instrument Configuration		
V-1A	Towne Center Dr Pressure Reducing Station	Yes	No	No	No	No	Drain	220	4	2	This vault will be connected to SCADA System at V-1B	
V-1B	Towne Center Dr Pressure Relief Station	Yes	No	No	Partial	No	Drain	50	4	3		
V-2A	Governor Drive Pressure Reducing Station	Yes	No	No	Partial	No	Suction Truck			2		
V-2B	Governor Drive Pressure Relief Station	Yes	No	No	No	No	Suction Truck			3	This vault will be connected to SCADA System at V-2A	
V-3	Regents Road Pressure Reducing Station	Yes	No	No	No	No	Suction Truck			2		
V-4A	Production Ave. Pressure Reducing Station	Yes	No	No	No	No	Drain	40	4	2		
V-4B	Production Ave. Pressure Relief Station	Yes	No	No	No	No	Drain	80	4	3		
V-5	Meanly Dr. Pressure Reducing Station	Yes	8" to SD	No	No	1	Drain	230	4	2	Pressure Relief in vault; Install sump pump	
V-6	Scripps Ranch Blvd. Near Scripps Lake Dr. Pressure Reducing Station	Yes	8" to Sewer	No	Partial	1	Drain	Modify	4	2	Pressure Relief in vault	
V-7	Mira Mesa Blvd. Pressure Reducing Station	Yes	8" to Sewer	No	Partial	1	Drain	Modify	4	2	Pressure Relief in vault	
V-8	Scripps Westview Way Pressure Reducing Station	Yes	8" to Sewer	No	Partial	1	Drain	Modify	2	2	Pressure Relief in vault: Root intrusion in vault	
V-9	Scripps Poway Parkway Pressure Reducing Station	Yes	8" to Sewer	No	Partial	1	Drain	Modify	4	2	Pressure Relief in vault	
V-10	Carmel Valley Rd Pressure Reducing Station	Yes	No	Yes	Full	4	Suction Truck			4	Not transmitting	
V-11	Camino Del Sur Pressure Reducing Station	Yes	No	Yes	Full	4	Suction Truck			4	Not transmitting	
V-12	San Dieguito Rd. Pressure Reducing Station	Yes	No	Yes	Full	5	Suction Truck			5	Not transmitting	
							Total	620				

Legend

- 1 SCADA Instruments: Two Pressure Gauges. One each on high and low pressure side of pipeline.
- 2 SCADA Instruments: Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch.
- 3 SCADA Instruments: One Pressure Gauges on high pressure side of pipeline. Float switch.
- 4 SCADA Instruments: Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve.
- 5 SCADA Instruments: Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve. Flow Meter.

2.0 Recommendations

2.1 Vaults

The details for the fifteen studied vault are located in Appendix A. The tables are used for a quick overview of the vaults. The five vaults that recommend installing drains have a figure showing basic layout of the vault, manhole connection, and drain. Based on the Sewer Modeling Study (see Appendix D), all of the drains can be 4” except for V-8 which needs to be 2”. SCADA will need to be connected on all 890 Zone Pressure Reducing Station (V-4A, V-5, V-6, V-7, V-8 and V-9).

2.2 Cost

The construction cost of each vault and the total cost for all vaults are in Table 2-4.

- The cost to install 4-in. PVC is \$110 per linear foot
- Cost to modify 8” PVC drain is \$1,000
- Cost to modify a sump is \$5,000 – includes all grouting for slope
- Cost to install a Sump Pump is \$1,000 – cost of sump pump with 20 ft cord is \$342 and cost of ball check valve is \$85 and assume all needed electrical connections are already in vaults.
- A manhole boring will cost \$1,000 (from E-bid).
- To install a sewer manhole will cost \$25,000 (from E-bid).
- Assume cost to install SCADA Facilities is \$35,000 – includes instruments (pressure gage, float switch and ect...)
- Assume cost to reconnect Radio Telemetry to SCADA is \$5,000

Total construction cost is estimated at **\$636,200**

Table 2-4: Cost Estimation of Studied Reclaimed Water Vaults

Number	Modify Sump	Sump Cost	Length of Drain (ft)	Drain Cost	Manhole	Manhole Cost	Pump	Pump Cost	SCADA Facilities	SCADA Cost	Construction Cost
V-1A	yes	\$5,000	220	\$24,200	Bore	\$1,000	No		Install	\$35,000	\$65,200
V-1B	yes	\$5,000	50	\$5,500	Install	\$25,000	No		Install	\$35,000	\$70,500
V-2A	yes	\$5,000	N.A		N.A		No		Install	\$35,000	\$40,000
V-2B	yes	\$5,000	N.A		N.A		No		Install	\$35,000	\$40,000
V-3	yes	\$5,000	N.A		N.A		No		Install	\$35,000	\$40,000
V-4A	yes	\$5,000	40	\$4,400	Install	\$25,000	No		Install	\$35,000	\$69,400
V-4B	yes	\$5,000	80	\$8,800	Bore	\$1,000	No		Install	\$35,000	\$49,800
V-5	yes	\$5,000	230	\$25,300	Bore	\$1,000	Yes	\$1,000	Install	\$35,000	\$67,300
V-6	yes	\$5,000	Modify	\$1,000	N.A		No		Install	\$35,000	\$41,000
V-7	yes	\$5,000	Modify	\$1,000	N.A		No		Install	\$35,000	\$41,000
V-8	yes	\$5,000	Modify	\$1,000	N.A		No		Install	\$35,000	\$41,000
V-9	yes	\$5,000	Modify	\$1,000	N.A		No		Install	\$35,000	\$41,000
V-10	yes	\$5,000	N.A		N.A		No		Reconnect Transmission	\$5,000	\$10,000
V-11	yes	\$5,000	N.A		N.A		No		Reconnect Transmission	\$5,000	\$10,000
V-12	yes	\$5,000	N.A.		N.A.		No		Reconnect Transmission	\$5,000	\$10,000
										Total	\$636,200

2.2.1 Total Cost Estimate

The Total Project Cost is the sum of Construction Cost and Soft Cost (Administration and Engineering). Soft cost is Administration and Engineering (33% of construction cost) and Contingency Cost (10% of Construction Cost) for a total of 43% of construction cost:

Calculation:

$$\$636,200 \times 43\% = \$273,566$$

$$\$636,200 + \$273,566 = \$909,766$$

Total cost is estimated at **\$0.91 million**

2.3 Concerns

This study addresses the removal of nuisance water and SCADA installation. This study does not address the issue of high flow rate from pressure relief stations to the storm drain. This will have to be addressed by Recycled Water Operation and Maintenance Section.

- V-1B Towne Centre Drive Pressure Relief Station discharges in a storm drain. Nuisance water addressed by Planning Study.
- V-2B Governor Drive Pressure Relief Station discharges in a storm drain. Nuisance water addressed by Planning Study.
- V-4B Production Avenue Pressure Relief Station discharges in a storm drain. Nuisance water addressed by Planning Study.

3.0 Sewer Modeling Study

Prepared by the Sewer Modeling Section of the E.P.M. Division

3.1 Objective

On July 30, 2010, the Engineering and Program Management Division received a request from the System Operations Division to evaluate the impact of the existing 8-inch pipe connections between three PRS vaults and the sewer system (see Attachment #1). These connections were built in 1996 to drain recycled water to sewer mains in case of leaks, breaks, and/or unscheduled discharge through the pressure relief valve inside the vault. This memorandum addresses the connections at the following locations:

1. Mira Mesa Boulevard PRS (PRS 1) on Scripps Ranch Boulevard (FSN 5020978)
2. Scripps Ranch Blvd near Scripps Lake Dr (PRS 2) (FSN 5021115)
3. Scripps Poway Parkway PRS (PRS 3) just east of I-15 (FSN 5021665)

After this request, the Sewer Modeling section was informed that there was a similar study being performed simultaneously by the 10% Design section. This study is entitled “Reclaimed Water Vault Drain Relocation / Installation”. It addresses the three vaults listed above along with twelve others. In the study it was recommended that the three of the vaults listed above along with six others have a 4-inch drain that connects the reclaimed water vault to the sewer system. It was decided that the Sewer Modeling section needed to model the connections and determine the impact to the sewer system for these nine proposed connections (four of which already have 8-inch connections to the sewer). See Attachment #2 for a map of all of reclaimed water vaults proposed to have a 4-inch drain to the sewer.

3.2 STUDY LIMITATIONS

The impact to the sewer system from the PRS vault connections is based on the ideal capacity of the sewer lines only. The actual conditions of the pipe could adversely affect capacity (i.e. roots, silt, sagging pipe sections, debris, and grease). The proposed connections to the sewer are only in 10% design, so invert elevations and lengths are estimates and not exact. In the locations where multiple vaults are discharging to the same downstream trunk sewer system, it was assumed that only one vault would be discharging at a time to the sewer, as it is very unlikely that two valves would break at the same time.

3.3 METHODOLOGY

The dynamic modeling program, InfoWorks Version 10, and City's ArcGIS/ArcHMF were used for this study. The flows for the build-out scenarios were computed based on population and employment data developed in SANDAG 2050 Series 12 residential and employment population projections. The trunk sewer model was calibrated based on 2009 population data. The flows through the reclaimed water lines at the three PRS vault locations from the original request for the normal day peak, and absolute worst case scenario were furnished by the water modeling section (Attachment #3).

3.4 MODELING DETAILS

For the original request to model the existing sewer connections, simulations were run with the maximum normal operating inflows and worst case scenario inflows for both 2050 dry and wet weather flow conditions. A summary table of these simulation runs is attached (Attachment #4). Detailed hydraulic modeling results tables from all of the modeling runs are also attached in the appendix.

For the modeling of the proposed 4-inch connections, inflows were placed into each of the vaults, so the vault would spill and the 4-inch drain would reach its maximum capacity. The simulations were run with 2050 dry and wet weather scenarios.

3.4.1 TOWNE CENTER DR PRESSURE REDUCING STATION (V-1A)

This vault does not currently have a drain. The modeling results for a full 4-inch drain under build out wet weather conditions indicate flow near capacity. The maximum flow divided by the full pipe capacity (Q/CAP) is 94.8% (See Table A-1).

With 2050 wet weather flow conditions, one segment exceeds capacity, with Q/CAP of 123.2% (See Table A-1). If it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather, then the connection is acceptable.

Reclaimed Water Vault Drain Relocation/Installation (Scope Modification) Planning Study

Modeling results are presented in Exhibit A.

3.4.2 TOWNE CENTER DR PRESSURE RELIEF STATION (V-1B)

This vault does not currently have a drain. The modeling results for a full 4-inch drain under buildout dry weather conditions shows one pipe exceeding capacity with a maximum d/D of 212.7% and

maximum Q/CAP of 120%. Since this is the only segment on the sewer line exceeding capacity and the HGL depth below rim is 9.58 ft at this location, the connection to the sewer is acceptable with regard to dry weather conditions (See Table B-1).

With 2050 wet weather flow conditions, multiple segments exceed capacity. The maximum Q/CAP is 148.4% (See Table B-1). If it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather, then the connection is acceptable. However, if it is possible that the vault could discharge large amounts of reclaimed water to the sewer during wet weather, then the sewer connection should either be downsized to 2-inch or not made. Modeling results are presented in Exhibit B.

3.4.3 PRODUCTION AVE PRESSURE REDUCING STATION (V-4A)

This vault does not currently have a drain. The modeling results for a full 4-inch drain under build out dry weather conditions show one segment surcharging at the upstream end of the trunk sewer due to backwater effects, and several segments surcharging at the downstream end due to pump station backup. This surcharging does not present any capacity issues as the maximum Q/CAP is 83.1% (See Table C-1).

Capacity issues are seen under wet weather conditions, as the model shows heavy surcharging with a minimum HGL below rim of 0.69 ft. However, capacity issues are present even without the proposed 4-inch connection. The capacity of the first segment that exceeds allowable capacity is 17.33 MGD, the worst segment capacity downstream of this is 14.04 MGD, and the full capacity from the 4-inch drain is only 0.77 MGD, so the impact from the proposed connection seems low (See Table C-2). If it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather, then the connection is acceptable. Modeling results are presented in Exhibit C.

3.4.4 PRODUCTION AVE PRESSURE RELIEF STATION (V-4B)

This vault does not currently have a drain. The modeling results for a full 4-inch drain under build out dry weather conditions show one segment surcharging at the upstream end of the trunk sewer due to backwater effects, and several segments surcharging at the downstream end due to pump station backup. This surcharging does not present any capacity issues as the maximum Q/CAP is 81.3% (See Table D-1).

Capacity issues are seen under wet weather conditions, as the model shows heavy surcharging with a minimum HGL below rim of 1.48 ft. However, capacity issues are present even without the proposed

4-inch connection. The capacity of the first segment that exceeds allowable capacity is 17.33 MGD, the worst segment capacity downstream of this is 14.04 MGD, and the full capacity from the 4-inch drain is only 0.53 MGD, so the impact from the proposed connection seems low (See Table D-2). If it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather, then the connection is acceptable. Modeling results are presented in Exhibit D.

3.4.5 MEANLY DR PRESSURE REDUCING STATION (V-5)

This vault currently has an 8-inch connection to a storm drain. A sump pump is proposed to convey water to the sewer; therefore a maximum flow rate of 45 gpm was assumed based on the pump specifications in the appendix of “Reclaimed Water Vault Drain Relocation / Installation”. The buildout wet weather modeling results do not show any capacity issues. The maximum Q/CAP is 55.4% (See Table E-5). Modeling results are presented in Exhibit E.

3.4.6 SCRIPPS RANCH BLVD NEAR SCRIPPS LAKE DR PRS (PRS 2 / V-6)

This vault currently has an 8-inch connection to the sewer. Under 2050 normal operation inflow (20 gpm), dry weather simulations show a maximum Q/CAP of 85.5% (See Table F-1), and wet weather shows slight surcharging in two segments (See Table F-2). Modeling with the worst case inflow (1895 gpm) under buildout dry weather flow conditions shows reclaimed water spilling out of the vault, along with severe surcharging in the sewer with a minimum HGL below rim of 1.74 ft (See Table F-3). With the worst case buildout wet weather flow; a sewer spill is modeled along with reclaimed water spilling out of the vault (See Table F-4). The vault is estimated to spill in about 5 minutes under the worst case inflow scenario (See Table F-5).

With the proposed reduction to a 4-inch drain, conditions improve drastically. Under buildout dry weather flow with a full 4-inch line, one line exceeds capacity, but there is no surcharging. The maximum d/D is 73.1% and the maximum Q/CAP is 102.0% (See Table F-6). With a full line in wet weather, surcharging is seen in four segments, but the minimum HGL below rim for the surcharging segments is 11.41 ft (See Table F-7). If it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather, then the connection is acceptable. Modeling results are presented in Exhibit F.

3.4.7 MIRA MESA BLVD PRESSURE REDUCING STATION (PRS 1 / V-7)

This vault currently has an 8-inch connection to the sewer. The modeling results of the as-built connection with a normal operation inflow (250 gpm) under wet weather flow conditions do not

present any capacity issues. The maximum Q/CAP is 78.7% (See Table G-2). With the worst case inflow (1715 gpm) in dry weather flow conditions, the vault is spilling reclaimed water, and the sewer line is near capacity with a maximum Q/CAP of 98.9% (See Table G-3). In worst case wet weather, the vault is spilling reclaimed water, and heavy surcharging is seen in the sewer. The minimum HGL below rim for the surcharging segments is 4.27 ft (See Table G-4). The vault is estimated to spill in about 15 to 24 minutes under the worst case inflow scenario (See Table G-5). With the proposed modification to a 4-inch drain, the maximum Q/CAP is 80.3% under build out wet weather flow conditions (See Table G-7). Modeling results are presented in Exhibit G.

3.4.8 SCRIPPS WESTVIEW WAY PRESSURE REDUCING STATION (V-8)

This vault currently has an 8-inch connection to the sewer. Since this vault was not originally requested to be modeled under existing conditions, an inflow to fill the vault to maximum capacity was placed in the model. The modeling results show a sewer spill under 2050 dry weather flow conditions with this inflow (See Table H-1).

The results improve slightly with a 4-inch connection; however the connection is still unacceptable. In 2050 dry weather flow conditions, heavy surcharging is seen through the line and the minimum HGL below rim is 0.74 ft (See Table H-2).

Improvement is seen with a 2-inch connection. In buildout dry weather flow, two segments slightly exceed capacity, with one segment surcharging. Under buildout wet weather flow, all of the segments except for one exceed capacity. The maximum Q/CAP is 166.3%. The full 2-inch connection accounts for about 8.6% of the capacity of the critical segment. About 0.0763 MGD is added from the 2-inch connection to a line with a minimum capacity of about 0.8905 MGD (See Table H-3). If it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather, then the connection is acceptable. However, if it is possible that the vault could discharge large amounts of reclaimed water to the sewer during wet weather, then the vault connection to the sewer should be closed off. Modeling results are presented in Exhibit H.

3.4.9 SCRIPPS POWAY PARKWAY PRESSURE REDUCING STATION (PRS 3 / V-9)

This vault currently has an 8-inch connection to the sewer. Under buildout wet weather flow conditions with a normal operation inflow (90 gpm), one segment is observed to be surcharging due to backwater effects, however the capacity of the line is acceptable as the maximum Q/CAP is 63.7% (See Table I-2). With the worst case inflow added (2056 gpm) similar results can be seen with a

slightly higher maximum Q/CAP of 72.1%, but the vault is spilling reclaimed water (See Table I-4). The vault is estimated to spill in about 5 minutes under the worst case inflow scenario (See Table I-5).

Slight improvement is seen with the proposed 4-inch connection. In buildout wet weather conditions with a full 4-inch line, the maximum Q/CAP is 64.2% (See Table I-7). Modeling results are presented in Exhibit I.

3.4.10 PERMITS

We propose to issue a single permit identifying all the vaults with drains to sewer, subject to compliance with the following conditions *for each vault with a drain to sewer*:

- (1) An automatically actuated wet weather diversion system (with upper management approval, the valves may be manually activated) that closes the drain to sewer when 1/10" of rainwater has fallen, and which must be manually diverted back to sewer. If automated, these valves must also be activated by the high float/SCADA notification. The diversion back to sewer can be made no less than 24-hours after the end of the most recent rain event. This will ensure there are no discharges to sewer from either run-on or the recycled water system during wet weather events, as is assumed by the modeling report.
- (2) An operational SCADA system (as proposed)
- (3) Semi-annual certification that the SCADA notification system has been tested within the 6-month period covered by the certification and is functioning as designed
- (4) On-site response to SCADA notification events within 1 hour Note: If valve actuation automated, can eliminate this requirement. For manual system, extended response time from ½ hr to 1 hour.
- (5) Monthly reports of total estimated flow to sewer, for sewer service charge billing purposes; charges to be based on 100% flow, 50 ppm TSS, and 100 ppm COD (lowest billing ranges for TSS and COD) Note: Can be an estimate, calculated based on the total monthly flow from vaults where flows are pumped and hauled.
- (6) Identification of the cross-connections on both the recycled-water and sewer layers of SPLASH.

The permit application should be requested in the name of the department/branch responsible for maintaining compliance with permit conditions, and signed by the person responsible for that branch, as required by pretreatment regulations.

3.5 CONCLUSIONS

The three PRS vaults originally requested to be modeled with 8-inch as-built connections could be potentially useful for discharging typical day flows (with the exception of the Scripps Ranch Blvd near Scripps Lake Drive PRS which showed surcharging for 2050 wet weather), but under the worst case scenario (i.e. PRS valve breaks during peak flows) the vaults will spill even with the sewer connections. There is no reason to risk a sewer spill at any of the locations when the vaults will be spilling reclaimed water regardless.

The proposed change to reduce the four existing 8-inch connections to 4-inch definitely reduces the impact on the sewer. The only vault that still has a significant impact on the sewer in dry weather flow is the Scripps Westview Way Pressure Reducing Station (V-8). The discharge for this vault is into a 10-inch main, and with a 4-inch drain, the sewer still exceeds capacity in buildout dry weather conditions. Even with a 2-inch drain many of the mains along the flow path are close to or slightly exceed capacity. With regard to wet weather conditions, the connections at Scripps Ranch Blvd near Scripps Lake Dr (PRS 2 / V-6) and Scripps Westview Way (V-8, 2-inch connection) are only acceptable if it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather.

Finally, the addition of the five additional proposed 4-inch drains to vaults that do not currently connect to the sewer does not seem to significantly impact the sewer in 2050 dry weather conditions. With regard to wet weather conditions, the connections at Towne Center Dr (V-1A, V-1B) and Production Ave (V-4A, V-4B) are only acceptable if it can be safely assumed that the flow through the reclaimed water vault will be minimal during wet weather.


Exhibit-1

STUDIED RECLAIMED WATER VAULT LOCATION MAP

LEGEND

Appendix	Name
V-1A	Towne Center Dr Pressure Reducing Station
V-1B	Towne Center Dr Pressure Relief Station
V-2A	Governor Drive Pressure Reducing Station
V-2B	Governor Drive Pressure Relief Station
V-3	Regents Road Pressure Reducing Station
V-4A	Production Ave. Pressure Reducing Station
V-4B	Production Ave. Pressure Relief Station
V-5	Meany Dr. Pressure Reducing Station
V-6	Scripps Ranch Blvd. Near Scripps Lake Dr. Pressure Reducing
V-7	Mira Mesa Blvd. Pressure Reducing Station
V-8	Scripps Westview Way Pressure Reducing Station
V-9	Scripps Poway Parkway Pressure Reducing Station
V-10	Carmel Valley Rd Pressure Reducing Station
V-11	Camino Del Sur Pressure Reducing Station
V-12	San Dieguito Rd Pressure Reducing Station

LEGEND

 Studied Reclaimed Water Vault

NOTE: See Table 2-1 & 2-2 to find corresponding vault name


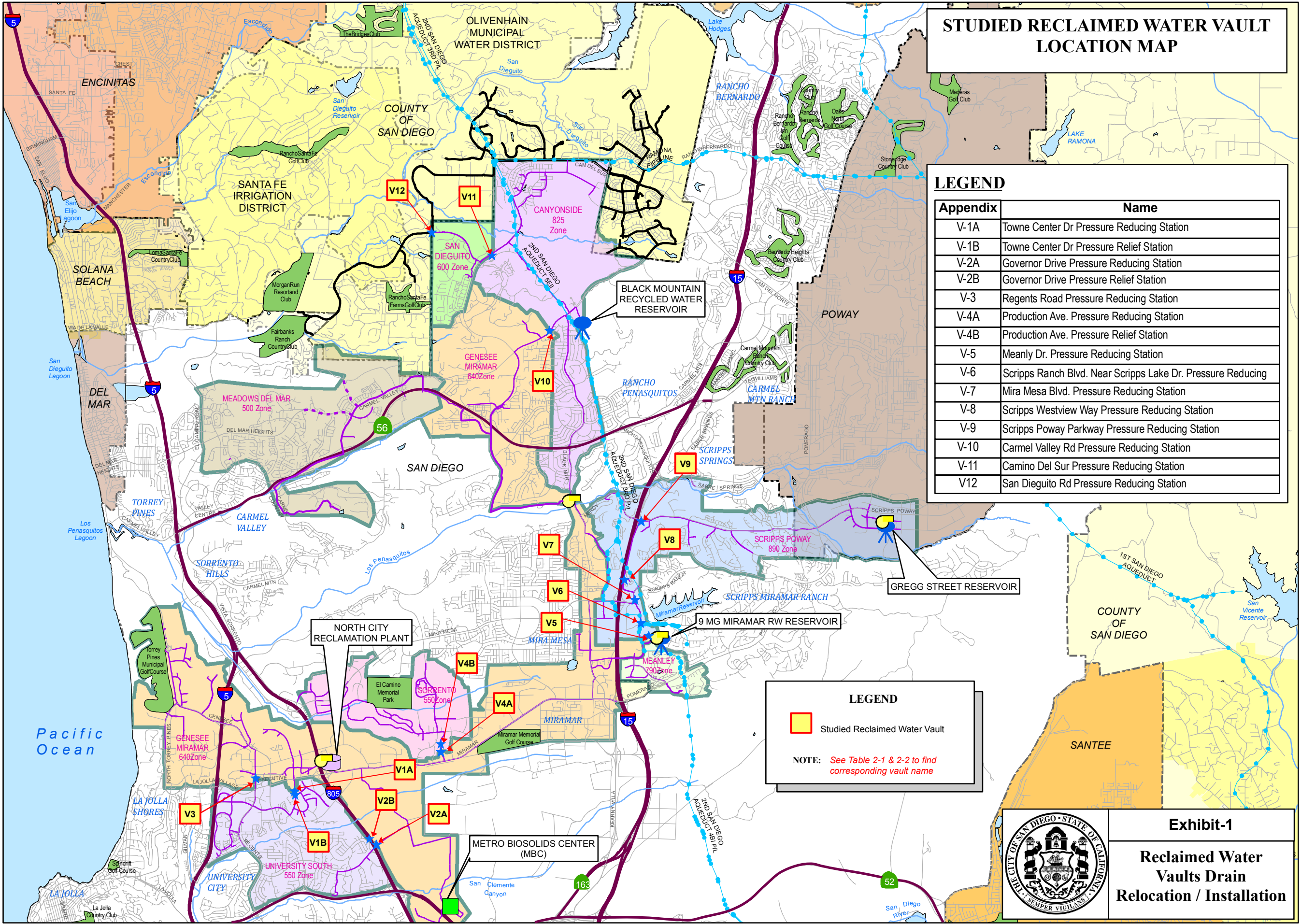


Exhibit-1
**Reclaimed Water
Vaults Drain
Relocation / Installation**



Appendix A

Reclaimed Water Vault Drain Relocation/Installation

Studied Vault Data Sheets

Details of Towne Center Dr Pressure Reducing Station (V-1A)

Existing Conditions	
Sump:	Yes. Concrete bottom. Currently no drain. Just depression
Drain:	No
Power:	No
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on East side
SCADA:	No
SCADA Facilities:	No
Instruments:	None
Pipe Size:	6", 3"
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"
Hinges for Doors:	Several hinges broken.
Proposed	
Sump:	Install 2" drain. Sump should be 6" deep and all concrete with grate at top.
Drain:	Install 4" drain to sewer. See table below.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.

4" Drain to Sewer

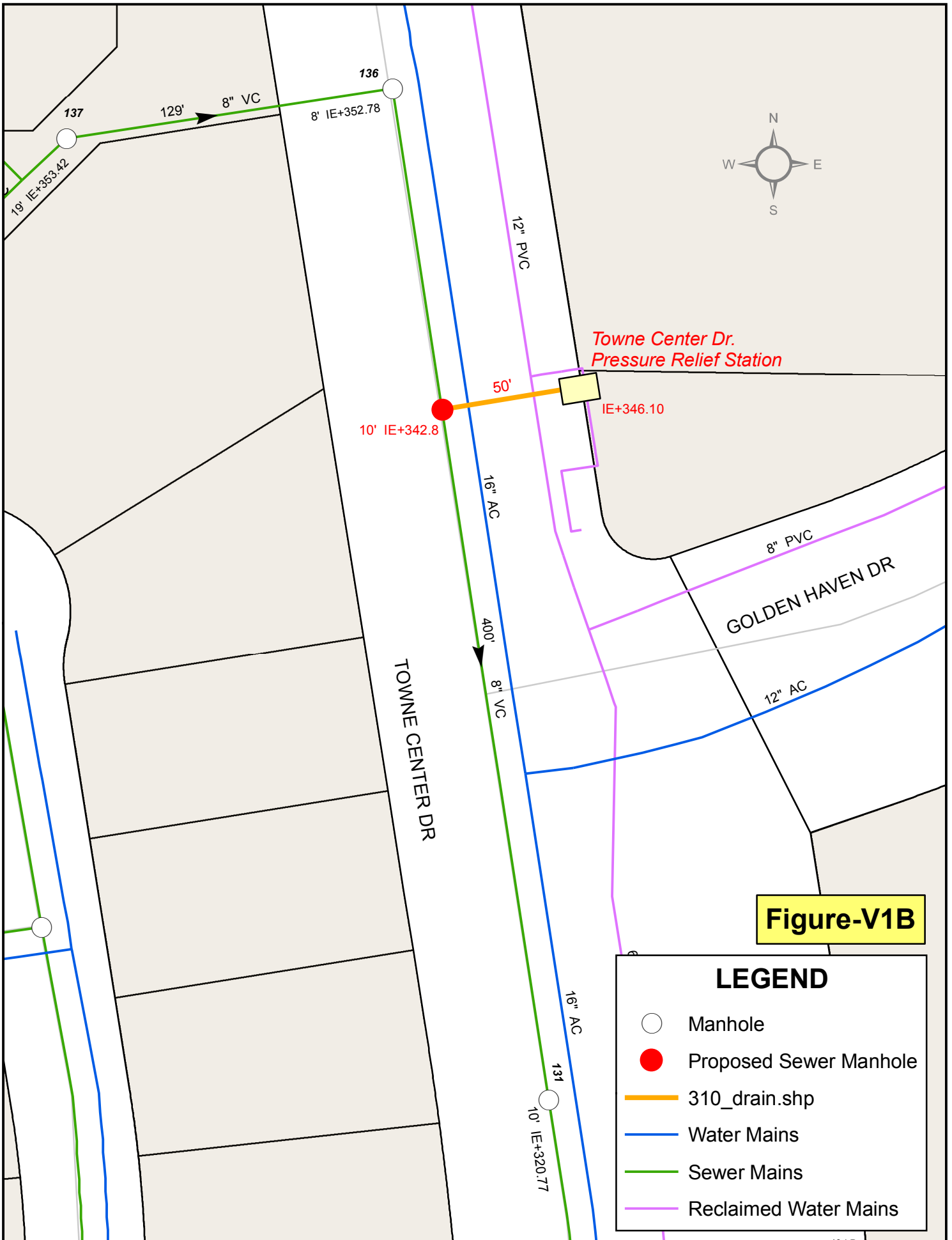
Length (ft):	220
Top of Vault Elevation:	370.5
Vault Invert:	365.17
Manhole Invert:	352.78
Calculated Drain Slope:	0.06
Install Manhole	No
Note:	See Figure on next page

Details of Towne Center Dr Pressure Relief Station (V-1B)

Existing Conditions	
Sump:	Yes, but 3" deep. Concrete bottom. Currently no drain. Just depression
Drain:	No
Power:	No.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on South side
SCADA:	No
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 27987-57-D). Not fully installed. Design Engineer needs to check electrical.
Instruments:	None
Pipe Size:	4"
Vault Size:	Length: 4' Wide: 4' Deep: 4'
Hinges for Doors:	Working
Notes:	There is no bypass to the Pressure Relief Valve.
Proposed	
Sump:	Install 2" drain. Sump should be 6" deep and all concrete with grate at top.
Drain:	Install 4" drain to sewer. See table below.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Upgrade existing Meter/Transmitter Pedestal. Signal to Chollas. 1) Pressure High. 2) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.

4" Drain to Sewer

Length (ft):	50
Top of Vault Elevation:	350.3
Vault Invert:	346.1
Manhole Invert:	342.4 (calculated using as-builts)
Calculated Drain Slope:	0.07
Install Manhole	Yes
Note:	See Figure on next page



Details of Governor Drive Pressure Reducing Station (V-2A)

Existing Conditions	
Sump:	Yes. Concrete bottom. Currently no drain. Just depression
Drain:	No
Power:	No. Design Engineer needs to check.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on North side
SCADA:	No
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 27987-57-D). Not fully installed. Design Engineer needs to check electrical.
Instruments:	None
Pipe Size:	6", 3"
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"
Hinges for Doors:	Working
Notes:	Problem with water coming into vault from irrigation.
Proposed	
Sump:	Sump should be 12" deep and all concrete. No grate.
Drain:	There is no drain. Water will be removed by RW Operation.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Upgrade existing Meter/Transmitter Pedestal. Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Note:	Do minor grading around vault so irrigation water does not enter vault.

Details of Governor Drive Pressure Relief Station (V-2B)

Existing Conditions	
Sump:	Yes, but 3" deep. Concrete bottom. Currently no drain. Just depression.
Drain:	No
Power:	No.
Electrical Conduits (Stub Outs):	Yes, two conduit plugs on North side
SCADA:	No
SCADA Facilities:	No
Instruments:	None
Pipe Size:	4"
Vault Size:	Length: 4' Wide: 4' Deep: 4'
Hinges for Doors:	One broken
Notes:	Problem with water coming into vault from irrigation. There is no bypass to the Pressure Relief Valve.
Proposed	
Sump:	Sump should be 12" deep and all concrete. No grate.
Drain:	There is no drain. Water will be removed by RW Operation.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Float Switch Alarm.
Instruments:	Install floatswitch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Note:	Do minor grading around vault so irrigation water does not enter vault.

Details of Regents Road Pressure Reducing Station (V-3)

Existing Conditions	
Sump:	Yes. Concrete bottom. Currently no drain. Just depression
Drain:	No
Power:	No
Electrical Conduits (Stub Outs):	Yes, two conduit plugs on East side
SCADA:	No
SCADA Facilities:	No
Instruments:	None
Pipe Size:	8", 3"
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"
Hinges for Doors:	One broken
Notes:	Problem with water coming into vault from irrigation.
Proposed	
Sump:	Install 2" drain. Sump should be 6" deep and all concrete with grate at top.
Drain:	Install 2" drain to sewer. See table below.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Note:	Do minor grading around vault so irrigation water does not enter vault.

Details of Production Ave. Pressure Reducing Station (V-4A)

Existing Conditions	
Sump:	Yes. Concrete bottom. Currently no drain. Just depression
Drain:	No
Power:	No
Electrical Conduits (Stub Outs):	Yes, two conduit plugs on South side
SCADA:	No
SCADA Facilities:	No
Instruments:	None
Pipe Size:	10", 10", 4"
Vault Size:	Length: 12' Wide: 6' Deep: 5'-3"
Hinges for Doors:	Locking hinges. Hatch is heavy.
Notes:	Vault always has water in it.
Proposed	
Sump:	Install 2" drain. Sump should be 6" deep and all concrete with grate at top.
Drain:	Install 4" drain to sewer. See table below.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.

4" Drain to Sewer

Length (ft):	40
Top of Vault Elevation:	396.00
Vault Invert:	390.75
Manhole Invert:	377.4
Calculated Drain Slope:	0.33
Install Manhole	Yes
Note:	See Figure on next page

Production Ave Pressure Reducing Station

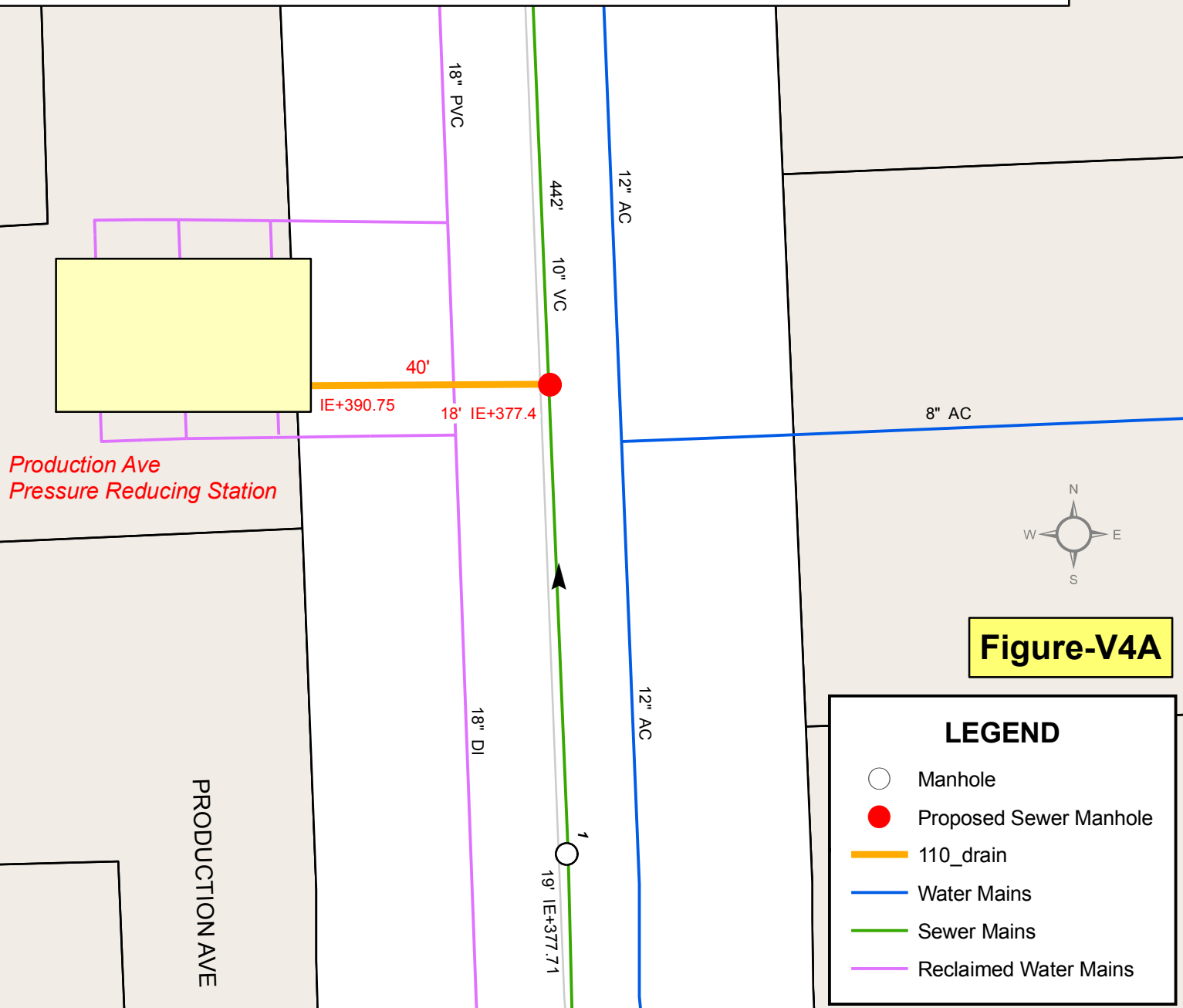


Figure-V4A

LEGEND

- Manhole
- Proposed Sewer Manhole
- 110_drain
- Water Mains
- Sewer Mains
- Reclaimed Water Mains

Details of Production Ave. Pressure Relief Station (V-4B)

Existing Conditions	
Sump:	Yes, but 3" deep. Concrete bottom. Currently no drain. Just depression.
Drain:	No
Power:	No.
Electrical Conduits (Stub Outs):	Yes, two conduit plugs on South side.
SCADA:	No
SCADA Facilities:	No
Instruments:	None
Pipe Size:	6"
Vault Size:	Length: 4' Wide: 4' Deep: 4'
Hinges for Doors:	Locking hinges.
Notes:	There is no bypass to the Pressure Relief Valve.
Proposed	
Sump:	Install 2" drain. Sump should be 6" deep and all concrete with grate at top.
Drain:	Install 4" drain to sewer. See table below.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12". Install Pressure Gauge on high pressure side of pipeline.
Hinges for Doors:	Replace all hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.

4" Drain to Sewer

Length (ft):	80
Top of Vault Elevation:	389
Vault Invert:	384.75
Manhole Invert:	373.75
Calculated Drain Slope:	0.14
Install Manhole	No
Note:	See Figure on next page

Production Ave Pressure Relief Station

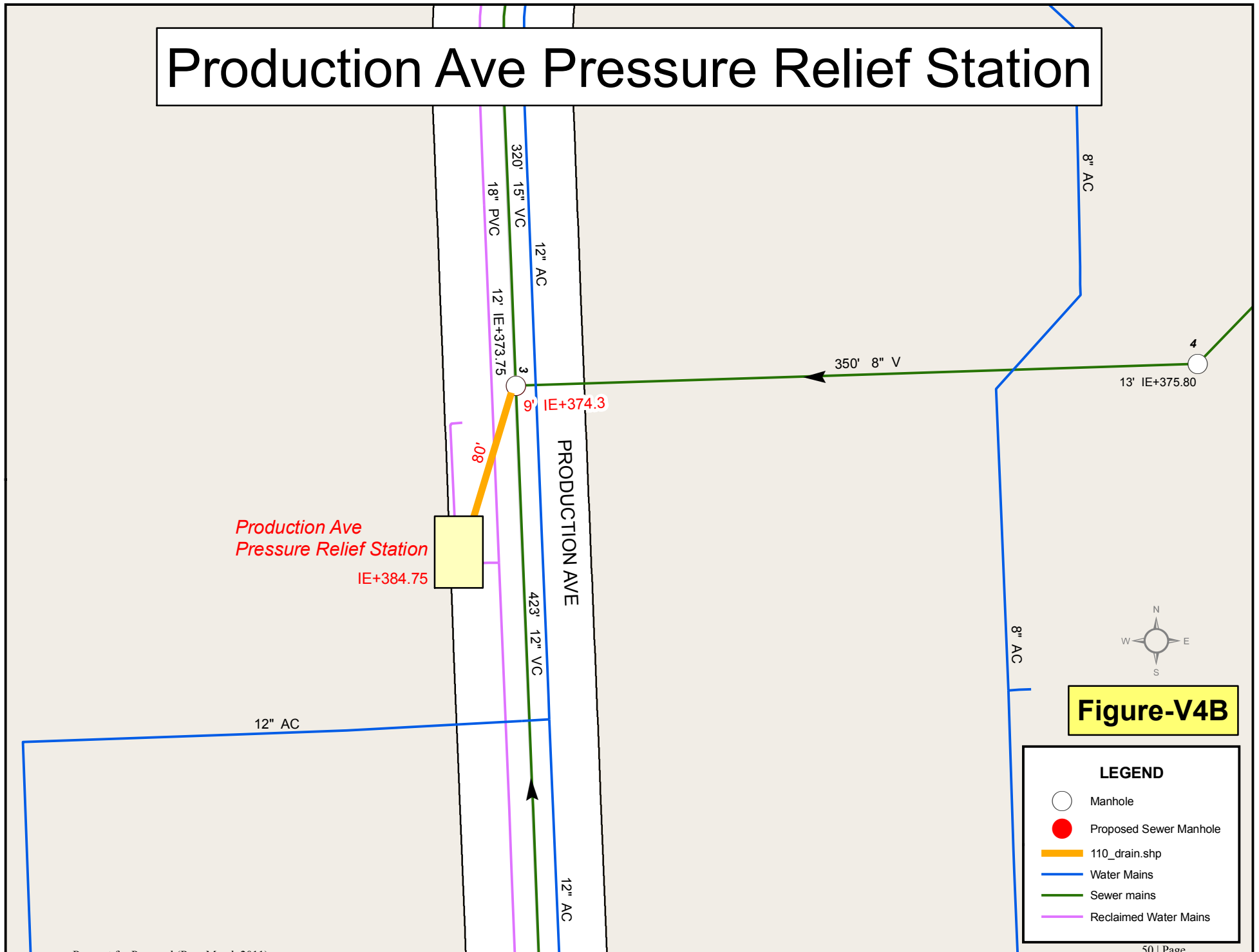


Figure-V4B

LEGEND

- Manhole
- Proposed Sewer Manhole
- 110_drain.shp
- Water Mains
- Sewer mains
- Reclaimed Water Mains



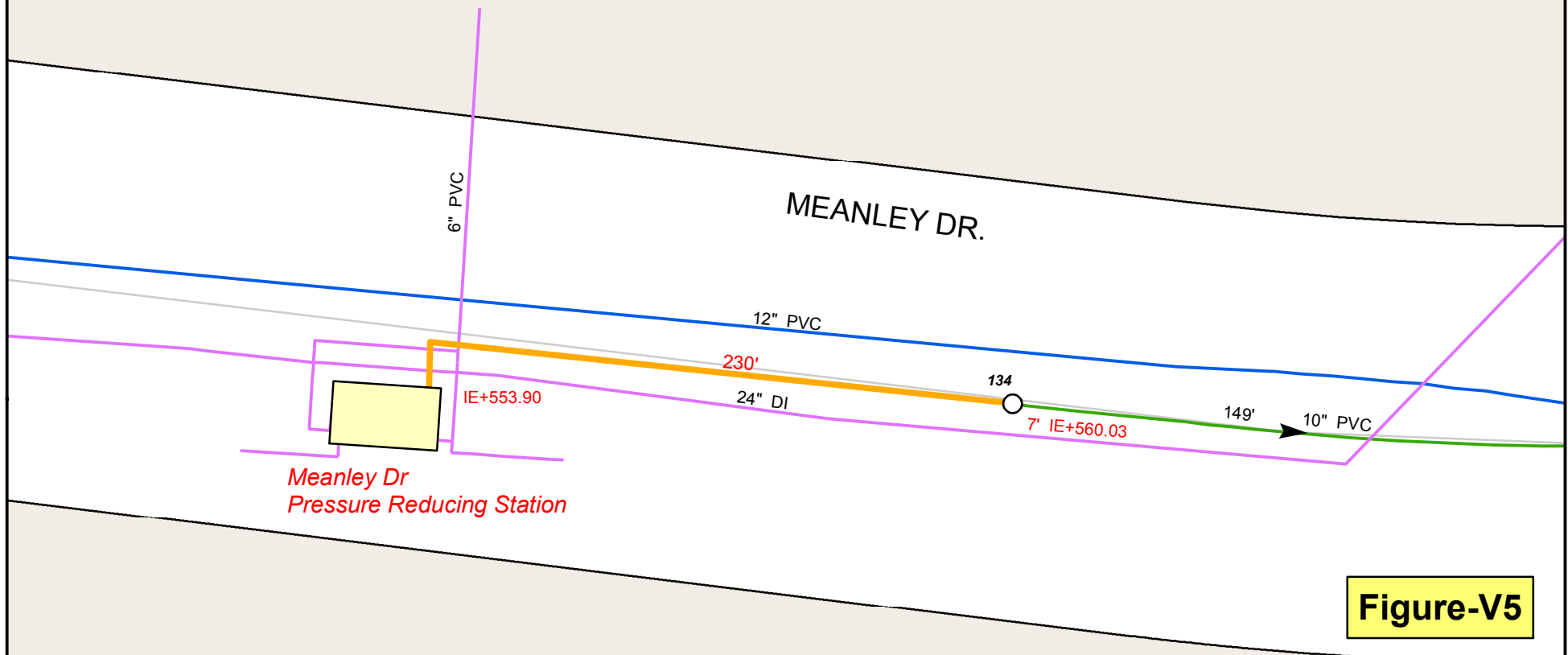
Details of Meanly Dr. Pressure Reducing Station (V-5)

Existing Conditions	
Sump:	Yes, 12" deep with grate cover.
Drain:	Yes, 8" PVC to storm drain.
Power:	No, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Two cabinets with conduits to each of the Pressure Gauges.
SCADA:	No
SCADA Facilities:	No
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.
Pipe Size:	6", 2"
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"
Hinges for Doors:	Locking hinges. Hatch is heavy.
Notes:	Vault floor slopes away from sump. There is a pressure relief valve with in the vault. A truck pull up and fill up station next to vault.
Proposed	
Sump:	Plug 8" drain.
Drain:	Install 4" drain to sewer and sump pump. Sump pump will not be tied to SCADA. Pump will turn on when water in vault reaches 2" water depth. Install a Hydromatic 33 pump or similar. See Appendix B. See table below.
Power:	Needed. Nearest power in street about 150' to the west. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12".
Hinges for Doors:	Install hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Notes:	Slope Vault floor towards sump.

4" Drain to Sewer

Length (ft):	230
Top of Vault Elevation:	564
Vault Invert:	553.9
Manhole Invert:	560.03
Calculated Drain Slope:	-0.03
Install Manhole	No
Install Sump Pump:	Yes
Note:	See Figure on next page. The invert of the Sewer Manhole is higher then the Vault Invert.

Meanley Dr Pressure Reducing Station



Legend

- Manhole
- Drain
- Water Mains
- Sewer Mains
- Reclaimed Water Mains



Details of Scripps Ranch Blvd. Near Scripps Lake Dr. Pressure Reducing Station (V-6)

Existing Conditions	
Sump:	Yes, 12" deep with grate cover.
Drain:	Yes, 8" PVC to sewer.
Power:	No, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Two cabinets with conduits to each of the Pressure Gauges.
SCADA:	No
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 28007-44-D). Not fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.
Pipe Size:	6", 2"
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"
Hinges for Doors:	Several hinges broken.
Notes:	There is a pressure relief valve with in the vault.
Proposed	
Sump:	Replace 8" drain with 4" drain.
Drain:	Replace a short section of 8" drain with 2" pipeline. Need to restrict the flow of water into the sewer.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12".
Hinges for Doors:	Install hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Notes:	Check drain flap and if needed replace.

Details of Mira Mesa Blvd. Pressure Reducing Station (V-7)

Existing Conditions	
Sump:	Yes, 12" deep with grate cover.
Drain:	Yes, 8" PVC to sewer.
Power:	No, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Two cabinets with conduits to each of the Pressure Gauges.
SCADA:	No
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 28007-44-D). Not fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.
Pipe Size:	6", 2"
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"
Hinges for Doors:	Working
Notes:	There is a pressure relief valve with in the vault.
Proposed	
Sump:	Replace 8" drain with 4" drain.
Drain:	Replace a short section of 8" drain with 2" pipeline. Need to restrict the flow of water into the sewer.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12".
Hinges for Doors:	Install hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Notes:	Check drain flap in RW manhole and if needed replace.

Details of Scripps Westview Way Pressure Reducing Station (V-8)

Existing Conditions	
Sump:	Yes with grate cover. Probable 12" deep.
Drain:	Yes, probable 8" PVC to sewer.
Power:	No, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Two cabinets with conduits to each of the Pressure Gauges.
SCADA:	No
SCADA Facilities:	Meter/Transmitter Pedestal and conduits. Not fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.
Pipe Size:	6", 2"
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"
Hinges for Doors:	Broken. Hatch very heavy.
Notes:	There is a pressure relief valve with in the vault. Vault does not match drawing 28007-D. There is root intrusion in mid high joint. Drain flap valve to sewer is rusted. Areas within the cabinets are heavily rusted.
Proposed	
Sump:	Replace 8" drain with 2" drain.
Drain:	Replace a short section of 8" drain with 2" pipeline. Need to restrict the flow of water into the sewer.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12".
Hinges for Doors:	Install hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Notes:	Replace drain valve flap. Repair joint so their will be no more root intrusion.

Details of Scripps Poway Parkway Pressure Reducing Station (V-9)

Existing Conditions	
Sump:	Yes, 12" deep with grate cover.
Drain:	Yes, 8" PVC to sewer.
Power:	No, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Two cabinets with conduits to each of the Pressure Gauges.
SCADA:	No
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 28007-44-D). Not fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.
Pipe Size:	6", 2"
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"
Hinges for Doors:	Several hinges broken.
Notes:	There is a pressure relief valve with in the vault.
Proposed	
Sump:	Replace 8" drain with 4" drain.
Drain:	Replace a short section of 8" drain with 2" pipeline. Need to restrict the flow of water into the sewer.
Power:	Needed. Nearest power in street. Needed for instrumentation.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
Instruments:	Install float switch which will activate flooding alarm. Alarm should be activated when water in vault reaches 12".
Hinges for Doors:	Install hinges. Single person must be able to lift door safely by self. Coordinate with RW Operation.
Notes:	Check drain flap in manhole and if needed replace.

Details of Carmel Valley Rd Pressure Reducing Station (V-10)

Existing Conditions	
Sump:	Yes, 12" deep with grate cover.
Drain:	No, sump pump empties vault. Pumps to street.
Power:	Yes, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Meter/Transmitter Pedestal and instruments.
SCADA:	No, Design Engineer needs to confirm.
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 31697-D). Fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve (Actuator).
Pipe Size:	12", 4"
Vault Size:	Length: 14' Wide: 8' Deep: 9'
Hinges for Doors:	Good shape.
Proposed	
Sump:	Remove grate.
Drain:	Remove sump pump and related pipelines. Patch holes.
Power:	N.A.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm. 4) Alarm on Transmitter Panel Door.
Instruments:	N.A.
Hinges for Doors:	N.A.
Notes:	When float switch is activated RW Operation's will show up to the vault and remove the water.

Details of Camino Del Sur Pressure Reducing Station (V-11)

Existing Conditions	
Sump:	Yes, 12" deep with grate cover.
Drain:	No, sump pump empties vault. Pumps to street.
Power:	Yes, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Meter/Transmitter Pedestal and instruments.
SCADA:	No, Design Engineer needs to confirm.
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 31697-D). Fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve (Actuator).
Pipe Size:	8", 6"
Vault Size:	Length: 12' Wide: 8' Deep: 9'-10"
Hinges for Doors:	Good shape.
Notes:	Transmitter Panel door hinge broken. The water pumped to the street has created an algae trail.
Proposed	
Sump:	Remove grate.
Drain:	Remove sump pump and related pipelines. Patch holes.
Power:	N.A.
SCADA:	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm. 4) Alarm on Transmitter Panel Door.
Instruments:	N.A.
Hinges for Doors:	N.A.
Notes:	Fix Transmitter Panel door hinge. When float switch is activated RW Operation's will show up to the vault and remove the water.

Details of San Dieguito Rd. Pressure Reducing Station (V-12)

Existing Conditions	
Sump:	Yes with grate cover. Probable 12" deep.
Drain:	No, sump pump empties vault. Pumps to street.
Power:	Yes, Design Engineer needs to confirm.
Electrical Conduits:	Yes. Meter/Transmitter Pedestal and instruments.
SCADA:	No, Design Engineer needs to confirm.
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 31697-D). Fully installed. Design Engineer needs to check electrical.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve (Actuator). Magnetic Flow Meter.
Pipe Size:	6", 4"
Vault Size:	Length: 14' Wide: 8' Deep: 8'-8"
Hinges for Doors:	Good shape.
Proposed	
Sump:	Remove grate.
Drain:	Remove sump pump and related pipelines. Patch holes.
Power:	N.A.
SCADA:	Signal to Chollas. 1) Pressure high. 2) Pressure Low. 3) Float Switch Alarm. 4) Alarm on Transmitter Panel Door. 7) Actuator
Instruments:	N.A.
Hinges for Doors:	N.A.
Notes:	When float switch is activated RW Operation's will show up to the vault and remove the water.

ATTACHMENT B

PROPOSAL SUBMITTAL REQUIREMENTS AND SELECTION CRITERIA

PROPOSAL SUBMITTAL REQUIREMENTS AND SELECTION CRITERIA

PUBLIC WORKS DEPARTMENT

Proposals submitted in response to this RFP shall be in the following order and shall include:

1. Addenda to this RFP (PASS/FAIL)

Design-Builder shall confirm in its Technical Proposal the receipt of all addenda issued to this RFP. Failure to acknowledge all addenda issued, will result in the Proposal being considered non-responsive and ineligible for further consideration.

Design-Builders are not required to include copies of the actual addenda in its Proposal.

2. Exceptions to this RFP (PASS/FAIL)

If the Design-Builder takes exception(s) to any portion of the RFP and its attachments, the specific portion of the RFP or attachment to which exception is taken shall be identified and explained to the City in writing a minimum of 10 days prior to the date established for submittal of the Technical Proposal. Exceptions taken after the stipulated period to this RFP may be cause for rejection of the Proposal and discontinue the Design-Builders participation to this selection process. The City reserves the right to waive exception(s) as it deems in the best interests of the City.

3. Executive Summary (5 Points Max)

Include a one- to two-page overview of the entire Proposal describing the highlights of the Proposal. Failure to provide the executive summary will result in the RFP being considered non-responsive and ineligible for further consideration.

4. Project Team (10 Points Max)

Describe the proposed management plan for this project. Describe the strength of key proposed construction and technical personnel, Subcontractors, and Subconsultants, including, but not limited to the following disciplines:

- a. Civil
- b. Mechanical
- c. Electrical
- d. Instrumentation and Controls
- e. Environmental
- f. Geotechnical
- g. Corrosion

5. Technical Approach and Design Concept (30 Points Max)

Describe in detail the proposed design concept for this project. Include detailed descriptions, conceptual design drawings, schematics, a list of major equipment, and any other information deemed necessary to allow the City to make an informed evaluation of the Design-Builder's

technical approach. The completeness and technical merit of the design concept will be evaluated.

6. Construction Plan (20 Points Max)

- a. Describe the proposed construction plan for this project, including the following, at a minimum:
- Construction approach and methods
 - Plan for operation of facility during construction
 - Plan for phasing of construction activities
 - General plan for functional testing and start-up.
 - Proposed safety program
 - Proposed emergency response plan
 - Proposed construction schedule
 - Traffic Control Management
 - Plan to reduce community impact

7. Extended Performance Phase (5 Points Max)

- a. Describe the proposed plan for operations and maintenance of the facility after start-up, including the following, at a minimum:
- Proposed Maintenance Plan
 - Proposed Operations Plan
 - Proposed methods of coordination with Owner's work force

8. Equal Employment and Contracting Opportunity (25 Points Max)

Failure to submit the required EOCP information will result in SOQ or Proposal (as applicable) being determined as **non-responsive**.

Subcontractor Documentation

The Design-Builder shall, at a minimum, provide with its Technical Proposal a listing of at least 3 of the largest Subcontractors (constructors only) for the Project and all other Subcontractors (design professionals, etc.) that are known at the time it submits its Proposal, using form AA15 and AA30 provided in Volume 2, Attachment 'D' of this RFP. Note: Subcontractors include design professionals, as well.

Any changes to the listing of the proposed Subcontractors that have occurred in the information, required data or documentation submitted in the SOQ shall be submitted in accordance this section, and shall be included in an attachment, which shall be entitled "Subcontractor Documentation" using forms AA15 and AA30 provided in Volume 2, Attachment 'D' of this RFP.

Work which requires Subcontractors that are not listed by Design-Builder at time of Award shall be let by Design-Builder in accordance with a competitive bidding process performed solely at Design-Builder's expense. Design-Builder shall provide public notice of the availability of the Work to be subcontracted, obtain competitive

bids, and provide a fixed date and time on which the subcontracted Work will be awarded. Subcontractors bidding on subcontracts pursuant to this provision shall be afforded the protection of all applicable laws, including Public Contract Code sections 4100 through 4114, inclusive.

The Design-Builder may select Subcontractors and Suppliers in one of 3 competitive ways i.e., lowest responsible bidder, best value for price and qualifications, or highest qualifications. Prior to construction NTP, the Design-Builder shall do the following:

- a. Submit the selection method used to the City in accordance with 2-5.3, "Submittals."
- b. Pre-qualify Subcontractors and Suppliers, in a manner at least as stringent as the City's pre-qualification standards.
- c. Review the Subcontractors and Suppliers ultimately chosen to verify that that they have not been debarred and are in good standing as a licensed contractor in California.
- d. Open all Subcontract bids and provide to the City one copy without reservation or redaction. All records relevant to the award and performance of Subcontractors and Suppliers shall be public and provided to the City upon request and without redaction.

The City may administer bidding itself for Subcontractors and Suppliers, or to direct the bidding procedures to be used by the Design-Builder.

The Design-Builder may use its corporate-generated subcontractor agreement to retain Subcontractors or Suppliers, provided the subcontractor agreement contains the terms required to be included in Subcontracts by this Contract.

The points will be awarded in only one of the possible outcomes as follows:

	OUTCOME	Maximum Possible Point
1	5% - 9% participation SLBE, ELBE, DVBE, or DBE	5
2	10%-14% participation SLBE, ELBE, DVBE or DBE	10
3	15%-19% participation SLBE, ELBE, DVBE or DBE	15
4	20%-24% participation SLBE, ELBE, DVBE or DBE	20
5	25% participation SLBE, ELBE, DVBE or DBE	25

In no case the points shall exceed 25.

9. Presentation and Interview (5 Points Max)

Total Points: 100

Proposals that do not contain the aforementioned components will not be considered.

ATTACHMENT C
CONTRACT FRONT END VOLUME 1

City of San Diego

CONTRACTOR'S NAME: _____
ADDRESS: _____
TELEPHONE NO.: _____ FAX NO.: _____
CITY CONTACT: Gerry Barca, Address: 600 B Street, Suite 800, MS 908A, San Diego, CA 92101-4520
Email: GBarca@sandiego.gov, Phone: (619) 533-6673

NB/CG/RIR

CONTRACT DOCUMENTS

FOR



RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

VOLUME 1 OF 2

RFQ NO.: As-Needed Design-Build Services for the Engineering & Capital Projects Department – 5151DB
RFP NO.: 5541DBA
TASK ORDER NO.: 11DB02
BID NO.: K-12-5541-DBA-3
SAP NO. (WBS): S-10010
CLIENT DEPARTMENT: 2013
COUNCIL DISTRICT: CITYWIDE
PROJECT TYPE: HC

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.

((((((((((((((((((((ATTENTION))))))))))))))))))

The 2010 edition of the City of San Diego Standard Specifications for Public Works Construction (“The WHITEBOOK”) now contains the following distinct Contract Documents:

- 1) ***Equal Opportunity Contracting Program Requirements*** - This Contract Document sets forth the standard requirements for the City’s equal opportunity contracting program. When additional requirements by the funding source e.g., federal or state agencies are physically included in the contract documents or by reference and there is a discrepancy, the funding source requirements shall govern unless specified otherwise in the Special Provisions.

- 2) ***City Supplement*** – The City Supplement shall be used in conjunction with the Standard Specifications for Public Works Construction (“The GREENBOOK”), 2009 Edition. The specifications contained in City Supplement take precedence over the specifications contained in The GREENBOOK, 2009 Edition.

Certain parts of the City Supplement have been highlighted in yellow for the convenience of the users only and shall not affect the interpretation of the Contract.

To obtain The GREENBOOK contact the publisher at: <http://www.bnibooks.com>

The WHITEBOOK is available only in electronic format under Engineering Documents and References at: <http://www.sandiego.gov/engineering-cip/>

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REQUIRED DOCUMENTS SCHEDULE

This table is intended to serve as a convenient tool for listing forms and documents required at different times. It is neither exhaustive nor must be considered a Contract Document by itself. Therefore, the users must review the entire Contract Documents and become familiar with the required documentation and the submittal schedule associated with each document.

Bidder’s attention is directed to the City’s Municipal Code §22.0807(e), (3)-(5) for important information regarding required documentation.

The specified EOC forms are all available for download from the EOC Program’s web site at:

<http://www.sandiego.gov/eoc/forms/index.shtml>

ITEM	WHEN	BY	WHAT	FORMS ARE DUE WITH:	
				TECHNICAL PROPOSAL	PRICE PROPOSAL
1.	BID DUE DATE/TIME	ALL BIDDERS	Price Proposal Form		√
2.	BID DUE DATE/TIME	ALL BIDDERS	Non-collusion Affidavit to be Executed By Bidder and Submitted with Bid under 23 USC 112 and PCC 7106		√
3.	BID DUE DATE/TIME	ALL BIDDERS	Contractors Certification of Pending Actions		√
4.	BID DUE DATE/TIME	ALL BIDDERS	Equal Benefits Ordinance Certification of Compliance		√
5.	BID DUE DATE/TIME	ALL BIDDERS	Form AA05 – Design-Build List of Subcontractors		√
6.	BID DUE DATE/TIME	ALL BIDDERS	Form AA15 - Design-Build List of Subcontractors	√	
7.	BID DUE DATE/TIME	ALL BIDDERS	Form AA25 - Design-Build Named Equipment/Material Supplier List		√
8.	BID DUE DATE/TIME	ALL BIDDERS	Form AA30 - Design-Build Named Equipment/Material Supplier List	√	
9.	WITHIN 3 WORKING DAYS OF PUBLIC RANKING MEETING	ALL BIDDERS	Form AA60 – List of Work Made Available	√ (If submitted with the Proposal)	
10.	WITHIN 3 WORKING DAYS OF PUBLIC RANKING MEETING	ALL BIDDERS	SLBE-ELBE Good Faith Documentations	√ (If submitted with the Proposal)	
11.	WITHIN 3 WORKING DAYS OF PUBLIC RANKING MEETING	ALL BIDDERS	Proof of Valid DBE-MBE-WBE-DVBE Certification Status e.g., Certs.	√ (If submitted with the Proposal)	

REQUIRED DOCUMENTS SCHEDULE

ITEM	WHEN	BY	WHAT	FORMS ARE DUE WITH:	
				TECHNICAL PROPOSAL	PRICE PROPOSAL
12.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Names of the principle individual owners of the Apparent Low Bidder - In the event the firm is employee owned or publicly held, then the fact should be stated and the names of the firm's principals and officers shall be provided.		
13.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	If the Contractor is a Joint Venture, the following information must be submitted: <ul style="list-style-type: none"> o Joint Venture Agreement o Joint Venture License 		
14.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Agreement		
15.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms – Performance Bonds and Labor and Materialmen's Bond		
16.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Certificates of Insurance and Endorsements		
17.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - Drug-Free Workplace		
18.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - American with Disabilities Act		
19.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractors Standards - Pledge of Compliance		
20.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Form BB05 – Work Force Report		

REQUIRED DOCUMENTS SCHEDULE

ITEM	WHEN	BY	WHAT	FORMS ARE DUE WITH:	
				TECHNICAL PROPOSAL	PRICE PROPOSAL
21.	BY 5th OF EACH MONTH	CONTRACTOR	CC20 - Monthly Employment Report		
22.	BY 5th OF EACH MONTH	CONTRACTOR	CC25 - Monthly Invoicing Report		
23.	PRIOR TO ACCEPTANCE	CONTRACTOR	CC10 - Contract Change Order (CCO)		
24.	PRIOR TO ACCEPTANCE	CONTRACTOR	CC15 - Final Summary Report		
25.	PRIOR TO ACCEPTANCE	CONTRACTOR	Affidavit of Disposal		

**SPECIAL NOTICE
SMALL LOCAL BUSINESS ENTERPRISES (SLBE)
AND
EMERGING LOCAL BUSINESS ENTERPRISES (ELBE)
PROGRAM**

This contract is subject to the requirements of the SLBE Program as specified in the SLBE-ELBE section of the City's EOCP Requirements included in The WHITEBOOK. The Bidders are required to review The WHITEBOOK and become familiar with the detailed specifications including the required documentation and the submittal schedule as related to SLBE-ELBE program.

To the WHITEBOOK, GENERAL EQUAL OPPORTUNITY CONTRACTING PROGRAM REQUIREMENTS CONSTRUCTION CONTRACTOR REQUIREMENTS, Equal Employment Opportunity Outreach Program (A), **DELETE** in its entirety and **SUBSTITUTE** with the following:

- A. Competitive Bids. If a contract is competitively solicited, the Apparent Low Bidder shall submit a Work Force Report (Form BB05) or an Equal Employment Opportunity (EEO) Plan, within 10 Working Days after receipt by the Bidder of Contract forms to the City for approval as specified in the Notice of Intent to Award letter from the City.

To the WHITEBOOK, SLBE-ELBE PROGRAM REQUIREMENTS, Section VIII(2)(b), "What Are The Six Good Faith Efforts?", **DELETE** in its entirety and **SUBSTITUTE** with the following:

"Make information of forthcoming opportunities available to SLBE-ELBE firms and arrange time for contracts and establish delivery schedules, where requirements permit, in a way that encourages and facilitates participation by SLBE-ELBE firms in the competitive process. This includes posting solicitations for bids or proposals for a minimum of 10 Working Days before the Bid or Proposal due date."

To The WHITEBOOK, SLBE-ELBE PROGRAM REQUIREMENTS, Section VIII (3) and (4), **DELETE** in their entirety and **SUBSTITUTE** with the following:

3. Good Faith Effort Documentation Requirements

If the stated SLBE-ELBE subcontractor participation percentages are not met, the Bidder shall submit, within 3 Working Days of the Bid opening, information necessary to establish adequate good faith efforts were taken to meet the contract subcontractor participation percentage. The required documentation includes the following:

A. ADVERTISEMENT REQUIREMENTS

Advertisements for subcontract work must comply with the following requirements:

- 1. Advertisements must be published at least 10 Working Days prior to proposal due date. Provide the names and dates of each publication of where the advertisement was published.

Note: The advertisement is not required to be published every day for the 10 Working Days prior to proposal due date.

2. There must be at least 2 advertisements published, 1 advertisement in a trade publication and 1 in a focus group publication. Additional advertising for SLBE-ELBE participation may be placed in newspapers, trade papers and on the Internet. For a listing of publications accepting advertisements, please visit the City's EOC home page at <http://www.sandiego.gov/eoc/>
 - 2.1 Newspaper advertisements must be in the Bids Wanted, Legal Notices section of the Classified Ads, Subcontracting Opportunities or Business Opportunities **NOT** the Employment Opportunities Section.
3. Advertisements must state which items or portions of work the Bidder is requesting subcontractor pricing.
 - 3.1. It is the Bidder's responsibility to demonstrate that enough work sufficient to meet the SLBE-ELBE subcontractor participation percentage was made available to SLBE-ELBE firms. The Bidder shall make as many items of the Work available as possible to meet the subcontractor participation percentage, and at a minimum an amount of work equal to the subcontractor participation percentage amount. If necessary to reach the subcontractor participation percentage, the Work shall include those items normally performed by the Bidder with its own forces, supplies, and even items with a dollar value below 1/2 of 1% of the total Bid. Bidders shall utilize Form AA60 to demonstrate compliance with this requirement and submit the completed form with Good Faith Effort documentation.
4. Advertisements must state that Plans and Specifications are available at no cost to interested SLBE-ELBE firms and how to obtain them.
5. Advertisements must state that assistance is available from the Bidder for SLBE-ELBE subcontractors in obtaining necessary equipment, supplies, or materials.
6. Advertisements must state that assistance is available from the Bidder for SLBE-ELBE firms in obtaining bonding, lines of credit or insurance.
7. Bidders **MUST** provide proof of publication of each advertisement by providing the publication affidavit which must include a legible copy of the entire advertisement and the original **ENTIRE** page of the publication in which the advertisement appears.

B. SLBE-ELBE WRITTEN SOLICITATION REQUIREMENTS

Bidders must directly solicit SLBE-ELBE firms on the City's approved SLBE-ELBE list. Solicitations for Subcontractor or Supplier work must comply with the following requirements:

1. The solicitation must be dated and list the name of the SLBE-ELBE firm. Solicitations must be made to the SLBE-ELBE firms at least 10 Working Days prior to proposal due date.
 2. Solicitation must state which items or portions of work the Bidder is requesting subcontractor pricing.
 - 2.1. It is the Bidder's responsibility to demonstrate that enough work sufficient to meet the SLBE-ELBE subcontractor participation percentage was made available to SLBE-ELBE firms. The Bidder shall make as many items of work available as possible to meet the subcontractor participation percentage, and at a minimum an amount of work equal to the subcontractor participation amount. If necessary to reach the subcontractor participation percentage, the Work shall include those items normally performed by the Bidder with its own forces, supplies and even items with a dollar value below 1/2 of 1% of the total bid. Bidders shall utilize Form AA60 to demonstrate compliance with this requirement and submit the completed form with Good Faith Effort documentation.
 3. Solicitation must state that Plans and Specifications are available at no cost to interested SLBE-ELBE firms and how to obtain them.
 4. Solicitations must state that assistance is available from the Bidder for SLBE-ELBE subcontractors in obtaining necessary equipment, supplies, or materials.
 5. Solicitations must state that assistance is available from the Bidder for SLBE-ELBE firms in obtaining bonding, lines of credit or insurance.
 6. Bidder must solicit **ALL** SLBE-ELBE firms on the City's approved list, who have the NAICS code for the subcontract work sought by the general contractor.
 7. Bidders must provide copies of **ALL** solicitations with 1 of the following forms of verification that the solicitations were sent:
 - a) If mailed: provide copies of the metered envelopes or certified mail receipts.
 - b) If faxed: provide copies of the fax transmittal confirmation sheet(s).
 - c) If emailed: provide copies of the email delivery confirmation sheet(s).
- No credit shall be given for error messages, busy, cancelled, undeliverable, etc.

C. SLBE-ELBE WRITTEN SOLICITATION FOLLOW UP REQUIREMENTS

Bidders must follow-up with all SLBE – ELBE firms that were notified of the subcontracting opportunities to determine their level of interest and commitment to bid the project. When following up with the SLBE – ELBE firms, the Bidder must do the following:

1. Follow up communications must start no less than 5 Working Days prior to to proposal due date.
2. Bidders must follow up with all SLBE-ELBE firms in writing. Bidders must provide copies of **ALL** written follow up notices with one of the following forms of verification that the follow up notices were sent:
 - a) If mailed: provide copies of the metered envelopes or certified mail receipts.
 - b) If faxed: provide copies of the fax transmittal confirmation sheet(s).
 - c) If emailed: provide copies of the email delivery confirmation sheet(s).

No credit shall be given for error messages, busy, cancelled, undeliverable, etc.
3. Bidders must make at least 3 follow-up telephone calls to each SLBE – ELBE firm at least 5 days prior to bid opening date. Bidders must submit a telephone log as identified below.
 - 3.1. Submit a telephone log, as proof of telephone call, with the following requirements: project name, name of person making the phone call, name of firm contacted, contact person’s name, date of call, time of call, and details of conversation.

D. SUBCONTRACT AWARD SUMMARY

Bidders must act in good faith with interested SLBE-ELBE firms and may only reject bids for legitimate business reasons. The Bidder must submit the following documentation:

1. A **DETAILED** summary sheet which includes Bid item number, scope of work, Subcontractor or Supplier name, bid amount, certification type, Subcontractor or Supplier selection and reason for selection or non-selection of all the Subcontractors or Suppliers that responded.
2. Copies of all Subcontractors or Suppliers bids received including bids for areas of work that were not included in the outreach and quotes from both certified and non-certified Subcontractors or Suppliers. Subcontractor bid amounts **MUST** match the bid-listed dollar amounts on form AA05 and AA25 submitted with Bidders sealed bid and the summary sheet dollar amounts **MUST** also match these amounts. If the Bidder decides to self-perform a scope of work, the Bidder **MUST** submit a detailed quote to

show that the Bidder's price is competitive to the price of the subcontractors that responded to outreach efforts. All dollar amounts and scopes of work on the Subcontractor or Supplier bid must not be altered by the prime Bidder. If a revision is necessary, a revised quote must be obtained and provided. All verbal quotes **MUST** be substantiated by corresponding written quote from the Subcontractor or Supplier

E. OUTREACH ASSISTANCE REQUIREMENTS

Written notice of subcontractor opportunities must be forwarded to local organizations or groups to assist with outreach efforts. When contacting local organizations or groups, the Bidder **must do** the following:

1. Contact a minimum of 5 local organizations or groups to provide assistance in contacting, recruiting and using SLBE-ELBE firms by written notice. For a listing of organizations or groups offering assistance, please visit the City's EOC home page at <http://www.sandiego.gov/eoc/>
2. Written notice must indicate the date of the notice and name of the local organization or group. Written notices must be forwarded to the organizations or groups at least 10 Working Days prior to bid opening.
3. Written notice must state which items or portions of work the Bidder is requesting subcontractor pricing.
 - 3.1. It is the Bidder's responsibility to demonstrate that enough work sufficient to meet the SLBE-ELBE subcontractor participation percentage was made available to SLBE-ELBE firms. The Bidder shall make as many items of the Work available as possible to meet the subcontractor participation percentage, and at a minimum an amount of work equal to the subcontractor participation amount. If necessary to reach the subcontractor participation percentage, the work should include those items normally performed by the Bidder with its own forces, supplies and even items with a dollar value below 1/2 of 1% of the total bid. Bidders shall utilize Form AA60 to demonstrate compliance with this requirement and submit the completed form with Good Faith Effort documentation.
4. Written notice must state that Plans and Specifications are available at no cost to interested SLBE-ELBE firms and how to obtain them.
5. Written notice must state that assistance is available from the Bidder for SLBE-ELBE subcontractors in obtaining necessary equipment, supplies, or materials.
6. Written notice must state that assistance is available from the Bidder for SLBE-ELBE firms in obtaining bonding, lines of credit or insurance.
7. Bidders must provide copies of **ALL** notices with one of the following forms of verification that the notices were sent:

- a) If mailed: provide copies of the metered envelopes or certified mail receipts.
- b) If faxed: provide copies of the fax transmittal confirmation sheet(s).
- c) If emailed: provide copies of the email delivery confirmation sheet(s). No credit shall be given for error messages, busy, cancelled, undeliverable, etc.

Subcontractor Participation. The City has determined a **10% mandatory SLBE-ELBE** subcontracting participation. The City has also determined a **voluntary subcontractor participation of 10%**, equating to **20% in total subcontractor participation**, to enhance competition and maximize subcontracting opportunities. Percentages are based on the Contract Price, less Field Orders, Additive, Deductive and Allowance Bid items

Pre-Proposal Meeting: A Pre-Proposal Meeting is scheduled for this contract as specified in the RFP. The purpose of this meeting is to inform prospective Bidders of the submittal requirements and provisions relative to the SLBE Program. Bidders are strongly encouraged to attend the Pre- Proposal Meeting to better understand the Good Faith Effort requirements of this contract.

Mandatory Conditions: Bid will be declared **non-responsive** if the Bidder fails the following mandatory conditions.

1. Bidder's inclusion of SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; **OR**
2. Bidder's submission of Good Faith Effort documentation 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 Public Ranking meeting if the overall mandatory participation percentage is not met.

Bid Discount: This contract is subject to the Bid Discount program as described in The WHITEBOOK, SLBE-ELBE Program Requirements, Section IV(2).

Resources: The current list of certified SLBE-ELBE firms can be found on the Equal Opportunity Contracting Program Department website.

CITY OF SAN DIEGO, CALIFORNIA

INVITATION TO BIDS

- 1. DESCRIPTION OF WORK:** The Work involves furnishing all labor, materials, equipment, services, and other incidental works and appurtenances for the design and construction of the Project as described in the RFP.

The Work shall be performed in accordance with:

- Design-Build Bridging Documents included as attachment to the RFP.

- 2. LOCATION OF WORK:** The location of Work is Citywide unless specified otherwise as follows:

Vault 1A on Town Center Drive
Vault 1B near the corner of Towne Center Drive and Golden Haven Drive
Vault 2A and 2B near I-805 and Governor Drive
Vault 3 on Regents Road, near Miramar Street
Vaults 4A and 4B on Production Avenue near Miramar Road
Vault 5 on Meanley Drive near Scripps Ranch Boulevard
Vault 6 on Scripps Ranch Boulevard
Vault 7 on Scripps Ranch Boulevard
Vault 8 near Scripps Westview Way
Vault 9 on Scripps Poway Parkway
Vault 10 on Carmel Valley Road
Vault 11 on Camino Del Sur
Vault 12 on San Dieguito Road

Refer to the Location Map in an Appendix in the Contract Documents.

- 3. CONTRACT TIME:** The Contract Time for completion of the Work shall be **480 Working Days**
- 4. WAGE RATES:** Prevailing wages are not applicable to this project unless specified otherwise on the cover page of these specifications and when included in these specifications. See Funding Agency Provisions that follow this Invitation to Bid for more information.
- 5. INSURANCE REQUIREMENTS:** Upon receipt of the City's Notice of Intent to Award letter, the Contractor will be asked to submit all certificates of insurance and endorsements to the City.

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.

You must ensure all required insurance certificates and endorsements are submitted accurately and on time. Failure to provide the requisite insurance documents by the date stated in the City's Notice of Intent to Award will result in delay of contract award and may result in annulment of the contract award or other more severe sanctions as provided in the City's Municipal Code §22.0807(e),(3)-(5).

Tony Heinrichs
Director
Public Works Department

INSTRUCTIONS TO BIDDERS

- 1. PREQUALIFICATION OF CONTRACTORS:** The contractor(s) who intend to submit Bid or Proposal in response to this invitation to bid, or RFP's for GRC or As-Needed Design-Build Task Orders valued over \$50,000, must be pre-qualified for the City estimated Contract Price or the specified Task Order limits prior to the date of Bid submittal.

For Design-Build As-Needed contracts, if the total active work issued would limit the RFP for a new Task Order authorization to only 1 eligible firm of the short-listed firms, thus creating a non-competitive situation, that Task Order authorization(s) will be held until enough active work is deemed by the City to be completed and closed, thereby creating available eligibility for competition, or the City at its sole discretion can advertize a new open RFP for the needed project requirement.

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, will be deemed **non-responsive** and ineligible for award or a Task Order authorization. Complete information and prequalification questionnaires are available at:

<http://www.sandiego.gov/engineering-cip/services/consultcontract/prequal.shtml>

The completed questionnaire, financial statement, and bond letter or a copy of the contractor's SLBE-ELBE certification and bond letter, must be submitted no later than 2 weeks prior to the bid opening to the Public Works Department -Engineering & Capital Projects, Prequalification Program, 1010 Second Avenue, Suite 1200, San Diego, CA 92101. For additional information or the answer to questions about the prequalification program, please contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.

- 2. CONTRACTOR REGISTRATION:** Prospective bidder(s) as well as existing contractors and suppliers are required to register with the City's EOCP. Refer to 2-17, "CONTRACTOR REGISTRATION" for details.
- 3. CITY'S RESPONSES AND ADDENDA:** The City at its option, may respond to any or all questions submitted in writing, via letter, or FAX in the form of an addendum. No oral comment shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addendum are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda on the form provided for this purpose in the Bid.
- 4. CITY'S RIGHTS RESERVED:** The City reserves the right to cancel the Invitation to 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 Invitation to Bid shall be the sole responsibility of each bidder. The Invitation to Bid creates or imposes no obligation upon the City to enter a contract.
- 5. CONTRACT PRICING FORMAT:** This solicitation is for a Lump Sum contract with Unit Price provisions as set forth in the Bid Proposal Form(s), Volume 2 unless specified otherwise such as as-needed contracts e.g., GRC in the Contract Documents.

- 6. SUBMITTAL OF “OR EQUAL” ITEMS:** See 4-1.6, “Trade Names or Equals.”
- 7. AWARD PROCESS:** The Award of this contract is contingent upon the Contractor’s compliance with all conditions precedent to Award, including the submittal of acceptable insurance and surety bonds pursuant to San Diego Municipal Code § 22.3007. If the responsible Bid does not exceed the City's engineering estimate, the City will, in most cases, prepare contract documents for execution within 3 weeks of the date of the Bid opening and award the Contract within 5 Working Days of receipt of properly executed Contract, bond, and insurance documents.

This contract is deemed to be awarded, and effective, only upon the signing of the Contract by the Mayor or designee of the City.

- 8. SUBCONTRACT LIMITATIONS:** The Bidder’s attention is directed to Standard Specifications for Public Works Construction, Section 2-3, “SUBCONTRACTS” which requires the Contractor to perform not less than the amount therein stipulated with its own forces. Failure to comply with these requirements may render the Bid **non-responsive** and ineligible for award.
- 9. AVAILABILITY OF PLANS AND SPECIFICATIONS:** Contract Documents may be obtained by visiting the City’s website: <http://www.sandiego.gov/engineering-cip/services/consultcontract/advertising.shtml>. Plans and Specifications for this contract are also available for review in the office of the City Clerk or Public Works Contracting Group.
- 10. QUESTIONS:** Questions about the meaning or intent of the Contract Documents as related to the scope of Work and of technical nature shall be directed to the Project Manager prior to Bid opening. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda, which will be uploaded to eBidboard (or mailed or delivered to all parties recorded by the City as having received the Contract Documents for Minor Construction contracts).

The Director (or designee), Public Works Department is the officer responsible for opening, examining, and declaring of competitive Bids submitted to the City for the acquisition, construction and completion of any public improvement except when otherwise set forth in these documents. Questions in these areas of responsibility (e.g., i.e. Pre-qualification, SCOPE information, bidding activities, bonds and insurance, etc. as related to this contract shall be addressed to the Contract Administration, Public Works Contracting Group, 1200 Third Avenue, Suite 200, San Diego, California, 92101, Telephone No. (619) 236-6000.

Questions received less than 14 days prior to the date for opening of Bids may not be answered. Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. It is the Bidder's responsibility to become informed of any addenda that have been issued and to include all such information in its Bid.

- 11. ELIGIBLE BIDDERS:** No person, firm, or corporation shall be allowed to make, file, or be interested in more than 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.
- 12. SAN DIEGO BUSINESS TAX CERTIFICATE:** All Contractors, including 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, before the Contract can be executed.

- 13. PROPOSAL FORMS:** Bid shall be made only upon the Bidding Documents i.e., Proposal form attached to and forming a part of the specifications. The signature of each person signing shall be in longhand.

The entire specifications for the bid package do not need to be submitted with the bid. Bidder shall complete and submit, only, all pages in the "Bidding Document" Section (see Volume 2) as their Bid per the schedule given under "Required Documents Schedule," (see Volume 1). Bidder is requested to retain for their reference other portions of the Contract Documents that are not required to be submitted with the Bid.

The City may require any Bidder to furnish a statement of experience, financial responsibility, technical ability, equipment, and references.

Bids and certain other specified forms and documents shall be enclosed in a sealed envelope and shall bear the title of the work and name of the Bidder and the appropriate State Contractors License designation which the Bidder holds.

Bids may be withdrawn by the Bidder prior to, but not after, the time fixed for opening of Bids.

14. BIDDERS' GUARANTEE OF GOOD FAITH (BID SECURITY):

With the exception of the contracts valued \$5,000 or less, GRC and Design-Build contracts, and contracts subject to the Small and Local Business Program of \$250,000 or less e.g., ELBE contracts, each Bidder shall accompany its Bid with either a cashier's check upon some responsible bank, or a check upon such bank properly certified or an approved corporate surety bond payable to the City of San Diego, for an amount of not less than 10% of the aggregate sum of the Bid, which check or bond, and the monies represented thereby shall be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into such contract and furnish the required final bonds.

The Bidder agrees that in case of Bidder's refusal or failure to execute this contract and give required final bonds, the money represented by a cashier's or certified check shall remain the property of the City, and if the Bidder shall fail to execute this contract, the Surety agrees that it will pay to the City damages which the City may suffer by reason of such failure, not exceeding the sum of 10% of the amount of the Bid.

A Bid received without the specified bid security will be rejected as being **non-responsive**.

15. AWARD OF CONTRACT OR REJECTION OF BIDS:

This contract may be awarded to the lowest responsible and reliable Bidder (for Design-Build contracts refer to the RFP for the selection and award information). Bidders shall complete the entire Bid schedule (e.g., schedule of prices). Incomplete price schedules will be rejected as being **non-responsive**.

The City reserves the right to reject any or all Bids, and to waive any informality or technicality in Bids received and any requirements of these specifications as to bidding procedure.

Bidders will not be released on account of their errors of judgment. Bidders may be released only

upon receipt by the City from the Bidder within 3 Working Days, excluding Saturdays, Sundays, and state holidays, after the opening of Bids, of written notice which includes proof of honest, credible, clerical error of material nature, free from fraud or fraudulent intent, and of evidence that reasonable care was observed in the preparation of the Bid.

A non-selected Bidder may protest award of the Contract to the selected Bidder by submitting a written "Notice of Intent to Protest" including supporting documentation which shall be received by Public Works Contracting Group no later than 10 days after the City's announcement of the selected Bidder or no later than 10 days from the date that the City issues notice of designation of a Bidder as non-responsible in accordance with San Diego Municipal Code Chapter 2, § 22.3029, "Protests of Contract Award."

The City of San Diego will not discriminate with regard to race, religious creed, color, national origin, ancestry, physical handicap, marital status, sex or age, in the award of contracts.

Each Bid package properly executed as required by these specifications shall constitute a firm offer, which may be accepted by the City within the time specified in the Invitation to Bids.

The City reserves the right to evaluate all Bids and determine the lowest Bidder (or winner for Design-Build contracts) on the basis of any proposed alternates, additive items or options, at its discretion.

- 16. BID RESULTS:** The Bid opening by the City shall constitute the public announcement of the Apparent Low Bidder (or Apparent Winner in case of Design-Build contracts). In the event that the Apparent Low Bidder (or Apparent Winner in case of Design-Build contracts) is subsequently deemed non-responsive or non-responsible, a public announcement will be posted in the City's web page, with the name of the newly designated Apparent Low Bidder (or Apparent Winner in case of Design-Build contracts).

To obtain Bid results, either attend Bid opening, review the results on the City's web site, or provide a self-addressed, stamped envelope, referencing Bid number, and Bid tabulation will be mailed to you upon verification of extensions. Due to time constraints, Bid results cannot be given out over the telephone.

- 17. THE CONTRACT:** 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 10 Working Days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.

If the Bidder takes longer than 10 Working 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.

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.

For contracts that are not Design-Build, 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 10 Working 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.

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. 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.

18. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK: The Bidder shall examine carefully the Project Site, the Plans and Specifications, the GRC Unit Price Books if applicable, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents) therefore. The submission of a Bid or GRC Task Order Proposal 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.

19. DRUG-FREE WORKPLACE:

a) General:

City projects are subject to City of San Diego Resolution No. R-277952 adopted on May 20, 1991. Bidders shall become aware of the provisions of Council Policy 100-17 which was established by Resolution No. R-277952. The policy applies equally to the Contractor and Subcontractors. The elements of the policy are outlined below.

b) Definitions:

"Drug-free workplace" means a site for the performance of work done in connection with a contract let by City of San Diego for the construction, maintenance, or repair of any facility or public work by an entity at which employees of the entity are prohibited from engaging in the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance in accordance with the requirements of this section.

"Employee" means the employee of a contractor directly engaged in the performance of work pursuant to a contract as described in Section 3, "City Contractor Requirements."

"Controlled substance" means a controlled substance in schedules I through V of Section 202 of the Controlled Substances Act (21 U.S.C. Sec. 812).

"Contractor" means the department, division, or other unit of a person or organization responsible to the contractor for the performance of a portion of the work under the contract.

c) City Contractor Requirements:

Every person or organization awarded a contract or grant by the City of San Diego for the provision of services shall certify to the City that it will provide a drug-free workplace by doing all following:

- a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's organization's workplace and specifying the actions that will be taken against employees for violations of the prohibition.
- b. Establishing a drug-free awareness program to inform employees about all of the following:
 - i. The dangers of drug abuse in the workplace.
 - ii. The person's or organization's policy of maintaining a drug-free workplace.
 - iii. Any available drug counseling, rehabilitation, and employee assistance programs.
 - iv. The penalties that may be imposed upon employees for drug abuse violations.
- c. Posting the statement required by subdivision (1) in a prominent place at contractor's main office. For projects large enough to necessitate a construction trailer at the job site, the required signage would also be posted at the Site.

The Contractor shall include in each subcontract agreement language which indicates the Subcontractor's agreement to abide by the provisions of subdivisions a) through c) above. The Contractors and Subcontractors shall be individually responsible for their own drug-free workplace programs.

Note: The requirements of a drug-free awareness program can be satisfied by periodic tailgate sessions covering the various aspects of drug-abuse education. Although an in-house employee assistance program is not required, contractors should be able to provide a listing of drug rehabilitation and counseling programs available in the community at large.

Questions about the City's Drug-free Workplace Policy shall be referred to the Contract Specialist, Public Works Contracting Group.

20. AMERICANS WITH DISABILITIES ACT:

- a) General: City projects are subject to City of San Diego Resolution No. R-282153 adopted on June 14, 1993. The Bidders shall become aware of the provisions of Council Policy 100-04 which was established by Resolution No. R-282153. The policy applies equally to the Contractor and all Subcontractors. The elements of the policy are outlined below.
- b) Definitions:

"Qualified individual with a disability" means an individual with a disability who satisfies the requisite skill, experience, education and other job-related requirements of the employment

position such individual holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

"Employee" means the employee of the Contractor directly engaged in the performance of Work.

- c) The City Requirements: Every person or organization entering into a contractual agreement with or receiving a grant from the City of San Diego shall certify to the City of San Diego that it will comply with the ADA by adhering to all of the provisions of the ADA listed below.
- i. The Contractor shall not discriminate against qualified persons with disabilities in any aspects of employment, including recruitment, hiring, promotions, conditions and privileges of employment, training, compensation, benefits, discipline, layoffs, and termination of employment.
 - ii. No qualified individual with a disability may be excluded on the basis of disability, from participation in, or be denied the benefits of services, programs, or activities by the Contractor or Subcontractors providing services for the City.
 - iii. The Contractor shall post a statement addressing the requirements of the ADA in a prominent place at the worksite. The Contractor shall include in each subcontract agreement, language which indicates the Subcontractor's agreement to abide by the provisions of subdivisions (a) through (c) inclusive of Section 3. The Contractor and Subcontractors shall be individually responsible for their own ADA employment programs. Questions about the City's ADA Policy should be referred to the Contract Administrator.

21. CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE: This contract is subject to City of San Diego Municipal Code §22.3224 as amended 11/24/08 by ordinance O-19808. Bidders shall become aware that the requirements apply to Contractors and Subcontractors for contracts greater than \$50,000 in value.

Upon award, amendment, renewal, or extension of this contract, the Contractors shall complete a Pledge of Compliance attesting under penalty of perjury that they complied with the requirements of this section.

The Contractors shall ensure that their Subcontractors whose subcontracts are greater than \$50,000 in value complete a Pledge of Compliance attesting under penalty of perjury that they complied with the requirements of this section. Subcontractors may access the Pledge of Compliance at:

http://www.sandiego.gov/purchasing/pdf/contractor_standards_questionnaire.pdf.

The Contractors shall include in each subcontract agreement, language which requires Subcontractors to abide by the provisions of City of San Diego Municipal Code §22.3224. A sample provision is as follows:

“Compliance with San Diego Municipal Code §22.3224: Subcontractor acknowledges that it is familiar with the requirements of San Diego Municipal Code §22.3224 (“Contractor Standards”), and agrees to comply with requirements of that section. The Subcontractor further agrees to complete the Pledge of Compliance, incorporated herein by reference.”

- 22. NOTICE OF LABOR COMPLIANCE PROGRAM APPROVAL:** The City of San Diego received initial approval as a Labor Compliance Program on August 11, 2003. The Labor Compliance Program Manual is available at:

<http://www.sandiego.gov/eoc/laborcompliance/#manual>

The limited exemption from prevailing wages pursuant to Labor Code §1771.5(a) does not apply to contracts under jurisdiction of the Labor Compliance Program. Inquiries, questions, or assistance about the Labor Compliance Program should be directed to: Equal Opportunity Contracting Program, 1200 Third Ave., Suite 200 MS56P, San Diego, CA 92101, Tel. 619-236-6000.

- 23. PAYROLL RECORDS:** The Contractor's attention is directed to the City of San Diego Labor Compliance Program, Section IV, pages 4-7, and the State of California Labor Code §§ 1771.5(b) and 1776 (Stats. 1978, Ch. 1249). These require, in part, that the Contractor and Subcontractors maintain and furnish to the City, at a designated time, a certified copy of each weekly payroll containing a statement of compliance signed under penalty of perjury.

The Contractor and Subcontractors shall submit weekly certified payrolls online via Prism® i.e., the City's web-based labor compliance program. Instructions on how to use the system will be provided to the Contractor after the award.

The Contractor shall be responsible for the compliance with these provisions by Subcontractors. The City shall withhold contract payments when payroll records are delinquent or inadequate, or when it is established after investigation that underpayment has occurred.

- 24. APPRENTICES ON PUBLIC WORKS:** The Contractor shall abide by the requirements of §§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.

- 25. EQUAL BENEFITS:** This contract is subject to the City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of the San Diego Municipal Code (SDMC).

In accordance with the EBO, Bidders shall certify they will provide and maintain equal benefits as defined in SDMC §22.4302 for the duration of the Contract (SDMC §22.4304(f)). Failure to maintain equal benefits is a material breach of the Contract (SDMC §22.4304(e)). The Contractor shall notify employees of their equal benefits policy at the time of hire and during open enrollment periods and shall post a copy of the following statement in an area frequented by employees:

“During the performance of a contract with the City of San Diego, this employer will provide equal benefits to its employees with spouses and its employees with domestic partners.”

The Contractor shall give the City access to documents and records sufficient for the City to verify the contractors are providing equal benefits and otherwise complying with EBO requirements.

Full text of the EBO and the Rules Implementing the Equal Benefits Ordinance are posted on the City's website at www.sandiego.gov/purchasing/ or can be requested from the Equal Benefits Program at (619) 533-3948.

26. LIMITED COMPETITION: When designated as restricted competition on the cover page, this contract may only be bid by the Contractors on the approved SLBE-ELBE Construction Contractors List. For information regarding the SLBE-ELBE Construction Program and registration visit the City's web site: <http://www.sandiego.gov>.

27. PRE-AWARD ACTIVITIES:

Pre-award Submittals - The Apparent Low Bidder (or winner in case of Design-Build contracts) shall provide the information required within the time specified in "Required Documents," of this bid package. Failure to provide the information within the time specified may result in the Bid being rejected as **non-responsive**.

If the Bid is rejected as non-responsive, the Apparent Low Bidder (or winner in case of Design-Build contracts) shall forfeit the Bid Security required under Invitation to Bids, of this bid package. The decision that the Apparent Low Bidder (or winner in case of Design-Build contracts) is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

CONTRACT FORMS AGREEMENT

DESIGN-BUILD AGREEMENT

This Design-Build agreement [Contract] is made and entered into this 3 day of 10, 2012, by and between The City of San Diego [City], a municipal corporation, and **Orion Construction Corp.** [Design-Builder], for the purpose of designing and constructing the Recycled Water System Upgrades Design-Build Contract, City and Design-Builder are referred to herein as the "Parties."

RECITALS

- A. City desires to construct the Project located in the City of San Diego, California.
- B. City desires to contract with a single entity for design and construction of the Project, as set forth in this agreement.
- C. The City has issued a Request for Proposals [RFP] for K-12-5541-DBA-3, pursuant to which the City solicited Proposals from design-build teams to design, rehabilitate, and build the Project.
- D. In accordance with City's RFP, Design-Builder submitted a Proposal for the Project and is prepared to enter into this agreement.
- E. The City has selected the Design-Builder to perform, either directly or pursuant to Subcontracts, hereinafter defined, the design, engineering, and construction services set forth in this agreement and the Contract Documents, hereinafter defined.
- F. The Design-Builder is ready, willing, and able to perform the services required in accordance with the terms and conditions of this agreement.
- G. Execution of this agreement by the Design-Builder is a representation that the Design-Builder has visited the Site, become familiar with the local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

In consideration of the above recitals and the mutual covenants and conditions set forth herein, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby set forth their mutual covenants and understandings as follows.

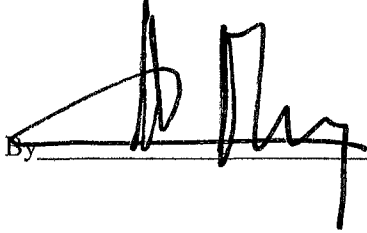
INTRODUCTORY PROVISIONS

- A. The above referenced recitals are true and correct and are incorporated into this agreement by this reference.
- B. All Exhibits referenced in this agreement are incorporated into the Contract by this reference.
- C. This agreement amends the Standard Specifications for Public Works Construction [The GREENBOOK], including supplement amendments set forth in the City of San Diego Supplement [City Supplement]. All changes and or additions are stated herein and all other provisions remain unchanged.

**CONTRACT FORMS (continued)
AGREEMENT**

IN WITNESS WHEREOF, this agreement is signed by the City of San Diego, acting by and through its Mayor or designee authorizing such execution.

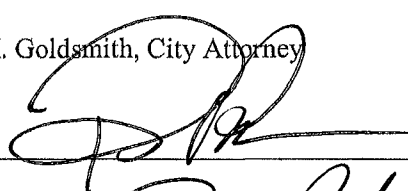
THE CITY OF SAN DIEGO

By 

Print Name: _____
Al Rechany, Program Manager, Public Works

Date: 10/2/2012

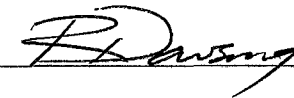
APPROVED AS TO FORM AND LEGALITY

Jan I. Goldsmith, City Attorney
By 

Print Name: Ray Palamucci
Deputy City Attorney

Date: 10/3/12

CONTRACTOR

By 

Print Name: Richard Dowsing

Title: President

Date: September 18, 2012

City of San Diego License No.: 549309

State Contractor's License No.: B1992002970

CONTRACT FORMS (continued)
PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

Orion Construction Corporation _____, 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 **One Million Five Hundred Eighty-Seven Thousand Dollars and 00/100 (\$1,587,000.00)** for the faithful performance of the annexed contract, and in the sum of **One Million Five Hundred Eighty-Seven Thousand Dollars and 00/100 (\$1,587,000.00)** for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract **Recycled Water System Upgrades Design-Build Contract**, Bid Number, **K-12-5541-DBA-3**, 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 Chapter 3 of Division 5 of Title I of the Government Code of the State of California or under the provisions of Section 3082 et seq. 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.


CONTRACT FORMS (continued)
PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

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

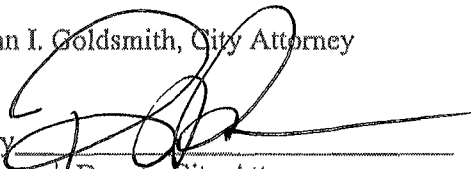
Dated September 18, 2012

Approved as to Form and Legality


Orion Construction Corporation
Principal

By 
RICHARD DONISING, PRESIDENT
Printed Name of Person Signing for Principal

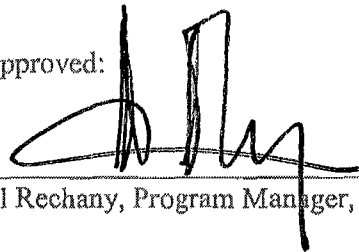
Jan I. Goldsmith, City Attorney

By 
Deputy City Attorney

Liberty Mutual Insurance Company
Surety

By 
Victoria M. Campbell, Attorney-in-fact

Approved:


Al Rechany, Program Manager, Public Works

790 The City Drive South, Ste 200
Local Address of Surety

Orange CA 92868
Local Address (City, State) of Surety

714-634-5700
Local Telephone No. of Surety

Premium \$ 18,323.00

Bond No. 024043802

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

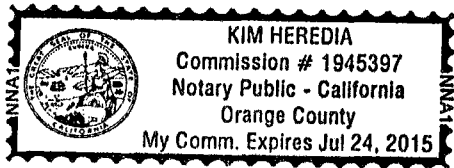
State of California

County of Orange

On SEP 18 2012 before me, Kim Heredia, Notary Public,
DATE NAME, TITLE OF OFFICER - E.G., "JANE DOE, NOTARY PUBLIC"

personally appeared Victoria M Campbell, who proved to me on the basis of satisfactory evidence to be the person(s) whose names (s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.



WITNESS my hand and official seal.

[Signature]
SIGNATURE OF NOTARY

OPTIONAL

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form.

CAPACITY CLAIMED BY SIGNER

- INDIVIDUAL
- CORPORATE OFFICER

TITLE(S)

- PARTNER(S) LIMITED
- GENERAL

ATTORNEY-IN-FACT

TRUSTEE(S)

GUARDIAN/CONSERVATOR

OTHER: _____

DESCRIPTION OF ATTACHED DOCUMENT

TITLE OR TYPE OF DOCUMENT

NUMBER OF PAGES

SEP 18 2012

DATE OF DOCUMENT

SIGNER IS REPRESENTING:
NAME OF PERSON(S) OR ENTITY(IES)

Liberty Mutual Insurance Company

SIGNER(S) OTHER THAN NAMED ABOVE

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.

5334940

Certificate No. _____

American Fire and Casualty Company
The Ohio Casualty Insurance Company
West American Insurance Company

Liberty Mutual Insurance Company
Peerless Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of Ohio, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, that Peerless Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, 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, **VICTORIA M. CAMPBELL, KIM HEREDIA, ERIK JOHANSSON, SHIRLEY BAUMAN, CHRISTINA JOHNSON, MELISSA TETZLAFF, LINDE HOTCHKISS,**

all of the city of IRVINE, state of CALIFORNIA 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 April, 2012.



American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
Peerless Insurance Company
West American Insurance Company

By: *Gregory W. Davenport*
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 20th day of April, 2012, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, Peerless Insurance 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 Seattle, Washington, on the day and year first above written.



By: *KD Riley*
KD Riley, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, West American Insurance Company and Peerless 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 Gregory W. Davenport, Assistant Secretary to appoint such attorney-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, David M. Carey, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, West American Insurance Company and Peerless 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.

SEP 18 2012

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of _____, 20_____.



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

Not valid for mortgage, note, loan, letter of credit, bank deposit, 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.

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE


PROJECT TITLE: Recycled Water System Upgrades Design-Build Contract

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 INSTRUCTION TO BIDDERS, "Drug-Free Workplace", of the project specifications, and that;

ORION CONSTRUCTION CORPORATION

(Name under which business is conducted)

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.

Signed 
Printed Name Richard Dowsing
Title President

CONTRACTOR CERTIFICATION

AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION


PROJECT TITLE: Recycled Water System Upgrades Design-Build Contract

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 INSTRUCTION TO BIDDERS, "American With Disabilities Act", of the project specifications, and that;

ORION CONSTRUCTION CORPORATION

(Name under which business is conducted)

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.

Signed 
Printed Name Richard Dowsing
Title President

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

PROJECT TITLE: Recycled Water System Upgrades Design-Build Contract

I declare under penalty of perjury that I am authorized to make this certification on behalf of Orion Construction Corporation, as Contractor, that I am familiar with the requirements of City of San Diego Municipal Code § 22.3224 regarding Contractor Standards as outlined in INSTRUCTION TO BIDDERS ("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 § 22.3224.

Dated this 18 Day of September, 2012.

Signed 

Printed Name Richard Dowsing

Title President

AFFIDAVIT OF DISPOSAL

WHEREAS, on the _____ DAY OF _____, 2____, the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

as particularly described in said contract and identified as Bid No. **K-12-5541-DBA-3**, SAP No. (WBS/CC/IO). **S-10010** 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 _____, 2_____.

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

SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

THESE SUPPLEMENTARY SPECIAL PROVISIONS CONFORM TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (THE GREENBOOK) CURRENTLY ADOPTED BY THE CITY, INCLUDING ITS CURRENT SUPPLEMENT AMENDMENTS (CITY SUPPLEMENTS INCLUDED IN THE WHITEBOOK), EXCEPT FOR THE FOLLOWING:

STYLE OF SPECIFICATIONS

The City is gradually standardizing the style and language of the standard specifications for the public works construction. The new style and language follows the Federal guidelines for “Plain Language” to the extent possible.

The use of this new style does not change the meaning of a specification not yet using this style. Where used in the Contract Documents, statement or command type phrases (i.e., active voice and imperative mood) refer to and are directed at the Bidder or Contractor as applicable. The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences written in the imperative mood as starting with "The Contractor must" and interpret "you" as "the Contractor" and "your" as "the Contractor's." Similarly, interpret "we" and “us” as "the City" and "our" as "the City's.”

PART 1 – GENERAL PROVISIONS

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

1-2 TERMS AND DEFINITIONS.

Agency – ADD the following:

Regulatory activities handled by the City of San Diego Developmental Services, Fire and Planning Departments, or any other City Department are not subject to the responsibilities of the City under this contract.

Certificate of Compliance – To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Certificate of Compliance – A written document signed and submitted by a supplier or manufacturer that certifies that the material or assembled material supplied to the Work site complies with the requirements of the Contract Documents.

Contract Documents – To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

The Agreement, Addendum, Invitation to Bid, Instructions to Bidders, special notice page, funding agency provisions, Bid and documentation accompanying the Bid and any post-bid documentation submitted prior to the Notice of Award when attached as an exhibit to the Contract, Bonds, permits from jurisdictional regulatory agencies, Supplementary Special Provisions (SSP), City’s EOCP

Requirements, City Supplement, Plans, Standard Plans, Construction Documents, Reference Specifications listed in the Invitation to Bid or the RFP for Design-Build contracts, Request for Qualifications (RFQ), Statement of Qualifications (SOQ), Request for Proposals (RFP), modifications issued after the execution of the Contract e.g., Change Orders, Construction Manager At Risk's Guaranteed Maximum Price including written qualifications, assumptions and conditions thereto and Pre-construction Services Agreement.

Limited Notice To Proceed – A written notice given from the City to the Contractor that authorizes the Contractor to start a limited amount of work that is not Construction Work, such as finalizing subcontract agreements, ordering materials, mobilization, furnishing a field office, and any other preliminary work done prior to performing Construction Work.

Normal Working Hours. To the City Supplement, ADD the following:

The Normal Working Hours shall be 8:30 AM to 3:30 PM.

Notice of Completion (NOC) – ADD the following:

See California Civil Code section 3093.

Samples - Physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be evaluated.

SECTION 2 - SCOPE AND CONTROL OF WORK

2-1.2.2 Joint Venture Contractors. To the City Supplement, last paragraph, DELETE in its entirety and SUBSTITUTE with the following:

The Joint Venture shall designate an on-site representative and an alternate in writing. The on-site representative and the alternate shall have the full authority to bind all Joint Venture partners.

The Joint Venture shall provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receipt by the Bidder of Contract forms.

2-3.1.2 Subcontractor List. ADD the following:

For Extra Work, the Contractor shall submit Form CC10, "CONTRACT CHANGE ORDER (CCO)" with each CCO proposal. Form CC10 is available for download from the EOCP site at: <http://www.sandiego.gov/eoc/pdf/cc10.pdf>

2-3.3 Status of Subcontractors. ADD the following:

With every request for payment, the Contractor shall submit to the Engineer a breakdown showing monthly and cumulative amounts of the Work performed under Change Order by the Contractor and the Subcontractors. The reporting format shall be approved by the Engineer.

2-3.4 Subcontract Requirements. To the City Supplement, ADD the following paragraph:

The Contractor shall ensure that all of its Subcontractors are licensed at the time of the execution of their subcontract agreements. In the event a Subcontractor is not properly licensed, the Contractor shall cease payment to Subcontractor for all work performed when the Subcontractor was improperly

licensed. Any payment made by the Contractor to a Subcontractor for work performed when the Subcontractor was unlicensed shall be returned to the City.

Where the Contract Documents require that a particular product be installed or applied by an applicator approved by the manufacturer, it is the Contractor's responsibility to ensure the Subcontractor or Supplier employed for such work is approved by the manufacturer.

2-5.2 Precedence of Contract Documents. To the Cit Supplement, DELETE in its entirety and SUBSTITUTE with the following:

2-5.2 Precedence of Contract Documents. If there is a conflict between any of the Contract Documents, the document highest in the order of precedence shall control. The order of precedence, from highest to lowest, shall be as follows:

- 1) Permits (i.e., issued by jurisdictional regulatory agencies)
- 2) Change Orders and Supplemental Agreements; whichever occurs last
- 3) Contract and Agreement
- 4) Addenda
- 5) Bid (e.g., price Proposal for Design-Build contracts)
- 6) Request for Proposal (RFP)
- 7) Invitation to Bid
- 8) Instruction to Bidders
- 9) Request for Qualifications (RFQ)
- 10) Special Provisions (i.e., City's EOC Requirements, City Supplement, and Supplementary Special Provisions (SSP))
- 11) Plans
- 12) Construction Documents (for Design-Build contracts)
- 13) Standard Drawings
- 14) Reference Specifications (e.g., GREENBOOK)
- 15) Technical Proposal (for Design-Build contracts)
- 16) Statement of Qualifications (SOQ)

When additional requirements by the funding sources are physically or by reference incorporated in the Contract Documents, the funding source's requirements shall govern **unless specified otherwise**. Figured dimensions shall take precedence over scaled dimensions. Detailed drawings shall take precedence over general drawings.

2-5.3.1 General. DELETE in its entirety and SUBSTITUTE with the following:

When required by the Contract Documents or when requested by the Engineer, the Contractor shall provide the submittals as specified in 2-5.3.2, 2-5.3.3, and 2-5.3.4 to the Engineer. Materials shall neither be furnished nor fabricated, nor shall any work for which submittals are required be performed before the required submittals have been reviewed and accepted by the Engineer. The payment for the submittals shall be included in the various Bid items. Neither review nor acceptance of submittals by the Engineer shall relieve the Contractor from responsibility for errors, omissions, or deviations from the Contract Documents, unless such deviations were specifically called to the attention of the Engineer in the letter of transmittal. The Contractor shall be responsible for the correctness of the submittals.

The Contractor shall allow a minimum of 20 working days for review of submittals unless otherwise specified in the Special Provisions. Each submittal shall be accompanied by a letter of transmittal.

2-5.4.1 General. ADD the following:

Source Identification e.g., RFI numbers and Change Order numbers as required to identify the source of the change to the Contract Documents shall be noted.

2-5.4.2 Asset Specific Red-lines (d). ADD the following:

- Dimensional changes to the drawings.
- Revisions to details shown on drawings.
- Depths of foundations below first floor.
- Locations and depths of underground utilities.
- Revisions to routing of piping and conduits.
- Revisions to electrical circuitry.
- Actual equipment locations.
- Duct size and routing.
- Locations of concealed internal utilities.
- Changes made by Change Order.
- Details not on original Plans.

ADD the following:

- h) **Slurry Seal and Asphalt Overlay Red-Lines:** The Contractor shall clearly record on the City provided forms in MS Excel format the actual dates and quantity of each Bid item applied to each street segment and comments regarding each segment. The Contractor shall record reasons if no work is performed.

2-5.5 As-built Drawings. ADD the following:

As-built Drawings shall be the responsibility of the Contractor.

2-6 WORK TO BE DONE. ADD the following:

In accordance with the provisions of California Law, the Contractor shall possess or require the Subcontractor(s) to possess valid appropriate license(s) for the Work being performed.

2-9.1 Permanent Survey Markers. DELETE in its entirety and SUBSTITUTE with the following:

The Contractor shall notify the Engineer or the owner on a Private Contract, at least 7 days before starting the Work to allow for the preservation of survey markers, survey monuments, lot stakes (tagged), and benchmarks. The Engineer or the owner on a Private Contract, will, at its cost, file a Corner Record Form referencing survey monuments subject to disturbance in the Office of the County Surveyor prior to the start of construction and also prior to the completion of construction for the replacement of survey monuments. The Contractor shall not disturb or permanently cover survey markers, survey monuments, lot stakes (tagged), or benchmarks without the consent of the Engineer or the owner on a Private Contract. The Contractor shall bear the expense of uncovering and replacing any that may be disturbed without permission. Replacement shall be done only under the direction of the Engineer by a Registered Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the State of California. When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, the Contractor shall

adjust the monument cover to the new grade within 7 days of finished paving unless otherwise specified in the Special Provisions.

2-10 AUTHORITY OF BOARD AND ENGINEER. ADD the following:

Regulating agencies of the City, such as Developmental Services, Fire and Planning Departments, enforce Legal Requirements and standards. These enforcement activities are not subject to the responsibilities of the Engineer under this Agreement.

2-11 INSPECTION. ADD the following:

The City may utilize field inspectors to assist the Engineer during construction in observing performance of the Contractor. The inspector is for the purpose of assisting the Engineer and shall not be confused with an inspector with a City regulatory agency or with a Special Inspector.

Code compliance testing (including all Geotechnical requirements) and inspections required by codes or ordinances, or by a plan approval authority, shall be the responsibility of and shall be paid by the Contractor, unless otherwise provided in the Contract Documents.

The Contractor's quality control testing and inspections shall be the sole responsibility of the Contractor and paid by the Contractor included in the Bid price.

ADD: 2-17 CONTRACTOR REGISTRATION. The Contractor, Subcontractors, and Suppliers shall register with the City's EOCP via Prism® i.e., the City's web-based contract compliance portal at: <https://pro.prismcompliance.com/contractor/plugins/pages/contractormenu.aspx>.

The Contractor shall ensure that proposed Subcontractors and Suppliers have completed the registration prior to Notice of Intent to Award. If the Contractor fails to have its Subcontractors and Suppliers registered after the NTP has been issued, the City will withhold a minimum of 10% in addition to the Retention from all invoices submitted until the Contractor and all listed Subcontractors and Suppliers are properly registered in PRISM.

SECTION 3 – CHANGES IN WORK

3-3.2.2 Basis for Establishing Costs (a) Labor, City Supplement, first and second paragraphs, DELETE in entirety and SUBSTITUTE with the following:

The City reserves the right to request financial records of salaries for an employee, wages, bonuses and deductions to substantiate the actual cost of labor certified by a California licensed Certified Public Accountant. The Contractor shall use the City provided form i.e., "PUBLIC WORKS PAYROLL REPORTING FORM" which is available at <http://www.sandiego.gov/eoc/pdf/payrollreport.pdf> to list the labor rates of its personnel and Subcontractors who work on this Project. An initial submittal shall be made prior to NTP.

The payment for payroll records shall be included in the various Bid item unless a separate Bid item has been provided.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.1 General. First paragraph, ADD the following:

Other standard items or materials typically accepted by Certificate of Compliance shall not require inspection at the source unless specified in the Special Provisions. For a list of these items or materials, the Contractor may refer to the Contract Documents.

4-1.3.5 Special Inspections. To the City Supplement, ADD the following:

Special Inspection and testing by the Special Inspectors shall meet the minimum requirements of the prevailing Codes and by the City's Development Services Department (DSD) and reference in <http://www.sandiego.gov/development-services/industry/special.shtml>

4-1.5 Certificates of Compliance. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

4-1.5 Certificates of Compliance. DELETE in its entirety and SUBSTITUTE with the following:

Certificates of Compliance shall be furnished to the Engineer prior to the use of any material or assembled material for which these Specifications so require or if so required by the Engineer.

The Engineer may waive the materials testing requirements of the Specifications and accept a Certificate of Compliance. Manufacturing test data may be required by the Engineer to be included with the submittal.

Materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The submission of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents, and any material not conforming to the requirements will be subject to rejection whether in place or not.

When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the City shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

4-1.6 Trade Names or Equals. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

ADD the following:

Whenever materials or equipment are indicated in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. Unless stated otherwise, materials or equipment of other Suppliers may be accepted if sufficient information is submitted to the Engineer for review to determine whether the material or equipment proposed is equivalent or equal to that named.

- a) The Contractor shall submit its list of proposed substitutions for "an equal" ("or equal") item(s) **no less than 15 Working Days prior to Bid due date** and on a City form when provided by the City.
 - i. The City will respond to the Contractor's substitution proposal by at least 3 Working

Days prior to the Bid due date. If the City fails to respond to the Contractor's substitution proposal within the specified time period, the substitution proposal will be deemed denied.

- ii. The Contractor may bring forward a substitution proposal after Award that was denied based on the City's failure to respond by submitting a "Cost Reduction Proposal" in accordance with 3-1.3.
- b) The request for substitution shall include the following information:
 - i. Whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents to adopt the design to the proposed substitute.
 - ii. Whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty.
 - iii. All variations of the proposed substitute from the items originally specified will be identified.
 - iv. Available maintenance, repair, and replacement service requirements. The manufacturer shall have a local service agency within 50 miles of the site which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24 hours.
 - v. Certification that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, and be similar and of equal substance to that indicated, and be suited to the same use as that specified.
- c) There is no guaranteed time frame for the City's review of the substitution requests.
- d) The burden of proof as to the type, function, and quality of any such substitute product, material or equipment shall be upon the Contractor. The Engineer may require at the Contractor's expense additional data about the proposed substitute.
- e) If the Engineer takes no exceptions to the proposed substitution, it shall not relieve the Contractor from responsibility for the efficiency, sufficiency, quality, and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name.
- f) The lack of action(s) on the Engineer's side within the Contractor's requested time shall not constitute acceptance of the substitution.
- g) Acceptance by the Engineer of a substitute item shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents.
- h) For the substitution review process or to have materials listed on the AML, refer to the AML standard review process.
- i) The Bid submittal shall be based on the material and equipment specified by name in the Contract. If the proposal is rejected by the Engineer, the Contractor shall not be entitled to either an extension in Contract Time, increase in the Contract Price, or both.
- j) As applicable, no Shop Drawing or Working Drawing submittals shall be made for a substitute item nor shall any substitute item be ordered, installed, or utilized without the Engineer's prior written.
- k) The Contractor shall reimburse the City for the charges of the Engineer for evaluating each proposed substitute.
- l) For Design-Build contracts, one copy of all designer reviewed submittals shall be provided to the Engineer.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-1.2 Commencement of Work. To the GREENBOOK and City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Unless specified otherwise, construction shall start within 5 Working Days after NTP and be diligently prosecuted to completion within the Contract Time. The Contractor shall not start any construction activity at the Site until the Pre-construction Meeting is held and the NTP has been issued by the Engineer.

Upon the Contractor's written request, the City may delay the NTP as follows:

- a) Up to 5 Working Days from the Pre-construction Meeting, or
- b) Up to 40 Working Days from the Limited NTP for the preparation, submittal, obtaining approval for and filing of the PRDs in accordance with 801, "STORM WATER POLLUTION CONTROL," or
- c) Up to 60 Working Days from the Limited NTP for the preparation, submittal, and approval of the TCP on "D-sheets" when specified in 7-10.2, "Traffic Control."

For areas that do not require engineered TCP on D-sheets, the Contractor may at any time after the Pre-construction Meeting obtain a TCP Permit via Working Drawings or the City's over the counter process and start the Work. If the Contractor decides to commence the construction work before the completion of the D-sheet TCPs, the Contractor shall forfeit the 60 Working Days specified here. The D-sheet TCP shall be done concurrently and no additional time will be granted.

For paving Work, the Contractor shall coordinate the Work to facilitate the installation and protection of the new curb ramps and associated concrete work prior to commencing the asphalt overlay operations. The Work at a specific location shall not commence until all layouts and measurements are agreed upon by both the Contractor and the Engineer.

The Contractor shall notify SDG&E at least 10 Working Days prior to excavating within 10' of SDG&E Underground High Voltage Transmission Power Lines (i.e., 69 KV and higher).

For the Design-Build contracts, the Design-Builder shall not begin construction of the Project or any portions thereof until the Engineer approves the design for the Project or portion thereof. No payment shall be made for any construction Work performed prior to the Engineer's approval. Applications for payment for such work shall not be binding on the City.

ADD: 6-1.8 Pre-construction Meeting. Within 20 Working Days from the Limited NTP the Engineer will schedule a mandatory pre-construction meeting (Pre-construction Meeting) with the Contractor. The agenda will include items such as NTP, design services and submittal and review process for Design-Build contracts, critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, payment requests and processing, environmental and community concerns, coordination with the involved utility firms, the level of record project documents required and emergency telephone numbers for all representatives involved in the course of construction.

ADD: 6-8.1 Completion. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

6-8.1 Completion. The Contractor shall submit a written assertion that the Work has been completed. If, in the Engineer's judgment, the Work has been completed in accordance with the Contract Documents, the Engineer will set forth in writing the date the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect and maintain the Work.

6-8.2 Acceptance. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

6-8.2 Acceptance. Acceptance will occur after all of the requirements contained in the Contract Documents have been fulfilled. If, in the Engineer's judgment, the Contractor has fully performed the Contract, the Engineer will accept the Contractor's performance of the Contract.

6-8.3 Warranty. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

6-8.3 Warranty. Unless specified otherwise, the Work shall be warranted by the Contractor against defective workmanship and materials for a period of 1 year.

- a) The warranty period shall start on the date of completion of the Work as determined by the Engineer.
- b) The Contractor shall provide an unconditional warranty on all installed fiber optic cable for a minimum period of 2 years.
- c) The warranty period for the following items of the Work shall be 3 years:
 1. Work under Section 500 (requires Long Term Warranty Contract (LTWC))
 2. DWT Construction (requires manufacturer's warranty)
 3. LED signal modules (requires manufacturer's warranty)
 4. Private sewer pumps including the alarm panel and all other accessories. The Contractor shall provide the City and property owner a copy of the warranty. (requires manufacturer's warranty)
- d) The Contractor shall involve the manufacturer in the installation and startup as needed to secure any extended warranty required.
- e) The warranty period for specific items covered under manufacturers' or suppliers' warranties shall commence on the date they are placed into service at the direction of or as approved by the Engineer in writing.
- f) All warranties, express or implied, from Subcontractors or Suppliers, of any tier, for the work performed and materials furnished shall be assigned, in writing, to the City, and such warranties shall be delivered to the Engineer prior to acceptance of the Contractor's performance of the Contract.
- g) The Contractor shall replace or repair defective Work in a manner satisfactory to the Engineer, after notice to do so from the Engineer, and within the time specified in the notice. If the Contractor fails to make such replacement or repairs within the time specified in the notice, the City may perform the replacement or repairs at the Contractor's expense. If the

Contractor fails to reimburse the City for the actual costs, the Contractor's Surety shall be liable for the cost thereof.

- h) Nothing in this warranty is intended to limit any manufacturer's warranty which provides the City with greater warranty rights than set forth in this section or the Contract Documents.
- i) These specifications are not intended to constitute a period of limitations or waiver of any other rights or remedies City may have regarding the Contractor's other obligations under the Contract Documents or federal or state law.
- j) The Contractor shall respond and initiate corrective action within 24 hours of notice of nonconforming Work that poses an imminent threat to person or property.

ADD: 6-8.4 Latent and Patent Defect Warranty. For Design-Build contracts, the Contractor shall warrant to City that the construction, including all materials and equipment furnished as part of the construction, shall be free of latent and patent defects in materials and workmanship. The City will first provide the Contractor an opportunity to correct or replace any latent and patent defect at its own cost and expense, if notified by the City within 4 years after the date of Acceptance for patent deficiency and 10 years for a latent deficiency. If the Contractor fails to repair and replace the reported deficiency, the City will repair the deficiency and charge the Contractor for the repair.

6-9 LIQUIDATED DAMAGES. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

MODIFY to increase the daily value from \$250 to \$1,000 for contracts with a value of over \$100,000.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-3 LIABILITY INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

The insurance provisions herein must not be construed to limit your indemnity obligations contained in this contract.

ADD: 7-3.1 Policies and Procedures.

- a) You must procure the insurance described below, at your 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.
- b) Insurance coverage for property damage resulting from your operations is on a replacement cost valuation. The market value will not be accepted.
- c) You must 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 this contract, e.g., your indemnity obligations, will is not deemed limited to the insurance coverage required by this contract.
- d) Payment for insurance is included in the various items of Work as bid by you, and 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.

- e) Policies of insurance must 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 this contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of this contract may be treated by the City as a material breach of contract.

ADD: 7-3.2 Types of Insurance.

7-3.2.1 Commercial General Liability Insurance.

- a) Commercial General Liability Insurance must 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.
- b) The policy must 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).
- c) There must be no endorsement or modification limiting the scope of coverage for either “insured vs. insured” claims or contractual liability. You must maintain the same or equivalent insurance for at least 10 years following completion of the Work.
- d) All costs of defense must be outside the policy limits. Policy coverage must be in liability limits of not less than the following:

General Annual Aggregate Limit	Limits of Liability
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.

- a) You must 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”).
- b) All costs of defense must be outside the limits of the policy.

7-3.2.3 Commercial Pollution Liability Insurance.

- a) You must procure and maintain at your expense or require Subcontractor, as described below to procure and maintain, the Contractors Pollution Liability Insurance including contractual liability coverage to cover liability arising out of cleanup, removal, storage, or handling of hazardous or

toxic chemicals, materials, substances, or any other pollutants by you or any Subcontractor in an amount not less than \$2,000,000 limit for bodily injury and property damage.

- b) All costs of defense must be outside the limits of the policy. Any such insurance provided by Subcontractor instead of you must be approved separately in writing by the City.
- c) For approval of a substitution of Subcontractor's insurance, you must certify that all activities for which the Contractors Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance. The deductible must not exceed \$25,000 per claim.
- d) Contractual liability must include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There must be no endorsement or modification of the coverage limiting the scope of coverage for either "insured vs. insured" claims or contractual liability.
- e) Occurrence based policies must be procured before the Work commences and must be maintained for the Contract Time. Claims Made policies must be procured before the Work commences, must be maintained for the Contract Time, and must include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies must continue to be maintained for 12 months after the completion of the Work without advancing the retroactive date.
- f) Except as provided for under California law, the policy or policies must 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.

ADD: 7-3.3 Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this contract as described herein must 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 Eligible Surplus Lines Insurers (LESLI list).

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

ADD: 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 must 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.

ADD: 7-3.5 Policy Endorsements.

7-3.5.1 Commercial General Liability Insurance

7-3.5.1.1 Additional Insured.

- a) You must 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.
- b) To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured.
 1. The additional insured coverage for projects for which the Engineer's Estimate is \$1,000,000 or more must 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.
 2. The additional insured coverage for projects for which the Engineer's Estimate is less than \$1,000,000 must 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 must 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 must provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives must be in excess of the Contractor's insurance and must not contribute to it.

7-3.5.1.3 Project General Aggregate Limit. The policy or policies must 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 must reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit must 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 must 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.

7-3.5.3 Contractors Pollution Liability Insurance Endorsements.

7-3.5.3.1 Additional Insured.

- a) The policy or policies must 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 must 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.
- b) 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 is 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 must be limited to obligations permitted by California Insurance Code §11580.04.

7-3.5.3.2 Primary and Non-Contributory Coverage. The policy or policies must 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 must be in excess of your insurance and must not contribute to it.

7-3.5.3.3 Severability of Interest. For Contractors Pollution Liability Insurance, the policy or policies must provide that your insurance must 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 must provide cross-liability coverage.

ADD: 7-3.6 Deductibles and Self-Insured Retentions. You are responsible for the payment of all deductibles and self-insured retentions. Disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

ADD: 7-3.7 Reservation of Rights. We reserve 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. We 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.

ADD: 7-3.8 Notice of Changes to Insurance. You must notify the City 30 days prior to any material change to the policies of insurance provided under this contract.

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

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

- a) For contracts with required engineering services (e.g., Design-Build, preparation of engineered Traffic Control Plans (TCP), etc. by you) for all of your employees or Subcontractors who provide professional engineering services under this contract, you must keep or must require your Subcontractor keep in full force and effect, Professional Liability coverage with a limit of **\$1,000,000** per claim and **\$2,000,000** annual aggregate.
- b) You must ensure both that: (a) the policy retroactive date is on or before the date of commencement of the Project; and (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.
- c) If professional engineering services are to be provided solely by the Subcontractor, you must (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 WORKERS’ COMPENSATION INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

7-4.1 Workers’ Compensation Insurance and Employers Liability Insurance.

- a) In accordance with the provisions of §3700 of the California Labor Code, you must provide at its 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.
- b) Limits for this insurance must 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

- c) By signing and returning this contract you certify that you are aware of the provisions of §3700 of the Labor Code which require 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 will comply with such provisions before commencing the Work as required by § 1861 of the California Labor Code.

7-4.1.1 Waiver of Subrogation. The policy or policies must 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.

7-5.3 Payment. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

For Design-Build contracts, the City Contingency shall be used to reimburse the Design-Builder for the agency permit fee only

7-8.6 Water Pollution Control. ADD the following:

- a) The Project is subject to the Storm Water Pollution control requirements listed on the Plans or as specified in these specifications.
- b) For contracts subject to Construction General Permit (CGP), the Contractor’s QSD shall verify the City’s assessment prior to submittal through SMARTS.
- c) The Contractor’s attention is directed to Section 801, “WATER POLLUTION CONTROL” of these specifications for more information.

Based on a preliminary assessment by the City, this contract is subject to WPCP.

7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS. ADD the following:

In any emergency affecting the safety of persons or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in Contract Price or Contract Time resulting from emergency work shall be determined as provided in SECTION 3, “CHANGES IN WORK.”

7-10.1 Traffic and Access. To the City Supplement, DELETE the agency notification listing in its entirety and SUBSTITUTE with the following:

The Contractor shall notify Metropolitan Transit System (MTS), a minimum of 5 Working Days prior to excavation, construction, or traffic control affecting bus stops. The Contractor shall notify the remaining agencies a minimum of two 2 Working Days prior to construction activities affecting the agencies:

Fire Department Dispatch	(Street or alley closure)	(858) 573-1300
Police Department Traffic	(Street or alley closure)	(858) 495-7800
Street Division/Electrical	(Traffic signals)	(619) 527-7500
U.S. Navy	(32nd Street Naval Station)	(619) 556-1319
Underground Service Alert	(Any excavation)	(800) 422-4133
MTS	(Street Closure and Bus Stops)	(619) 238-0100 Ext 6451

7-10.2.6 Traffic Control Signs and Notices for Resurfacing and Slurry Sealing. To the first paragraph of the City Supplement ADD the following:

For each street segment in addition to resurfacing and slurry sealing, the Contractor shall be posted “NO PARKING” for any required preparatory work such as, but not limited to, damaged asphalt pavement replacement (mill & pave), crack seal, and tree trimming.

7-10.6 Traffic Plate Bridging. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Transverse or longitudinal cuts, voids, trenches, holes, and excavations in the right-of-way that cannot be properly completed within 1 Working Day shall be protected by adequately designed barricades and structural steel plates [plates] that will support legal vehicle loads in such a way as to preserve unobstructed traffic flow.

The Contractor shall secure approval, in advance, from authorities concerning the use of any bridging proposed on the Work.

Plates shall conform to the following:

- a) The trench shall be adequately shored to support the bridging and traffic loads.
- b) Plates shall be designed for HS 20-44 truck loading in accordance with Caltrans Bridge Design Specifications Manual.
- c) For the minimum thickness of plates refer to Table 7-10.6(A):

Table 7-10.6(A) - Trench Width / Minimum Plate Thickness

Trench Width	Minimum Plate Thickness
10" (0.25 m)	1/2" (13 mm)
1'-11" (0.58 m)	3/4" (19 mm)
2'-7" (0.80 m)	7/8" (22 mm)
3'-5" (1.04 m)	1" (25 mm)
5'-3" (1.6 m)	1 1/4" (32 mm)

For spans greater than 5'-3" (1.6 m), a structural design shall be prepared by a California Registered Civil Engineer and approved by the Engineer.

- d) Plates shall have a skid-resistant surface with a nominal Coefficient Of Friction (COF) of 0.35 as determined by California Test Method 342.
- e) Plates shall extend a minimum of 12" (300 mm) beyond the edges of the trench.
- f) Plates shall provide complete coverage to prevent any person, bicycle, motorcycle or motor vehicle from being endangered due to plate movement causing separations or gaps.
- g) Plates shall be secured against movement or displacement by using adjustable cleats, shims, welding, or other devices, and shall be installed in a manner that will minimize noise as traffic drives over them. Plates shall be installed using either Method (1) or (2):
 - i. Method 1 [For speeds greater than 45 mph (70 Km/hr)]: The pavement shall be cold planed to a depth equal to the thickness of the plate and to a width and length equal to the dimensions of the plate.
 - ii. Method 2 [For Speeds less than 45 mph (70 Km/hr)]: Approach plate(s) and ending plate (if longitudinal placement) shall be attached to the roadway by a minimum of 2 dowels pre-drilled into the corners of the plate and drilled 2" (50 mm) into the pavement. Subsequent plates are butted to each other. Fine graded asphalt concrete shall be compacted to form ramps, maximum slope 8.5 % with a minimum 12" (305 mm) taper to cover all edges of the plates.

Alternative installation method may be submitted in accordance with 2-5.3, "Submittals" for the Engineer's approval.

- h) The Contractor shall be responsible for maintenance of the plates, shoring, and asphalt concrete ramps or any other approved device used to secure the plates. The Contractor shall immediately mobilize necessary personnel and equipment after being notified by the Engineer, the City's station 38, or a member of the public of a repair needed e.g., plate movement, noise, anchors, and asphalt ramps. Failure to respond to the emergency request within 2 hours will be grounds for the City to perform necessary repairs that will be invoiced at actual cost including overhead or \$500 per incident, whichever is greater. Failure by the Contractor to comply may result in automatic grounds suspension of permit, Contract, or both.
- i) When plates are removed, any damage to the pavement shall be repaired with fine graded asphalt concrete mix or slurry seal satisfactory to the Engineer.

Payment for traffic plate bridging shall be included in the various Bid items unless a Bid Item has been provided for steel plate bridging.

7-13.2 Access for Disabled Persons. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

For Design-Build contracts, the Design-Builder shall warrant and certify that all Project Plans and Specifications prepared in accordance with this contract shall meet all current requirements of the California Building Code, California Code of Regulations, Title 24 (Title 24) and the Americans with Disabilities Act (ADA) and the ADA Standards for Accessible Design. When a conflict exists between the ADA Standards for Accessible Design, Title 24 and the WHITEBOOK - City Supplement, the most restrictive requirement shall be followed. As a condition precedent to Award of this contract, the Design-Builder shall submit to City the Design-Builder Certification for Title 24/ADA Compliance.

The Design-Builder shall comply with all portions of the ADA and Title 24. (For specific services and public accommodations, The Design-Builder may contact the Office of the Americans with Disabilities Act, Civil Rights Division, U.S. Department of Justice, P.O. Box 66118, Washington, D.C. 20035-6118; phone number (202) 514-0301.) The Design-Builder acknowledges and agrees that the Design-Builder is aware of and will comply with Council Policy 100-04, incorporated herein by this reference, adopted by Resolution No. R-282153, relating to the federally-mandated ADA. The Design-Builder and contractors will be individually responsible for administering their own ADA and Title 24 program.

Code Implementation:

- a) The 2010 Americans with Disabilities Act (ADA) regulations will take effect on April 15, 2011.
- b) The 2010 ADA Standards for Accessible Design will take effect on April 15, 2012. Designers may choose either the 1991 ADAAG or the 2010 ADA Standards if the project is to be designed before the adoption date but all new construction and alteration projects must comply with the 2010 ADA Standards if construction is to start on or after April 15, 2012.
- c) The 2010 California Building Code, California Code of Regulations, Title 24 will take effect on January 1, 2011.

The Design-Builder shall pay all claims, costs, losses and damages incurred by the City in undertaking remedial action to correct City determined violations of ADA or Title 24. To effectuate remedial action, the City will issue a Change Order incorporating the necessary revisions in the

Construction Documents. The City will be entitled to an appropriate decrease in the Contract Price, and, if the Parties are unable to agree as to the amount thereof, The City may unilaterally issue the Change Order.

ADD: 7-15 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT. The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages or injuries to any person or property resulting from the Contractor's action or failure to take the necessary measures to prevent such damages and injuries.

The Contractor shall be responsible for payment of any fines resulting from citations issued to the City by either the federal, state, or local environmental and safety enforcement agencies due to the Contractor's failure to abide by applicable safety, health, and environmental standards.

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

8-2 FIELD OFFICE FACILITIES. To the City Supplement, DELETE in its entirety.

PART 2 - CONSTRUCTION MATERIALS

SECTION 207 – PIPE

ADD: 207-17.2.3 Pipe Manufacturer. Pipe, fittings, couplings, and joints as manufactured or distributed by J-M Manufacturing Company shall not be used on this contract.

SECTION 209 – STREET LIGHTING AND TRAFFIC SIGNAL MATERIALS.

To the City Supplement, ADD the following:

The GREENBOOK, subsection 209-3.3, "Standards."

If there is a conflict among these specifications, Section 86 of the May, 2006 Standard Specifications, and the May, 2006 Standard Plans of the Caltrans, the Caltrans standards shall control.

209-6.4 Induction Cobra Head Luminaire.

209-6.4.1 General. Each luminaire shall consist of an assembly that utilizes induction light components as the light source subject to the following requirements:

- a) **Operating Temperature:** The luminaires shall be designed to operate at an average nighttime temperature of 70°F. The ambient operating temperature range shall be 30°F to +130°F. The fixture shall be capable, for example, when a photo cell fails, of operating without long term degradation at temperatures up to 150°F without compromising the warranty.
- b) **UL Listing:** Fixture shall include UL label. The fixtures shall be UL Listed, and UL listed for Wet Locations. The UL listing shall include the pole mounting assembly.
- c) **Components:** Induction components shall be interchangeable amongst similar wattages for common fixtures without requiring use of special tools. Troubleshooting components shall not require special diagnostic tools or individual energy usage metering systems.

209-6.4.2 Electrical Requirements.

- a) Operating Voltage: The luminaire shall operate within one of two voltage categories (110 to 120 and 200 to 277) Volts AC (VAC). The fixtures shall be capable of operating in the range of voltages in each category. Fluctuations of line voltage within these categories shall have no visible effect on the luminous output. External Transformers are not permissible as components for the luminaire input voltage.
- b) Power Factor: Power supply should have a minimum Power Factor of 0.90.
- c) Harmonic Distortion: The total harmonic distortion shall not exceed 10%. An integral factory installed standard ballast is required that includes inherent thermal protection.
- d) In-Rush Current: The in-rush current shall be limited to 16 amps for 60 – 90 Watt and 28 amps for 150 - 165 Watt for duration no longer than 170 μ s. Leakage current shall not exceed 0.5 milliamps.
- e) Ignition Time: The ignition time for the lamps shall be less than 1.0 seconds.
- f) Surge Suppression: The luminaire on-board circuitry shall include Surge Suppression Devices (SSD) to withstand high repetition noise transients as a result of utility transients, and other interference. SSD shall conform to UL 1449 or UL 1283, depending on the .
- g) components used in the design.

209-6.4.3 Controls.

- a) Photocell Receptacle: Each luminaire shall have a rotatable (so the window can be adjusted to the north) prewired 3-prong (twist-lock) ANSI C136.10 photocell receptacle
- b) Furnish a photo cell with each fixture. The photo cell shall have a silicon light sensor that complies with ANSI 136.1 0 – 1996, and have MOV surge protection. The photo cell shall have a minimum four year warranty. The photo cell shall fail in the “on” control. It shall be capable of inverse ratio controls. It shall be suitable for roadway applications. The photo cell shall be American Electric Lighting model number DP 124-1.5-T-J-BK or approved equal.

209-6.4.4 Interference Requirements.

- a) Radio Frequency Interference (RFI) Requirements: Power supplies shall meet FCC 47 CFR Part 18.

209-6.4.5 Cooling System. Thermal management of the heat generated by the induction components shall be of sufficient capacity to assure proper operation of the luminaire over the expected useful life of more than 100,000 hrs at specified operating temperature range and climate zone.

- a) Light Output Variation: The light output variation shall not deviate greater than 15% over 40°F to +130°F operating temperature variation.
- b) Thermal management: shall be passive by design and shall consist of a heat sink with no moving mechanical parts or liquids.

209-6.4.6 Roadway Application Requirements and Optical Assembly.

- a) Correlated Color Temperature (CCT): CCT shall be 3000 or 4000 Kelvin depending on location and as indicated on the Plans.
- b) Color Rendering Index (CRI): Luminaires shall have a minimum CRI of 80.
- c) Optics: The luminaire shall conform to the Illuminating Engineering Society (IES) definition of “cut-off”, with no illumination above an angle of 90 degrees above the nadir. The fixtures

shall be International Dark-Sky Association (IDA) compliant with RP-8, adapted 2005. Submittal documentation shall include “Dark Sky” compliance.

- d) Reflector Assembly: The reflector shall be precision formed aluminum with heat/impact resistant tempered flat glass protecting the interior. The interior reflector shall have a chemically bonded lightweight non-breakable silicate coating and a nonporous surface that maintains a bright specular finish, inhibits the accumulation of dirt, and promotes ease of cleaning. Cleaning may be accomplished with the application of compressed air to remove foreign materials such as dust to restore the reflectance. The reflector assembly shall have a charcoal air filter with integral felt gasket, or equivalent air-quality filtering system, to inhibit entry of particulates into the interior reflector assembly to mitigate dirt depreciation. The reflector assembly shall confirm to ASTM B117-09 test procedure i.e., 50,000 hours of exposure to salt fog testing.

209-6.4.7 Physical/Mechanical Requirements.

- a) Luminaire Fixture: The luminaire shall be a single, self-contained device, not requiring on-site assembly for installation. The power supply for the luminaire shall be integral to the unit.
- b) Maximum Dimensions: 36” long by 19” wide by 12” tall.
- c) Weight: Luminaire shall not weigh more than 35 pounds.
- d) Assembly Housing: The housing shall be primarily constructed of die cast aluminum, or steel; corrosion resistant paint. Finish shall be gray in color, powder coated and rust resistant. The fixture openings and doors shall be sealed and gasketed. The components within the fixture assembly shall be easily accessible with a two-piece hinged door separable from the upper assembly. The lower door shall be removable. All screws shall be stainless steel. Captive screws are required on accessible components that require maintenance after installation. No parts shall be constructed of polycarbonate unless it is UV stabilized. Lens discoloration shall be considered a failure under warranty.
- e) Generator Compartment Requirements: Provide a separate generator compartment, easily accessible with a “plug and receptacle” type conductor so that the generator can be easily removed from the fixture and remain attached to the fixture i.e., using a lanyard or restraining device to avoid having the generator falling out. The power door shall be hinged and secured to the luminaire housing separately from the optical chamber. The door shall be secured to the housing in a manner to prevent the door from accidentally opening. The power supply shall be electrically connected to the power door with a NEMA rated quick disconnect device.
- f) Access: Provide easy access to internal components. Include an external latch capable of being operated with one hand. No internal components shall fall out when the lower door assembly is opened. Seams shall be CNC formed and TIG welded.
- g) Lens Requirements: The lens shall be tempered glass ¼” thick lens, or approved equal with gasketed door.
- h) Mast Arm Mounting Connection Requirements: Luminaires shall mount on min 1-5/8” OD to max 2-3/8” OD horizontal tenon with no more than four 9/16” hex bolts and a 2-piece clamp(s). Luminaire leveling capability shall be integral to the fixture. Multiple mounting angle adjustments shall be provided to adjust the level of the fixture +/- 4 degrees from the horizontal.
- i) Mechanical Requirements: The assembly and manufacturing process for the induction luminaire shall be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration from winds.

- j) Ingress Protection (IP) Rating: Optical assembly shall have a minimum rating of IP-65, The exterior shell shall have a minimum IP rating of 54.
- k) Terminal Block: Field wires connected to the luminaire shall terminate on a barrier type terminal block secured to the housing. The terminal screws shall be captive and equipped with wire grips i.e., serrated strips on the terminal for conductors up to #6 AWG wire size. Each terminal position and conductor phase designation i.e., neutral, phase ground conductor shall be clearly identified.
- l) Components: All components, including circuit boards, shall conform to Chapter 1, Section 6 of the “Transportation Electrical Equipment Specifications” (TEES) UL 1598, and ANSI C 136 requirements.
- m) Painting: Powder coat painting of the housing shall conform to the requirements of the Caltrans Standard Specification and the Caltrans Standard Special Provisions. Applied coating shall be free of lead and mercury. Fixture components shall be modular in design and recyclable.

209-6.4.7 Luminaire Identification.

- a) Identification: Each luminaire shall have the manufacturer’s name, trademark, model number, serial number, date of manufacture including month and year, and lot number as identification permanently marked inside each unit and the outside of each packaging box.
- b) Identification: The wattage, voltage and CCT rating of the luminaire shall be able to be detected visibly from an observer standing at ground elevation at the base of the pole.
- c) Identification of Operating Characteristics: The following operating characteristics shall be permanently marked inside each unit: rated voltage and rated power in Watts and Volt-Ampere, and Luminaire Efficiency Rating (LER).
- d) Lamp Identification: Lamps shall be permanently marked with the correlated color temperature (CCT) rating in Kelvin, color rendering index (CRI), and wattage.

209-6.4.8 Photometric Documentation. IES Files: Submittals shall include an IES files for each fixture type. Submittals shall include photometric iso-foot candle diagram for a 30’ mounting height for each fixture type, and a point to point diagram with uniformity calculations that identify maximum to minimum illumination ratio.

209-6.4.9 Quality Assurance. Luminaires shall be manufactured in accordance with ISO9001. Manufacturer’s Warranty Certificate:

- a) Provide manufacturer’s Certification of Warranty for a minimum of 10 years. Warranty shall include all components of the luminaire and labor cost for replacement.
- b) The Manufacturer shall provide documentation verifying that the induction luminaire model(s) being offered for this procurement are covered by the 10 year warranty.

SECTION 216 – DETECTABLE WARNING TILES

216-1.2 Materials. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Materials for DWT specified herein shall be per the City's Approved Materials List (AML). The tiles shall have the manufacturer's logo stamped permanently on the product with identifying information such as model number and type.

- a) The Stainless Steel Cast in Place DWT shall be of 16 gauge Type 304L with an integral micro-texture non-slip surface stamped into the stainless steel plate on the top of the domes and in the field surface between the domes. It shall have an ultra violet stabilized coating.
- b) Vitrified Polymer Composite (VPC) Cast in Place DWT shall be an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes. VPC Product shall be provided with a 5-year manufacturer written warranty form materials and installation.
- c) For others materials and a complete listing of material physical property requirements refer to the City's AML.

PART 3 – CONSTRUCTION METHODS

SECTION 302 – ROADWAY SURFACING

302-1.9 Traffic Signal Loop Detectors. To the City Supplement, DELETE the second paragraph and SUBSTITUTE with the following:

Traffic detector loops shall be reinstalled prior to resurfacing of the related street within 15 days from completion of all preparatory work including milling, cutting and grinding. The Contractor shall contact the City of San Diego's Street Division, Traffic Signal Maintenance at 619-527-8052 north of Interstate 8 or 619-527-8053 south of Interstate 8 to request loop layout.

302-4.1 Material. DELETE in its entirety and SUBSTITUTE with the following:

Material shall be Rubberized Emulsion-Aggregate Slurry (REAS) in accordance with 600-3.2 "Materials."

ADD: 302-5.2 Pavement Restoration Adjacent to Trench. Pavement restoration adjacent to trench shall include the replacement of existing pavement adjacent to the proposed trench and outside the trench limits, that was previously broken or displaced.

Prior to the commencement of the Work, the Contractor shall meet with the Engineer and determine the limits of the pavement to be replaced. If the Contractor does not meet with the Engineer before removing the pavement, all replacement outside the limits of the proposed trench resurfacing shall be at the Contractor's expense.

Existing pavement shall be removed in accordance with Section 300-1.3.2. Prior to pavement restoration, existing subgrade shall be prepared in accordance with 301-1, "SUBGRADE PREPARATION." If any existing unsuitable subgrade as determined by the Engineer is encountered, it shall be replaced with imported backfill in accordance with 306-1.3.7, "Imported Backfill" prior to preparation.

302-5.2.1 Measurement and Payment. Payment for pavement restoration adjacent to trench will be made on a square foot basis as shown in the Bid in accordance with 302-6.8, “Measurement and Payment” for concrete streets or 302-5.9 “Measurement and Payment.” Unless Bid includes separate Bid item(s), the following shall be included in the payment for pavement restoration adjacent to trench:

- a) saw-cutting existing edges,
- b) removal and disposal of existing pavement,
- c) subgrade preparation including imported backfill material,
- d) form work,
- e) placement, curing, and protection of new pavement, and
- f) placing full depth AC per CSDSD SDG-107-Type “A”.

302-6.1 General. To the City Supplement, Last paragraph, DELETE in its entirety and SUBSTITUTE with the following:

Prior to placing concrete, existing subgrade shall be prepared in accordance with 301-1, “SUBGRADE PREPARATION.”

If any existing unsuitable subgrade, as determined by the Engineer, is encountered it shall be replaced in accordance with 300-2.2, “Unsuitable Material.”

302-6.8 Measurement and payment. To the City Supplement, DELETE in its entirety.

302-13.4 Application. To the City Supplement, DELETE the second paragraph and SUBSTITUTE with the following:

Sealant shall be applied from the bottom of the crack up to the surface in a manner which does not result in sealant bridging or pockets of entrapped air. The sealant shall be applied to a slightly overfilled condition and then leveled with a squeegee. The width of sealant remaining on the surface shall not exceed 1.5” on either side of the crack. Any debris blown onto adjacent gutters, sidewalks, parkways, medians, intersections or other areas shall be removed prior to the end of the Working Day.

SECTION 303- CONCRETE AND MASONRY CONSTRUCTION

303-5.10.2 Payment. To the City Supplement, 2nd paragraph, DELETE in its entirety and SUBSTITUTE the following: Additional concrete sidewalk and curb quantities *beyond the 15'-0”* will be paid for in accordance with the Contract unit price for additional curb and additional sidewalk.

SECTION 306 – UNDERGROUND CONDUIT CONSTRUCTION

306-1.2.14 Thrust Blocks and Anchor Blocks. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

At least 10 Working Days prior to construction of thrust blocks and anchor blocks for 16” and larger water mains, the Contractor shall excavate via potholing and expose the soil to the depth of the proposed water main at locations approved by the Engineer. The Engineer will confirm the design when shown on the Plans or will provide the design details within 10 Working Days after the Engineer has observed the exposed Site.

If there are conflicts with adjacent utilities that prohibit the installation of the concrete blocks, the Contractor shall immediately notify the Engineer.

306-1.4.8 Televising Sewer Mains and Storm Drains. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

ADD: 306-1.4.8 Televising Sewer Mains, Sewer Laterals, and Storm Drains.

306-1.4.8.1 General. The Contractor in coordination with the Engineer shall televise new sewer mains and storm drains, rehabilitated existing sewer mains when performing parallel replacement to locate existing laterals, and existing sewer pipe segments and laterals after the cleaning process and prior to commencing rehab work. The Contractor shall provide the video records with compressed audio in digital file format on digital video discs (DVD's).

306-1.4.8.2 Submittals. The Contractor shall make several submittals during construction as follows:

- a) The Contractor shall provide an initial submittal at the start of televising work demonstrating the typical video and audio quality to be provided for acceptance by the Engineer. This submittal shall note any proposed changes to the specification listed below regarding video format, data processing, compression or other conditions for review and approval by the Engineer.
- b) When televising existing mains proposed to be replaced, the Contractor shall provide the televising DVD(s) and a red-lined set of Plans showing the location of the existing laterals to the Engineer before constructing the new sewer mains. Service lateral video inspection shall be submitted on a separate DVD.
- c) Post Cleaning Videos prior to rehabilitation of mains - The Contractor shall televise the sewer pipe segments after the cleaning process has been completed and prior to commencing rehabilitation work. If point repairs are necessary, the Contractor shall identify the location of the proposed point repairs and submit the post cleaning video within 5 Working Days of completion of the segment cleaning and at least 5 Working Days prior to commencing the rehab work to obtain prior approval by the Engineer. The Engineer will review each video submittal within 10 Working Days of receiving submittal. Each video submittal shall be limited to 20 segments. The post cleaning video for the remainder of the mainline segments shall be submitted in accordance with 2-5.3, "Submittals."
- d) Post Cleaning Videos for rehabilitated laterals or lateral launch videos - The Contractor shall televise the lateral segments after the cleaning process has been completed and prior to commencing any work on laterals. The post cleaning video for service lateral launch shall be submitted within 5 Working Days of segment cleaning. The Engineer will review each video submittal within 10 Working Days of receiving each submittal. Each DVD submittal shall be limited to 20 segments. The video inspection shall include inspection of service lateral a minimum of 30' in length from the mainline or up to the property line unless an obstruction is encountered.

If the property line clean-outs are not known to exist, service lateral video may be obtained with camera equipment designed to launch into the service lateral from the mainline or access from the private property with homeowner's permission. Each service lateral shall be identified by the Facility Sequence Number (FSN) of the mainline (when FSN are included in the Contract Documents) and the address of the property which it serves. Failure to comply with these specifications may result in one or more of the following:

- i. A delay of the review and approval of the submittal(s).
 - ii. Delay in progress payments.
 - iii. Require the Contractor to re-televising the pipelines at no cost to the City.
- e) Final Televising, Post-Rehabilitation Videos and Red-lines – New sewer mains shall be inspected by CCTV and recorded on DVD not less than 22 working days after completion of permanent trench restoration and finished grading, but prior to final resurfacing. The Contractor shall review the DVD for any discrepancies or deficiencies in the installation of the pipe or liner. The Contractor shall notify the Engineer at least 30 Working Days in advance of the anticipated date that Acceptance will be requested. If the specified advance notice is not given, Acceptance and bond release may be delayed.
- f) Ten Working Days shall be allowed for the Engineer to review each individual video disc of each and every reach documented on that particular videodisc. In the event that any deficiencies are discovered by the Engineer or City, either by the Contractor's televising or the City's re-televising, 5 Working Days shall be allowed for City to judge whether the deficiencies or sags are repairable, in place. If the judgment is made that the deficiencies are non-repairable in place, the affected portion(s) shall be reconstructed at no cost to the City. The Contractor shall not be entitled to Contract Time extension due to delays resulting from correcting deficiencies or sags as determined by televised inspections.
- i. The City reserves the right to re-televising any new sewer main after the placement of permanent trench restoration and before final acceptance to determine the existence and extent of any foreign material or obstructions such as cement grout, wood, rocks, sand, concrete, or pipe fragments, and any structural deficiencies, or sags precipitated by the permanent trench restoration operations or other items of Work.

Post-rehabilitation videos shall be submitted within 30 days of completion of the Work. The final video recording shall clearly show the condition of the liner with ends sealed at the manholes, service lateral and connection seals. The submittal of this final video recording shall also include MS Access database and marked up Field Book pages or Plans as attachments. Failure to deliver the submittal(s) within the time identified or if a total of more than 20 segments are submitted in a single video may result in one or more of the following:

1. A delay of the review and approval of the submittal(s).
2. Delay in progress payments.
3. Require the Contractor to re-televising the sewer main segments.

306-1.4.8.3 Video Operator Qualifications. The video operator shall have at least 1 year of experience with a project of a similar nature within the last 3 years.

306-1.4.8.4 Equipment for Televising. Camera and lighting quality shall be suitable to provide a clear, continuously in-focus picture of the entire inside periphery of the sewer pipe or storm drain for all conditions encountered during the work. The equipment shall be capable of televising the entire length from manhole to manhole in one direction. When televising storm drains/sewer mains the camera shall be capable of scanning the joints for 360 degrees.

If necessary, the Contractor shall provide a self-propelled camera, capable of extended videotaping lengths and operation in remotely accessed areas without direct vehicular access. The system used to move the camera through the pipe shall not obstruct the camera's view. The remote-reading footage counter device which measures the distance traveled by the camera in the pipe shall be displayed on the television monitor and shall be accurate to plus or minus 1' (0.3 meters) in 1000' (300 meters) (+0.3m:300 meters). The Contractor shall calibrate the measuring device each day with a known distance to the satisfaction of the Engineer prior to starting the inspection and videotaping process.

306-1.4.8.5 Televising Procedures.

- a) The Engineer shall be notified a minimum of 2 Working Days in advance of televising. The entire televising inspection process shall be done in the presence of the Engineer.
- b) The Contractor shall clean the sewer mains prior to televising as necessary to adequately perform the video recording operations.
- c) The camera shall be moved through the sewer at a uniform rate, stopping when necessary to ensure proper documentation of the condition of the sewer line but in no case shall the television camera be pulled at a speed greater than 30' (9 meter) per minute. The camera shall be moved by means of power cable winches or self propelled tractors at each manhole, and rotating the camera head at each lateral connection, defect, or both to allow for adequate evaluation. The importance of accurate distance measurements is emphasized. Measurement for location of defects shall be above ground by means of a measuring device. Footages shown on the DVD(s) shall coincide with horizontal lengths from stationing as shown on the plans. Footage measurements shall begin at the centerline of the upstream manhole or storm drain access point, unless permission is given by the Engineer to do otherwise. Both pre and post video inspections shall be submitted to the Engineer.
- d) Televising shall be done in one direction for the entire length between manholes. Each section shall be isolated from the remainder of the storm drain or sewer line with the upstream sewage flow bypassed as required. Sufficient water shall be supplied to the isolated section to cause drainage reaching the downstream manhole prior to televising. If existing flows are high, pre-construction video inspection can be done with partial flow. Depth of the flow shall not exceed:
 - i. 6" - 10"(150 mm. - 250 mm) pipes - 20% of the pipe diameter.
 - ii. 12" - 24" (0.3 meters - 0.6 meters) pipes - 25% of the pipe diameter.
 - iii. 27" (0.7 meters) and up pipe - 30% of the pipe diameter.
- e) The Contractor shall televise the pipeline with maximum flow diverted from the pipeline. In the event that the existing flow is interfering with the video operation, a bypass shall be performed by the Contractor to lower the flow volume sufficiently to allow for a clear video picture.

- f) Obstructions may be encountered during the course of the internal inspection that prevents the travel of the camera. If an obstruction is not passable, the Contractor shall withdraw the equipment and begin internal inspection from the opposite end of the sewer reach. Should an additional obstruction be encountered after employment of the equipment from the opposite end of the sewer and no means are available for moving the television camera past the obstruction, the Contractor shall notify the Engineer, and the inspection shall be cancelled or postponed until the obstruction is removed. The Contractor shall remove the obstruction by excavation, repair or any other means approved by the Engineer, at no additional cost to the City.

After the obstruction has been removed, the Contractor shall continue with the CCTV inspection. A reverse setup, if necessary, shall be performed by the Contractor at no additional cost to the City. Should the camera get stuck in the sewer, the Contractor shall be responsible for all costs involved in extracting it. Costs related to difficulties encountered during internal television inspection are incidental to the Contract and claims, therefore, will not be considered.

- g) Defects such as offset joints, cracks in the pipe, and inflow shall be pointed out, quantified verbally, and projected on CCTV video disc. The Contractor shall use the standard owner's video disc introduction, abbreviations, log sheet forms, and severity code with legend when recording the line segment information. The Contractor shall notify the Engineer of any additional damage found and obtain prior approval from the Engineer for additional point repairs.
- h) Original DVD shall be submitted to and shall become the property of the City. DVD's will be reviewed by the Engineer for focus, lighting, sound, clarity of view, and technical quality. Videos recorded while a camera has flipped over in the process of traveling and the viewing of laterals, obstructions or defects that are blocked by cables, skids or other equipment will not be accepted. Sharp focus, proper lighting, and clear distortion-free viewing during the camera operations shall be maintained. Failure to maintain these conditions will result in the rejection of the video disc by the Engineer. Video recordings, if unacceptable to the Engineer, shall be repeated at no additional cost to the City.
- i) The City reserves the right to re-televise any reach of the pipeline following the cleaning, pipe installation and rehabilitation activities, but before Acceptance, to determine the existence and extent of any foreign material or obstructions such as cement grout, wood, rocks, sand, concrete, or pieces of pipe, and any structural deficiencies, or sags preventing the completion of the Work.
- j) Final CCTV. The Contractor shall clean the line with high pressure water jetting equipment and a sewer ball prior to performing mandrel, air test or both, or as specified by the Engineer. For the final video inspection, the City will require a dry pipe. During the post-video inspection, the camera shall stop at each lateral connection, focus on the bottom of the opening and then make one slow clockwise observation around the perimeter of the lateral which clearly shows the quality of the connection. If the Contractor fails to properly show and document any of the lateral openings, the Contractor will be required to re-televise that section of pipeline at no additional cost to the City.
- k) The Contractor shall not be entitled to any additional contract time due to delays resulting from the need to correct any deficiencies, either repairable or non-repairable, in place, as determined by televised inspections.

306-1.4.8.6 DVD and Final Report Requirements. The Contractor shall provide all video with audio in digital file format on DVD's. Audio and written documentation shall accompany all DVD(s) submitted to the Engineer.

a) DVD Requirements

- i. One file shall be provided for each manhole to manhole pipe segment or for each manhole to manhole inspection video.
- ii. The filename shall incorporate the unique facility identifier provided by the City and the date of the inspection. The facility identifier numbers will be manhole numbers, with adjacent manhole numbers identifying pipe sections. The facility identifier number(s) shall be compatible with the data input features of the reporting software i.e., number of available input digits, fields, or both.
- iii. DVD recordings shall be in color and in MPEG2 format. The minimum video bit rate shall be 4.7 Mega bits per second (Mbps) and minimum audio bit rate shall be 128 Kilo bits per second (Kbps). Out-of-focus video recording or low quality and blurred pictures due to steam or smudged camera lens, or portions thereof, shall be cause for rejection of the video recording.
- iv. The camera source image capture shall provide a high resolution image with a minimum of 640x480 pixels capture. The video shall be at 30 frames per second.
- v. The video will be captured and compressed so as to reduce file size as much as possible while still meeting the needs of the City. The compression shall be in accordance with MPEG2 format. The video files shall be highly compressed, resulting in an anticipated average file size of maximum 10 MB per minute of video.
- vi. The compression shall not significantly degrade the still frame quality of the video or audio signal from the original source video, as judged in a side by side viewing under normal viewing conditions.
- vii. During post-installation CCTV inspections, the Contractor shall utilize one of the following video camera systems: a rotating-lens camera (articulating head) or a pan and tilt camera.
- viii. The Contractor shall use a dual recording system and submit post video inspection discs to the inspector, subsequent to recording.
- ix. The Contractor shall ensure visibility and lighting with minimum glare and without any dark or shadowy regions appearing on the final video disc.
- x. The Contractor shall pan and tilt the camera and pause for at least 15 seconds at each lateral connection to adequately show and document that the saddle has been installed properly for new installations and that the lateral opening has been reestablished for rehabilitation and lining in accordance with 500.1.1.7.a, "Miscellaneous."
- xi. The television camera shall produce a continuously-monitored high-quality picture, capable of discerning all major and minor structural defects in the pipeline. The post-installation CCTV inspection will document all defects which may affect the integrity or the strength of the pipeline, such as cracks, roughness, fins, or folds. The Contractor shall repair or replace all defects, at no additional cost to the City, which in the opinion of the Engineer may affect the hydraulic condition of the pipe liner.

- xii. Each DVD submittal shall include the following:

Visuals

1. Adequate view of the upstream and downstream manholes or storm drain access points. The direction of the survey upstream or downstream.
2. A pause at and zoom in on the lateral connections for at least 15 seconds for identification of the condition of the connection.
3. A pause at and zoom in on the identified defects sufficient for identification of the type of problem.
4. Identified fault conditions or defects, see Appendix for Standardized City Condition and Defect Codes.
5. Each pipe section shall be identified by FSN, manhole numbers and the street name. If shown on the Plans, station numbers and sheet numbers shall also be identified.
6. A continuous read-out of the camera distance from the starting manhole to the end point at all times.
7. Pipe size.
8. Pipe or liner material, see Appendix for Material Description and Code.

Audio

1. Date of CCTV inspection.
2. Confirmation of each section to be CCTV inspected i.e., narrative of manholes, storm access points or station numbers, or FSN's and direction upstream or downstream.
3. Description of pipe size lined on post and final videos, material liner type for post and final videos and pipe joint length.
4. Description and location of each defect.
5. Description and location of each service connection.
6. Include brief but informative comments on data of significance, including, but not limited to, the locations of unusual conditions, type and size of connection, collapsed section, the presence of scale and corrosion, and other discernible features.

Written Documentation

1. Date of CCTV inspection.
2. Printed labels on DVD number, location information, date of inspection, and other descriptive information.
3. Location, size, material, and length of pipe.
4. Direction of flow and measurement "From" manhole or storm drain access point or station number "To" manhole or storm drain access point or station number or FSN.
5. File numbers itemizing individual segments.
6. Sketch showing the street and cross streets where the CCTV inspection was made.
7. Description and location of each defect or deficiency and a list of all proposed repairs.

8. Description and location of each connection.
9. A menu which lists files for each pipe section to be inspected and the date of the inspection.

b. Final CCTV inspection reports

- i. The Contractor shall provide reports of final inspection results of pipeline televising and conditional assessments utilizing a MS Access database reporting software.
- ii. This information shall be in tabular form, and include but not be limited to the following information: pipeline run from upstream to downstream manhole, location of defects in feet from upstream manhole, description of the defect, and other pertinent information. The reports shall also show all service lateral connection locations. The inspection reports shall incorporate and utilize a standardized City's rating system to be provided for comprehensive evaluation of pipeline, manhole condition, or both, i.e., a standardized listing of facility condition and defect codes. Pipe condition and fault information tied to pipe location shall also be recorded in the Report.
- iii. The file naming convention for video files consists of 32 characters, including the extension. The structure includes the following: "(field book page start)-(manhole ID start)-(field book page end)-(manhole ID end)-(hhddmmyy).wmv" where the field book pages and manholes IDs are 4 characters in length and hhddmmyy signifies the hour, day, month and year of the inspection, respectively. An example filename may be "F18S-0045-F18S-0046-14150604.wmv".
- iv. See Appendix for televising inspection pipe database structure, table formats and standardized city condition, defect codes and digital video filename. Final reports shall follow these requirements.

306-1.4.8.7 Tolerances.

- a) For underground sewer or storm drain conduit installations, the maximum operational tolerance for sag shall be 1/2". When televised inspection is used to check for sag, a calibrated 1/4" diameter steel bar, mounted in front of the camera, shall be used to measure the depth of sag.
- b) For rehab work, tolerances shall be in accordance with 500-1.4.9, "DEFECT TOLERANCES".
- c) If the Engineer determines that the deficiencies or sags are non-repairable in place, the affected portion(s) shall be reconstructed in accordance with 6-8, "COMPLETION, ACCEPTANCE, AND WARRANTY."

306-1.4.8.8 Payment. The payment for cleaning and televising sewer mains or laterals and storm drains shall be included in the unit price Bid items for cleaning and televising sewer mains and storm drains, televising sewer mains for final acceptance, or lateral launch videos. If a Bid item has not been provided, the payment shall be included in the payment for the proposed pipe.

306-1.6 Basis of Payment for Open Trench Installations. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Second paragraph, DELETE in its entirety and SUBSTITUTE with the following:

The unit price bid for pipe and conduit in place shall be considered full compensation for all wyes, tees, bends, monolithic catch basin connections, and specials shown on the Plans; the removal or restoration of interfering portions of existing sewers, storm drains, and existing improvements as shown on Plans; the closing or removing of abandoned conduit and structures; the excavations of the trench; the control of ground and surface waters; the preparation of subgrade; placing, joining and testing pipe; backfilling the trench; permanent resurfacing; disposal of excess excavation; temporary resurfacing when not a Bid item; and all other work necessary to install the pipe or conduit, complete in place.

Third paragraph, after the word "backfill" ADD: "disposal of all excess excavation,"

ADD the following:

- a) The Unit Price bid for thrust and anchor blocks shall include the payment for the thrust blocks and anchor blocks for water main 16" and larger.
- b) Thrust blocks and anchor blocks for water mains 12" and smaller shall be included in the Bid item for water mains.
- c) Payment for subsurface investigations e.g., potholing for thrust blocks and anchor blocks for water mains 16" and larger shall be included in the Bid item for water main.
- d) Payment for meter assembly shall be included in the various Bid items unless a pay item has been provided for Meter Assembly. The concrete pad, fence, gate, associated piping, and coordination with City Forces shall be included in the payment for the meter assembly.
- e) Payment for valves, fire hydrant assembly and marker, fire service assembly, fire service connection, and backflow preventer shall be included in the unit price Bid items for Valves, Fire Hydrant Assembly and Marker, Fire Service Assembly and backflow preventer, Fire Service Connection, and Backflow Preventer.
- f) Removal of existing Fire Hydrant and all appurtenant work shall be included in the Bid item for Fire Hydrant and Assembly and Marker.
- g) Payment for underdrains shall be included in the unit Bid item for "Underdrains."
- h) The quantity of filter fabric to be paid for will be measured in square yards of the area covered, not including additional fabric for overlap. The quantity of permeable material to be paid will be measured by tons.

ADD: 306-13.2 Pipe Separations. Pipe installation shall be in compliance with the State's health standards for separation and the following:

- a) The Contractor shall notify the Engineer immediately if sewer and water pipes, whether existing or proposed, are found to be closer than 4' horizontally or 1' vertically.
- b) When a proposed water main is installed above an existing sewer main, no connection joints shall be within 8' outside the sewer main crossing on both sides.
- c) When a proposed water main is installed below an existing sewer main, no connection joints shall be within 10' of the sewer main crossing on both sides.
- d) When a proposed sewer main is installed above an existing water main, no connection joints shall be within 10' outside the water main crossing on both sides.
- e) When a proposed sewer main is installed below an existing water main, no connection joints shall be within 4' outside the water main crossing on both sides.

- f) Dimensions shall be measured from outside pipe wall to outside pipe wall.
- g) If 1' vertical separation cannot be maintained between proposed and existing utilities, 6" – 11" sand cushion per 200-1.5, "Sand" and 1" neoprene pad shall be installed as shown on Plans. The neoprene pad shall be 1" thick and wide enough to extend a minimum of 6" horizontally beyond the outside pipe wall. Neoprene pads shall have hardness between 50-70 durometers, as manufactured by Hoffmeyer Company, Industrial Rubber Supply, or approved equal. The neoprene pad shall be installed immediately below or on top of the existing utility. The sand cushion shall be placed between the neoprene pad and the proposed pipe.

306-13.3 Utility Crossings. To the City Supplement, DELETE in its entirety.

306-14 WATER SERVICES. To The City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

ADD: 306-14 WATER SERVICES. Each service shall have its own meter unless specified otherwise on the Plans. Water Services shall conform to 207-25, "POLYVINYL CHLORIDE (PVC) PRESSURE PIPE" and 207-26, "PIPE APPURTENANCES."

SECTION 800 - REVEGETATION, MAINTENANCE, AND MONITORING

800-1.1 Terms and Responsibilities. For the purpose of these specifications the following definitions and descriptions of the responsibilities shall apply:

Project Biologist – To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

An independent third party consultant employed by the Contractor and responsible for overseeing the protection of existing biological resources requirements and the entire revegetation program. The Project biologist shall not be the same as the Revegetation Contractor or Maintenance Contractor. Project Biologist shall review and become familiar with the Contract Documents and shall function under the direction of the Engineer. The Project Biologist shall be an individual or team of individuals with 4-year degree(s) in botany, ecology, landscape architecture. or a related field, and demonstrated experience in habitat restoration and shall be qualified to perform United States Fish and Wildlife Service protocol focused sensitive species surveys as outlined in the biological technical report, CEQA document, local, state and federal resource agency permits or a combination for the Project.

The Project Biologist may be hired by the Contractor, if construction of V-12 falls between 3/1 and 9/15. Payment shall be included in the lump sum bid item for V-12.

800-1.7.1 General. The Contractor shall retain a qualified Project Biologist to perform Biological Monitoring work. The Contractor shall submit copies of the Biologist qualifications as noted in section 800-1.1 within 5 Working Days of the bid opening and provide references for at least 3 completed projects of similar size and complexity in Southern California. The submittals shall be sent to the City Project Manager. If the proposed Project Biologist is not approved, the Contractor shall submit and obtain approval of an alternate Project Biologist at no additional cost to the City prior to award of the Contract. Once approved, the Project Biologist shall attend the pre-construction meeting to coordinate the biological impact and revegetation portion of the Project.

SECTION 801 – WATER POLLUTION CONTROL

801-2.9 Post-Construction Requirements. To the City Supplement second paragraph, ADD the following:

The decal-disc inlet markers shall be “das Duracast Curb Marker®” or approved equal.

801-9.3 BMP Requirements. To the City Supplement, ADD the following:

- c) WTAP shall be required when the Project exceeds the Maximum Disturbed Area Requirements unless the grading Work is performed in phases that do not exceed the limit shown on the Plans per phase.

SECTION 804 – SEWAGE SPILL PREVENTION

To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

804-1 GENERAL. The Contractor shall observe and comply with the City’s policy of zero spills. **The Contractor shall be liable for all damages and fines associated with sewage spills caused by improper support or damage to the existing sewer facilities.**

The Contractor shall designate a person responsible for the development and enforcement of the Sewage Spill Response Plan, and for ensuring sewer spills are minimized to the maximum extent possible. The Contractor shall provide a status of all bypass related work at biweekly progress meetings as requested by the City.

804-2 SEWAGE SPILL PREVENTION AND RESPONSE PLAN. Prior to the start of construction, the Contractor shall develop and submit to the Engineer, for review and approval, a written Sewage Spill Prevention and Response Plan. The plan shall include sewage spill response plan, spill containment and cleanup plan, staging area, and sewage bypass and pumping plan.

The Sewage Spill Prevention and Response Plan shall be developed to respond to any construction related sewage spill(s). The plan shall include:

- a) Identifying all nearby environmentally-sensitive areas such as waterways, channels, catch basins and entrances to existing underground storm drains.
- b) Making arrangements for an emergency response unit, stationed at or near the Site, comprised of emergency response equipment and trained personnel to be immediately dispatched in the event of a sewage spill(s). This includes field biologists, archaeologists, or both if in an environmentally-sensitive area such as a canyon.
- c) Developing an emergency notification procedure that includes an emergency response team with telephone numbers and arrangements for backup personnel and equipment. The emergency response unit shall be able to dispatch to the Site 24 hours a day 7 days a week including weekends and holidays. The Contractor shall designate primary and secondary representatives, their respective phone numbers, pager numbers, and mobile phone numbers. These Contractor’s representatives shall be accessible and available at all times to respond immediately to any sewer spill event.

- d) Identifying any property owners who may be affected e.g., the City Park and Recreation Department.

At the pre-construction meeting the Contractor will be provided with a list of the City representatives to contact in case of sewage spill(s). In case of a sewage spill(s), the Contractor shall immediately call the Sewage Spill Hotline number at (619) 527-5481 and shall act immediately without instructions from the City, to control the spill and take all appropriate steps to contain it in accordance with the Sewage Spill Prevention and Response Plan and 804-2.1, "Sewage Bypass and Pumping Plan." The Contractor shall immediately notify the City representatives of the spill and shall report Project name, location, Contractor name, Project Engineer, and Engineer names.

The Contractor shall, within 3 Working Days from the occurrence of the spill, submit to the Engineer a written report describing the following information related to the spill: the location; the nature and estimated volume; the date and time; the duration; the cause; the type of remedial and/or clean up measures taken (including erosion control measures) and the date and time of implementation; the corrective and/or preventive actions taken to avoid further spills; equipment used in spill response; and the environmentally-sensitive habitat such as a water body, if any, impacted and results of any necessary monitoring. The Contractor shall provide a list of who from the City was notified, date and time of notification, date and time the Contractor was notified of the spill, date and time the Contractor arrived on Site.

The Engineer may institute further corrective actions, as deemed necessary, to fully comply with existing laws, ordinances, codes, order or other pertinent regulations. In addition to any penalties provided by federal, state, and local laws, the Contractor shall be responsible for all costs incurred for the corrective actions including mitigation measures (habitat restoration, etc.) and obtaining after-the-fact permits if necessary, in environmentally sensitive areas. These permits include but are not limited to those from the City Planning Department Development Services, California Coastal Commission, U.S. Army Corps of Engineers and the California Department of Fish and Game.

It shall be the Contractor's responsibility to assure that all field forces, including Subcontractors, know and obey all safety and emergency procedures, including the Sewage Spill Prevention and Response Plan applicable to the work, to be maintained and followed at the Site. If in an environmentally sensitive area, such as canyon, stream, or lagoon, impacts shall be minimized. Crews shall be aware at the start of the job of any sensitive environmental habitats, breeding season restrictions, etc.

The Contractor shall prevent spills when working on sewer lines, such as when making temporary connection, when connecting new lines into the sewer system, ensuring no laterals are connected to mains being abandoned, ensuring diversions are appropriately installed, and diversions are completely removed when finished so there are no blockages. The Contractor shall not trap debris and discharge rock or debris downstream. Avoidance of streams is paramount unless authorized via permits.

The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages or injuries to any person or property resulting from any sewage spill caused or claimed to be caused by the Contractor's action or failure to take measures to prevent a spill. **The Contractor shall be responsible for payment of any fines assessed against the City for such sewage spills.** The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established active or sole negligence or willful misconduct of the City, its agents, officers or employees.

The Contractor shall obtain and maintain an additional insurance coverage for Pollution Liability with its limits and requirements as set forth in 7-3.5.3, “Contractors Pollution Liability Insurance Endorsements.” The limits and requirements for Pollution Liability shall be in an amount sufficient to cover potential losses from sudden and accidental pollution. Unless otherwise provided for in the Bid Proposal, all costs associated with the requirements for Sewage Spill Prevention and Response Plan, including additional insurance, shall be included in the prices for other related Bid items.

804-2.1 Sewage Bypass and Pumping Plan. The Contractor shall submit to the Engineer for approval, a Sewage Bypass and Pumping Plan at least 15 Working Days prior to implementation of flow diversion in compliance with the City’s policy of “ZERO SPILLS.” The Sewage Bypass and Pumping Plan shall indicate the sequence of diversion operations, all other operations the Contractor will establish to maintain wastewater service during the construction period, and a quality assurance and quality control plan for the diversion Work. The Sewage Bypass and Pumping Plan shall include an emergency response plan indicating the procedures, equipment, and activities that will be implemented in the event of an emergency shutdown or failure of the flow diversion equipment used for construction. The Contractor shall be responsible for implementation of the emergency plan in accordance with 804-2 “Sewage Spill Prevention and Response Plan”.

The Contractor’s Sewage Bypass and Pumping Plan shall be reviewed and approved by the Wastewater Collection Division of the City before flow can be diverted. No deviation from the approved Sewage Bypass and Pumping Plan will be allowed without prior approval from the Engineer.

The Contractor shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations which in any manner affect the conduct of the work, specifically as it relates to sewage spills. The Contractor shall be fully responsible for preventing sewage spill(s), containing any sewage spill(s), recovery and legal disposal of any spilled sewage, any fines, penalties, claims and liability arising from negligently causing a sewage spill(s), and any violation of any law, ordinance, code, order, or regulation as a result of the spill(s).

The Contractor shall exercise care not to damage existing public and private improvements, interrupt existing services or facility operations which may cause a sewage spill(s). Any reasonably anticipated utility or improvement which is damaged by the Contractor shall be immediately repaired at the expense of the Contractor. In the event that the Contractor damages an existing utility or interrupts an existing service, which causes a sewage spill(s), the Contractor shall immediately call the emergency number at (619) 515-3525.

The Contractor shall exercise care not to damage any sensitive habitats or historic resources unless authorized via the discretionary permit and Mitigation, Monitoring and Reporting Program approved by the City.

The Contractor shall provide all facilities, labor, power, and appurtenances necessary to divert wastewater flows as necessary to allow proper installation of the pipeline and/or manhole linings.

The Contractor shall submit as part of their Sewage Bypass and Pumping Plan their monitoring procedure and frequency and shall continuously monitor the flow levels downstream and upstream of the flow diversion to detect any possible failure that may cause a sewage backup and spill(s). The Contractor shall maintain a log of the monitoring and provide daily copies to the Engineer in a manner acceptable to the Engineer.

The Contractor shall inspect and maintain the diversion system daily, including the back-up system. The Contractor shall submit with their Sewage Bypass and Pumping Plan their maintenance procedures and frequency. The Contractor shall maintain a log of all inspection, maintenance and repair records, and provide copies to the Engineer upon request in a manner acceptable to the Engineer.

The Contractor shall size the flow diversion system to handle the peak flow and shall include a 100% backup in the flow diversion system. The Contractor shall provide temporary means to maintain and handle the sewage flow in the existing system as required to complete the necessary construction. The Contractor shall utilize the flow diversion system to mitigate any additional wet weather flows, perform the necessary maintenance and repairs on the flow diversion system, and exercise and ensure the operation of the backup system. Each pump, including the backup pumps, shall be a complete unit with its own suction and discharge piping. The Contractor shall operate the backup flow diversion system for a minimum of 25% of the total diversion time on a weekly basis. The backup flow diversion system shall be fully installed, operational, and ready for immediate use. The diversion system shall be hydraulically tested with clean water prior to wastewater flow diversion. The Contractor shall demonstrate to the satisfaction of the Engineer that both the primary and backup flow diversion systems are fully functional and adequate, and shall certify the same, in writing, to the Engineer in a manner acceptable to the Engineer.

The Contractor shall provide one dedicated fuel tank for every single pump or generator, if fuel or generator driven pumps are used. The Contractor shall provide an emergency standby power generator, if electric power driven pumps are used. The Contractor shall provide a fuel level indicator outside each fuel tank. The Contractor shall continuously (while in use) monitor the fuel level in the tanks and ensure that the fuel level does not drop below a level equivalent of two hours of continuous flow diversion system operation. The Contractor shall take the necessary measures to ensure the fuel supply is protected against contamination. This includes but is not limited to fuel line water traps, fuel line filters, and protecting fuel stores from precipitation. The Contractor shall monitor all hoses and repair leaks immediately.

804-2.2 Payment Unless a Bid item has been provided, full compensation for the Sewage Bypass and Pumping Plan, its implementation e.g., labor, facilities, equipments, power, appurtenances and incidental, shall be included in the payment for sewer main.

SECTION 807 – RESOURCE DISCOVERIES

ADD: 807-1.1 Environmental Document. The City of San Diego Environmental Analysis Section (EAS) of the Development Services Department has prepared an Environmental Exemption, as referenced in the Contract Appendix. The Contractor shall comply with all requirements of the Environmental Exemption as set forth in Contract Appendix.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

APPENDIX A
NOTICE OF EXEMPTION

NOTICE OF EXEMPTION

(Check one or both)

TO: X RECORDER/COUNTY CLERK
P.O. BOX 1750, MS A-33
1600 PACIFIC HWY, ROOM 260
SAN DIEGO, CA 92101-2422
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET, ROOM 121
SACRAMENTO, CA 95814

FROM: CITY OF SAN DIEGO
DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE, MS 501
SAN DIEGO, CA 92101

PROJECT NO.: WBS # S-10010

PROJECT TITLE: RECYCLED WATER VAULT PUMP

PROJECT LOCATION-SPECIFIC: The project includes 15 Vaults located throughout the City at the following locations: V-1-A and V-1B located adjacent to each other on Towne Center Drive; V-2A and V-2B located adjacent to each other on Governor Drive; V-3 located on Regents Road; V-4A and V-4B located adjacent to each other on Production Avenue; V-5 located on Meanly Drive; V-6 located on Scripps Ranch Boulevard Near Scripps Lake Drive; V-7 located on Mira Mesa Boulevard; V-8 located on Scripps Westview Way; V-9 located on Scripps Poway Parkway; V-10 located on Carmel Valley Road; V-11 located on Camino Del Sur and V-12 located on San Dieguito Road.

PROJECT LOCATION-CITY/COUNTY: San Diego City/San Diego County

DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT: The project would include various improvements to the vaults in order to prevent flooding in the vaults, and to redirect water discharge that occurs from the vaults to the City's Storm water conveyance system to the existing sewer system. Such improvements would include the installation of sump pumps, the installation of 4" drains to the existing sewer system, the installation of float switches to activate a flooding alarm when the water in the vault reaches 12", the replacement of all of the hinges for the vault doors, and minor grading around the vault so that irrigation water does not enter the vault. The project site is located at 15 different locations throughout the City, all within the improved public right-of-way, within the Black Mountain Ranch, Miramar Ranch, Mira Mesa, Scripps Miramar Ranch and University Planning Areas.

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of San Diego

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: City of San Diego, E&CP Dept/Parita Anmerlahn
600 B Street, Suite 800 (MS 908A)
San Diego, CA 92101
619-533-4162

EXEMPT STATUS: (CHECK ONE)

- () MINISTERIAL (SEC. 21080(b)(1); 15268);
() DECLARED EMERGENCY (SEC. 21080(b)(3); 15269(a));
() EMERGENCY PROJECT (SEC. 21080(b)(4); 15269 (b)(c))
(X) CATEGORICAL EXEMPTION: 15301(A) (EXISTING FACILITIES)
() STATUTORY EXEMPTIONS:

REASONS WHY PROJECT IS EXEMPT: This project qualifies for State CEQA Guideline § 15301, "Existing Facilities" and does not trigger any of the exceptions to categorical exemptions found in State CEQA Guideline § 15300.2

LEAD AGENCY CONTACT PERSON: JEAN CAMERON

TELEPHONE: (619) 446-5379

IF FILED BY APPLICANT:

- 1. ATTACH CERTIFIED DOCUMENT OF EXEMPTION FINDING.
2. HAS A NOTICE OF EXEMPTION BEEN FILED BY THE PUBLIC AGENCY APPROVING THE PROJECT?
() YES () NO

IT IS HEREBY CERTIFIED THAT THE CITY OF SAN DIEGO HAS DETERMINED THE ABOVE ACTIVITY TO BE EXEMPT FROM CEQA

[Signature]
SIGNATURE/TITLE

OCTOBER 14, 2011
DATE

CHECK ONE:
(X) SIGNED BY LEAD AGENCY

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:

APPENDIX B

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 C
SAMPLE CITY INVOICE

City of San Diego, Field Engineering Div., 9485 Aero Drive, SD CA 92123						Contractor's Name:					
Project Name:						Contractor's Address:					
SAP No. (WBS/IO/CC)											
City Purchase Order No.						Contractor's Phone #:			Invoice No.		
Resident Engineer (RE):						Contractor's Fax #:			Invoice Date:		
RE Phone#:			RE Fax#:			Contact Name:			Billing Period:		
Item #	Item Description	Contract Authorization				Previous Estimate		This Estimate		Totals to Date	
		Unit	Qty	Price	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount
1	2 Parallel 4" PVC C900	LF	1,380	\$34.00	\$46,920.00						
2	48" Primary Steel Casing	LF	500	\$1,000.00	\$500,000.00						
3	2 Parallel 12" Secondary Steel	LF	1,120	\$53.00	\$59,360.00						
4	Construction and Rehab of PS 49	LS	1	\$150,000.00	\$150,000.00						
5	Demo	LS	1	\$14,000.00	\$14,000.00						
6	Install 6' High Chain Link Fence	LS	1	\$5,600.00	\$5,600.00						
7	General Site Restoration	LS	1	\$3,700.00	\$3,700.00						
8	10" Gravity Sewer	LF	10	\$292.00	\$2,920.00						
9	4" Blow Off Valves	EA	2	\$9,800.00	\$19,600.00						
10	Bonds	LS	1	\$16,000.00	\$16,000.00						
11	Field Orders	AL	1	80,000	\$80,000.00						
11.1	Field Order 1	LS	5,500	\$1.00	\$5,500.00						
11.2	Field Order 2	LS	7,500	\$1.00	\$7,500.00						
11.3	Field Order 3	LS	10,000	\$1.00	\$10,000.00						
11.4	Field Order 4	LS	6,500	\$1.00	\$6,500.00						
12	Certified Payroll	LS	1	\$1,400.00	\$1,400.00						
CHANGE ORDERS											
Change Order 1			4,890								
Items 1-4					\$11,250.00						
Item 5-Deduct Bid Item 3		LF	120	-\$53.00	(\$6,360.00)						
Change Order 2			160,480								
Items 1-3					\$95,000.00						
Item 4 Deduct Bid Item 1		LF	380	-\$340.00	(\$12,920.00)						
Item 5-Encrease bid Item 9		LF	8	\$9,800.00	\$78,400.00						
Change Order 3 (Close Out)			-121,500								
Item 1 Deduct Bid Item 3			53	-500.00	(\$26,500.00)						
Item 2 Deduct Bid Item 4		LS	-1	45,000.00	(\$45,000.00)						
Items 3-9			1	-50,500.00	(\$50,500.00)						
SUMMARY								Total This	\$ -	Total Billed	\$0.00
A. Original Contract Amount						Retention and/or Escrow Payment Schedule					
B. Approved Change Order 1 Thru 3						Total Retention Required as of this billing					
C. Total Authorized Amount (A+B)						Previous Retention Withheld in PO or in Escrow					
D. Total Billed to Date						Add'l Amt to Withhold in PO/Transfer in Escrow:					
E. Less Total Retention (5% of D)						Amt to Release to Contractor from PO/Escrow:					
F. Less Total Previous Payments											
G. Payment Due Less Retention						Contractor Signature and Date:					
H. Remaining Authorized Amount											

70

City of San Diego

CONTRACTOR'S NAME: ORION CONSTRUCTION CORP
 ADDRESS: 2185 LA MIRADA DRIVE VISTA CA 92081
 TELEPHONE NO.: 760-597-9660 FAX NO.: 760-597-9661
 CITY CONTACT: Gerry Barca, Address: 600 B Street, Suite 800, MS 908A, San Diego, CA 92101-4520
Email: GBarca@sandiego.gov, Phone: (619) 533-6673

NB/CG/RIR

CONTRACT DOCUMENTS



FOR

RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

VOLUME 2 OF 2

RFQ NO.: As-Needed Design-Build Services for the Engineering & Capital Projects Department – 5151DB
 RFP NO.: 5541DBA
 TASK ORDER NO.: 11DB02
 BID NO.: K-12-5541-DBA
 SAP NO. (WBS): S-10010
 CLIENT DEPARTMENT: 2013
 COUNCIL DISTRICT: CITYWIDE
 PROJECT TYPE: HC

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.

THIS BIDDING DOCUMENT TO BE SUBMITTED IN ITS ENTIRETY

TABLE OF CONTENTS

Volume 2 - Bidding Documents

The following forms must be completed in their entirety and submitted with the Bid. Include the form(s) even if the information does not apply. Where the information does not apply write in N/A. Failure to include any of the forms may cause the Bid to be deemed **non-responsive**. If you are uncertain or have any questions about any required information, contact the City no later than 14 days prior to Bid due date.

<u>DESCRIPTION</u>	<u>PAGE NUMBER</u>
1. Bid/Proposal	141-143
2. Non-collusion Affidavit to be Executed By Bidder and Submitted with Bid.....	144
3. Contractors Certification of Pending Actions.....	145
4. Equal Benefits Ordinance Certification of Compliance	146
5. Design-Build Proposal.....	147
6. Price Proposal Forms (Design Build).....	148-150
7. Form AA05 – Design-Build List of Subcontractors	151
8. Form AA15 - Design-Build List of Subcontractors.....	152
9. Form AA25 - Design-Build Named Equipment/Material Supplier List.....	153
10. Form AA30 - Design-Build Named Equipment/Material Supplier List.....	154

BIDDING DOCUMENTS

PROPOSAL

Bidder's General Information

To the City of San Diego:

Pursuant to "Invitation to 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.

IF A SOLE OWNER OR SOLE CONTRACTOR SIGN HERE:

- (1) Name under which business is conducted _____
- (2) Signature (Given and surname) of proprietor _____
- (3) Place of Business (Street & Number) _____
- (4) City and State _____ Zip Code _____
- (5) Telephone No. _____ Facsimile No. _____

IF A PARTNERSHIP, SIGN HERE:

- (1) Name under which business is conducted _____
- (2) Name of each member of partnership [indicate character of each partner, general or special (limited)]:

BIDDING DOCUMENTS

(3) Signature (Note: Signature must be made by a general partner)

Full Name and Character of partner

(4) Place of Business (Street & Number)

(5) City and State Zip Code

(6) Telephone No. Facsimile No.

IF A CORPORATION, SIGN HERE:

(1) Name under which business is conducted ORION CONSTRUCTION CORP.

(2) Signature, with official title of officer authorized to sign for the corporation:

R. Dowsing
(Signature)

RICHARD DOWSING
(Printed Name)

PRESIDENT
(Title of Officer)

(Impress Corporate Seal Here)

(3) Incorporated under the laws of the State of CALIFORNIA

(4) Place of Business (Street & Number) 2185 LA MIRADA DRIVE

(5) City and State VISTA CA Zip Code 92081

(6) Telephone No. 760-597-9660 Facsimile No. 760-597-9661

THE FOLLOWING SECTIONS MUST BE FILLED IN BY ALL PROPOSERS:

In accordance with the "INVITATION TO BIDS", the bidder holds a California State Contractor's license for the following classification(s) to perform the work described in these specifications:

LICENSE CLASSIFICATION A

LICENSE NO. 549309 EXPIRES 11/30, 2012

This license classification must also be shown on the front of the bid envelope. Failure to show license classification on the bid envelope may cause return of the bid unopened.

TAX IDENTIFICATION NUMBER (TIN): 

E-Mail Address: ROB@ORIONCONSTRUCTION.COM

BIDDING DOCUMENTS

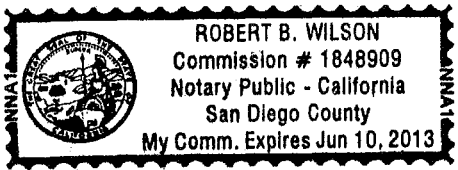
THIS PROPOSAL MUST BE NOTARIZED BELOW:

I certify, under penalty of perjury, that the representations made herein regarding my State Contractor's license number, classification and expiration date are true and correct.

Signature *[Handwritten Signature]* Title PRESIDENT

SUBSCRIBED AND SWORN TO BEFORE ME, THIS 28 DAY OF MARCH, 2012,
Notary Public in and for the County of SAN DIEGO, State of CALIFORNIA

[Handwritten Signature]
(NOTARIAL SEAL)



NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID UNDER 23 USC 112 AND PCC 7106

State of California)

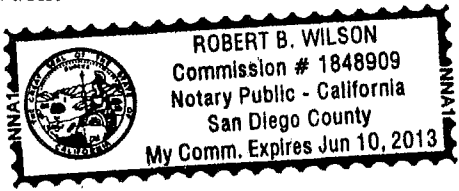
County of SAN DIEGO) ss.

RICHARD DOWSING, being first duly sworn, deposes and says that he or she is PRESIDENT of 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.

Signed: [Signature]
Title: PRESIDENT

Subscribed and sworn to before me this 28 day of MARCH 2012
[Signature]
Notary Public

(SEAL)



BIDDING DOCUMENTS

**EQUAL BENEFITS ORDINANCE
CERTIFICATION OF COMPLIANCE**



For additional information, contact:

CITY OF SAN DIEGO

EQUAL BENEFITS PROGRAM

202 C Street, MS 9A, San Diego, CA 92101

Phone (619) 533-3948 Fax (619) 533-3220

COMPANY INFORMATION

Company Name: <u>ORION CONSTRUCTION CORP.</u>	Contact Name: <u>ROB WILSON</u>
Company Address: <u>2185 LA MIRADA DR.</u>	Contact Phone: <u>760-597-9660</u>
<u>VISTA CA 92081</u>	Contact Email: <u>ROB@ORIONCONSTRUCTIONCORP</u>

CONTRACT INFORMATION

Contract Title: <u>RECYCLED WATER SYST. UPGRADES</u>	Start Date: <u>MAY 2012</u>
Contract Number (if no number, state location): <u>K-12-5541-DBA</u>	End Date: <u>APRIL 2014</u>

SUMMARY OF EQUAL BENEFITS ORDINANCE REQUIREMENTS

The Equal Benefits Ordinance [EBO] requires the City to enter into contracts only with contractors who certify they will provide and maintain equal benefits as defined in SDMC §22.4302 for the duration of the contract. To comply:

- Contractor shall offer equal benefits to employees with spouses and employees with domestic partners.
 - Benefits include health, dental, vision insurance; pension/401(k) plans; bereavement, family, parental leave; discounts, child care; travel/relocation expenses; employee assistance programs; credit union membership; or any other benefit.
 - Any benefit not offer an employee with a spouse, is not required to be offered to an employee with a domestic partner.
- Contractor shall post notice of firm's equal benefits policy in the workplace and notify employees at time of hire and during open enrollment periods.
- Contractor shall allow City access to records, when requested, to confirm compliance with EBO requirements.
- Contractor shall submit *EBO Certification of Compliance*, signed under penalty of perjury, prior to award of contract.

NOTE: This summary is provided for convenience. Full text of the EBO and Rules Implementing the EBO are available at www.sandiego.gov/administration.

CONTRACTOR EQUAL BENEFITS ORDINANCE CERTIFICATION

Please indicate your firm's compliance status with the EBO. The City may request supporting documentation.

- I affirm compliance with the EBO because my firm (*contractor must select one reason*):
- Provides equal benefits to spouses and domestic partners.
 - Provides no benefits to spouses or domestic partners.
 - Has no employees.
 - Has collective bargaining agreement(s) in place prior to January 1, 2011, that has not been renewed or expired.
- I request the City's approval to pay affected employees a cash equivalent in lieu of equal benefits and verify my firm made a reasonable effort but is not able to provide equal benefits upon contract award. I agree to notify employees of the availability of a cash equivalent for benefits available to spouses but not domestic partners and to continue to make every reasonable effort to extend all available benefits to domestic partners.

It is unlawful for any contractor to knowingly submit any false information to the City regarding equal benefits or cash equivalent associated with the execution, award, amendment, or administration of any contract. [San Diego Municipal Code §22.4307(a)]

Under penalty of perjury under laws of the State of California, I certify the above information is true and correct. I further certify that my firm understands the requirements of the Equal Benefits Ordinance and will provide and maintain equal benefits for the duration of the contract or pay a cash equivalent if authorized by the City.

<u>RICHARD DOWSING / PRES.</u>	<u>[Signature]</u>	<u>03/28/12</u>
Name/Title of Signatory	Signature	Date

FOR OFFICIAL CITY USE ONLY

Receipt Date: _____ EBO Analyst: _____ Approved Not Approved – Reason: _____

rev 02/15/2011

BIDDING DOCUMENTS


Design-Build Proposal

1. The undersigned Design-Builder proposes and agrees, if this Proposal is accepted, to enter into an agreement with the City in the form included in the Contract Documents to perform the Work as specified or indicated in said Contract Documents entitled **Recycled water System Upgrades Design-Build Contract**.
2. The Design-Builder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the RFP.
3. This Proposal will remain open for the period stated in the RFP unless otherwise required by law. The Design-Builder will enter into an agreement within the time and in the manner required in the RFP and will furnish the insurance certificates, Payment Bond, and Performance Bond required by the Contract Documents.
4. The Design-Builder has examined copies of all the Contract Documents including the following addenda (receipt of all of which is hereby acknowledged):
5. The Design-Builder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as Design-Builder deems necessary.

To all the foregoing, and including all Proposal schedule(s) and information required of the Design-Builder contained in this Proposal Form, said Design-Builder further agrees to complete the Work and Services required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the Total Proposal Price(s) named in the aforementioned Proposal schedule(s).

Dated: 03/28/12

Design-Builder: ORION CONSTRUCTION CORP.

By: 
(Signature)

Title: PRESIDENT

BIDDING DOCUMENTS

PRICE PROPOSAL FORMS

The Bidder agrees to the design and construction of **RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT**, for the city of San Diego, in accordance with these contract documents for the prices listed below. The Bidder guarantees the Contract Price for a period of 120 days (90 days for federally funded contracts and Contracts valued at \$500,000 or less) from the date of Bid opening to Award of the Contract. The duration of the Contract Price guarantee shall be extended by the number of days required for the City to obtain all items necessary to fulfill all conditions precedent e.g., bond and insurance.

Item No.	NAICS CODE	Description	Quantity	D*	Unit	Unit Price	Extension
1	237110	Bonds (Payment and Performance)	1		LS	XXXXXX	\$ 18,000.
2	541330	Engineering and Design Services	1	D	LS	XXXXXX	\$ 150,000.
3	237110	Field Construction Site V-1A	1		LS	XXXXXX	\$ 145,000.
4	237110	Field Construction Site V-1B	1		LS	XXXXXX	\$ 80,000.
5	237110	Field Construction Site V-2A	1		LS	XXXXXX	\$ 90,000.
6	237110	Field Construction Site V-2B	1		LS	XXXXXX	\$ 65,000.
7	237110	Field Construction Site V-3	1		LS	XXXXXX	\$ 95,000.
8	237110	Field Construction Site V-4A	1		LS	XXXXXX	\$ 130,000.
9	237110	Field Construction Site V-4B	1		LS	XXXXXX	\$ 110,000.
10	237110	Field Construction Site V-5	1		LS	XXXXXX	\$ 130,000.
11	237110	Field Construction Site V-6	1		LS	XXXXXX	\$ 65,000.
12	237110	Field Construction Site V-7	1		LS	XXXXXX	\$ 65,000.
13	237110	Field Construction Site V-8	1		LS	XXXXXX	\$ 65,000.
14	237110	Field Construction Site V-9	1		LS	XXXXXX	\$ 65,000.
15	237110	Field Construction Site V-10	1		LS	XXXXXX	\$ 45,000.
16	237110	Field Construction Site V-11	1		LS	XXXXXX	\$ 45,000.
17	237110	Field Construction Site V-12	1		LS	XXXXXX	\$ 45,000.
18	541330	Storm Water Pollution Prevention	1		LS	XXXXXX	\$ 15,380.
19	237110	City Contingency	1		AL	XXXXXX	\$63,620.00
20	237110	Mobilization	1		LS	XXXXXX	\$ 100,000.
TOTAL FOR PROPOSAL (ITEMS NO 1 THROUGH 20 INCLUSIVE)							\$ 1,587,000.

* Design Element (For City Use)

BIDDING DOCUMENTS

Total Price For Design-Build Proposal, (items 1 through 20, inclusive) amount written in words:

ONE MILLION, FIVE HUNDRED EIGHTY SEVEN THOUSAND DOLLARS

Design-Builder: ORION CONSTRUCTION CORP. AND NO CENTS.

Title: PRESIDENT

Signature: *R. Dowsing*

The names of all persons interested in the foregoing proposal as principals are as follows:

RICHARD DOWSING, PRES / SEC / TREAS.

IMPORTANT NOTICE: If Bidder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Bidder or other interested person is an individual, state first and last names in full.

BIDDING DOCUMENTS

NOTES:

- A. The Contract Price to be used in the selection process will be determined as described in Section 5.6 of the RFP will be determined based on the Base Bid alone.
- B. Prices and notations shall be in ink or typewritten. All corrections (which have been initiated by the Bidder using erasures, strike out, line out, or "white-out") shall be typed or written in with ink adjacent thereto, and shall be initialed in ink by the person signing the Proposal.
- C. Failure to initial all corrections made in the bidding documents shall cause the Proposal to be rejected as **non-responsive** and ineligible for further consideration.
- D. Blank spaces must be filled in, using figures. The Design-Builder's failure to submit a price for any Bid item that requires the Design-Builder to submit a price shall render the Proposal **non-responsive** and shall be cause for its rejection.
- E. Unit prices shall be entered for all unit price items. Unit prices shall not exceed two (2) decimal places. If the Unit prices entered exceed two (2) decimal places, the City will only use the first two digits after the decimal points without rounding up or down.
- F. All extensions of the unit prices bid will be subject to verification by the City. In the case of inconsistency or conflict between the product of the Quantity x Unit Price and the Extension, the product shall govern.
- G. In the case of inconsistency or conflict, between the sums of the Extensions with the estimated total Bid, the sum of the Extensions shall govern.
- H. Proposals shall not contain any recapitulation of the Work. Conditional Bids will be rejected as being **non-responsive**. Alternative proposals will not be considered unless called for.
- I. The Proposal shall contain an acknowledgment of receipt of all addenda as specified in the RFP. Failure to acknowledge addenda shall render the Bid **non-responsive** and shall be cause for its rejection.

ADDENDUM NO. 1 DATED MARCH 2, 2012,
ADDENDUM NO 2 DATED MARCH 13, 2012, AND
ADDENDUM NO. 3 DATED MARCH 22, 2012
~~ARE~~ HAVE BEEN RECEIVED AND
ARE ACKNOWLEDGED IN THIS BID.

D. Dancy 3/28/12

BIDDING DOCUMENTS

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE PRICE PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor. The Design-Builder 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 shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder'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 Design-Builder's own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR or DESIGNER	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
Harris & Associates 750 B Street, Suite 1800 San Diego, CA 92101 (619) 236-1778	DESIGNER	Civil Design	44,000	OBE		
Moraes, Pham & Associates 2132 Palomar Airport Rd, Suite 120 Carlsbad, CA 92011 (760) 431-7177	DESIGNER	Electrical-Instrumentation Design	52,000	SLBE	CITY	
Rancho Coastal Engineering 310 S. Twin Oaks Valley Suite 107-297 San Marcos, CA 92078 (760) 510-3152	DESIGNER	Surveying	4,800	ELBE	CITY	

(1) As appropriate. Design-Builder 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	Emerging Local Business Enterprise	ELBE
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. Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Subcontractor Diversity Council	SRMSDC
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 Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE, and ELBE)

Form Title: DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE PRICE PROPOSAL ONLY

Form Number: AA05

Attachment D

Recycled Water System Upgrades Design-Build Contract

BIDDING DOCUMENTS

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE PRICE PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor. The Design-Builder 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 shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder'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 Design-Builder's own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR or DESIGNER	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
Transtar Pipeline 4094 Tambor Rd San Diego, CA 92124 (858) 565-4089	Constructor	Drain Pipelines	56,000	ELBE	CITY	
Sapphire Electric 1948 Don Lee Place, Suite 1 Escondido, CA 92029 (760) 796-4001	Constructor	Instrumentation And SCADA	320,000	OBE		
D. Lowen Electric 2194 Allesandro Trail Vista, CA 92081 (760) 941-8332	Constructor	Electrical	270,000	ELBE	CITY	

- (1) As appropriate. Design-Builder 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 | Emerging Local Business Enterprise | ELBE |
| 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. Design-Builder shall indicate if Subcontractor is certified by:
- | | | | |
|--|--------|---|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | San Diego Regional Minority Subcontractor Diversity Council | SRMSDC |
| 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 Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE, and ELBE)

BIDDING DOCUMENTS

DESIGN-BUILD NAMED EQUIPMENT/MATERIAL SUPPLIER LIST TO BE INCLUDED IN THE PRICE PROPOSAL ONLY

The Design-Builder seeking the recognition of equipment, materials, or supplies obtained from Suppliers towards achieving any mandatory, voluntary, or both subcontracting participation percentages shall submit with the Bid the Named Equipment/Material Supplier List. The Named Equipment/Material Supplier List, at a minimum, shall have the name, locations (City) and the **DOLLAR VALUE** of the Suppliers. The Design-Builder will be credited up to 60% of the amount to be paid to the Suppliers for such materials/supplies unless vendor manufactures or substantially alters materials/supplies in which case 100% will be credited. The Design-Builder shall indicate (Yes/No) whether listed firm is a supplier or manufacturer. In calculating the subcontractor participation percentages, vendors/suppliers will receive 60% credit of the listed **DOLLAR VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed **DOLLAR VALUE** for purposes of calculating the subcontractor participation percentages, Suppliers will receive 60% credit of the listed **DOLLAR VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed **DOLLAR VALUE** for purposes of calculating the subcontractor participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	DOLLAR VALUE OF MATERIALS OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB (1)	WHERE CERTIFIED (2)
Robcar DBA Hudson Safe-T-Lite PO Box 117 El Cajon, CA 92022-0117 (619) 441-3644	Traffic Control Equipment	12,000	YES	NO	SLBE	CITY

- (1) As appropriate. Design-Builder 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 | Emerging Local Business Enterprise | ELBE |
| 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. Design-Builder 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 | San Diego Regional Minority Vendor/Supplier Diversity Council | SRMSDC |
| State of California's Department of General Services | CADoGS | City of Los Angeles | LA |
| State of California | CA | U.S. Small Business Administration | SBA |

Form Title: DESIGN-BUILD NAMED EQUIPMENT/MATERIAL SUPPLIER LIST TO BE INCLUDED IN THE PRICE PROPOSAL ONLY

Form Number: AA25

Attachment D

Recycled Water System Upgrades Design-Build Contract

City of San Diego



ADDENDUM "1"

REQUEST FOR PROPOSAL (RFP)

FOR

RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

RFQ NO.: As-Needed Design-Build Services for the Engineering & Capital Projects Department – 5151DB
RFP NO.: 5541DBA
TASK ORDER NO.: 11DB02
BID NO.: K-12-5541-DBA-3
SAP NO. (WBS): S-10010
CLIENT DEPARTMENT: 2013
COUNCIL DISTRICT: CITYWIDE
PROJECT TYPE: HC

REQUEST FOR PROPOSAL (RFP) DUE:

**12:00 Noon
MARCH 14, 2012
CITY OF SAN DIEGO
Public Works Contracting Group
1200 Third Avenue, Suite 200, MS 56P
San Diego, CA 92101**

CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP 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 ABOVE.**

A. CHANGES TO THE REQUEST FOR PROPOSALS

- A1. To the Request for Proposal (RFP), page 3, Section 1.0 INTRODUCTION, subsection 1.3, **DELETE** in its entirety and **SUBSTITUTE** the following:
- 1.3** Engineer's Estimate – The Engineer's estimate of the most probable price for this contract is in the range of \$750,001 to \$1,000,000.
- A2. To the Request for Proposal (RFP), page 9, Section 8.0, SELECTION AND AWARD SCHEDULE, subsections 8.2, 8.3, 8.4 and 8.5, **DELETE** in their entirety and **SUBSTITUTE** with the following:
- | | | |
|-----|----------------------------|----------------|
| 8.2 | Proposal Due Date | March 14, 2012 |
| 8.3 | Interviews | March 19, 2012 |
| 8.4 | Public Ranking Meeting | March 23, 2012 |
| 8.5 | Selection and Notification | March 28, 2012 |
- A3. To Attachment C, Volume 1, page 71 through 76, SLBE-ELBE Special Notice, **DELETE** in their entirety and **SUBSTITUTE** with Page 3 of 8 through Page 8 of 8 of this Addendum.

Tony Heinrichs, Director
Public Works Department

Dated: *March 2, 2012*
San Diego, California

TH/nb/cg/rir/egz

SPECIAL NOTICE
SMALL LOCAL BUSINESS ENTERPRISES (SLBE)
AND
EMERGING LOCAL BUSINESS ENTERPRISES (ELBE)
PROGRAM

1. **INTRODUCTION.** This contract is subject to the requirements of the SLBE Program as specified in the SLBE-ELBE section of the City's EOCP Requirements included in The WHITEBOOK.
 - 1.1. The Bidders are required to review The WHITEBOOK and become familiar with the detailed specifications including the required documentation and the submittal schedule as related to SLBE-ELBE program.
2. **AMENDMENTS TO THE CITY'S GENERAL EOCP REQUIREMENTS.**
 - III. **Equal Employment Opportunity Outreach Program (A).** **DELETE** in its entirety and **SUBSTITUTE** with the following:
 - A. Competitive Bids. If a contract is competitively solicited, the Apparent Low Bidder shall submit a *Work Force Report (Form BB05)* or an Equal Employment Opportunity (EEO) Plan, within 10 Working Days after receipt by the Bidder of Contract forms to the City for approval as specified in the Notice of Intent to Award letter from the City.
3. **AMENDMENTS TO THE CITY'S EOCP SLBE-ELBE REQUIREMENTS.**
 - VIII. **Subcontracting Efforts Review and Evaluation (2b)).** **DELETE** in its entirety and **SUBSTITUTE** with the following:
 - b) "Make information of forthcoming opportunities available to SLBE-ELBE firms and arrange time for contracts and establish delivery schedules, where requirements permit, in a way that encourages and facilitates participation by SLBE-ELBE firms in the competitive process. This includes posting solicitations for bids or proposals for a minimum of 10 Working Days before the Bid or Proposal due date."
 - VIII. **Subcontracting Efforts Review and Evaluation (3) and (4).** **DELETE** in its entirety and **SUBSTITUTE** with the following:
 3. Good Faith Effort Documentation Requirements

If the stated SLBE-ELBE subcontractor participation percentages are not met, the Bidder shall submit, within 3 Working Days of the Public Ranking Meeting, information necessary to establish adequate good faith efforts were taken to meet the contract subcontractor participation percentages. The required documentation includes the following:

 - A. **ADVERTISEMENT REQUIREMENTS**

Advertisements for subcontract work must comply with the following requirements:

 1. Advertisements must be published at least 10 Working Days prior to bid opening. Provide the names and dates of each publication of where the advertisement was published.

Note: The advertisement is not required to be published everyday for the 10 Working Days prior to bid opening.

2. There must be at least 2 advertisements published, 1 advertisement in a trade publication and 1 in a focus group publication. Additional advertising for SLBE-ELBE participation may be placed in newspapers, trade papers and on the Internet. For a listing of publications accepting advertisements, please visit the City's EOC home page at <http://www.sandiego.gov/eoc/>
 - 2.1 Newspaper advertisements must be in the Bids Wanted, Legal Notices section of the Classified Ads, Subcontracting Opportunities or Business Opportunities **NOT** the Employment Opportunities Section.
3. Advertisements must state which items or portions of work the Bidder is requesting subcontractor pricing.
 - 3.1 It is the Bidder's responsibility to demonstrate that enough work sufficient to meet the SLBE-ELBE subcontractor participation percentage was made available to SLBE-ELBE firms. The Bidder shall make as many items of Work available as possible to meet specified subcontracting participation percentage and at a minimum an amount of work equal to the specified subcontracting participation amount. If necessary to reach the specified subcontracting participation percentage, the Work shall include those items normally performed by the Bidder with its own forces or supplies and even items with a dollar value below 1/2 of 1% of the total Bid. Bidders shall utilize Form AA60 to demonstrate compliance with this requirement and submit the completed form with Good Faith Effort documentation.
4. Advertisements must state that Plans and Specifications are available at no cost to interested SLBE-ELBE firms and how to obtain them.
5. Advertisements must state that assistance is available from the Bidder for SLBE-ELBE Subcontractors in obtaining necessary equipment, supplies, or materials.
6. Advertisements must state that assistance is available from the Bidder for SLBE-ELBE firms in obtaining bonding, lines of credit, or insurance.
7. Bidders **MUST** provide proof of publication of each advertisement by providing the publication affidavit which must include a legible copy of the entire advertisement and the original ENTIRE page of the publication in which the advertisement appears.

B. SLBE-ELBE WRITTEN SOLICITATION REQUIREMENTS

Bidders must directly solicit SLBE-ELBE firms on the City's approved SLBE-ELBE list. Solicitations for Subcontractor or Supplier work must comply with the following requirements:

1. The solicitation must be dated and list the name of the SLBE-ELBE firm. Solicitations must be made to the SLBE-ELBE firms at least 10 Working Days prior to bid opening.
 2. Solicitation must state which items or portions of work the Bidder is requesting subcontractor pricing.
 - 2.1 It is the Bidder's responsibility to demonstrate that enough work sufficient to meet the SLBE-ELBE subcontractor participation percentage was made available to SLBE-ELBE firms. The Bidder shall make as many items of Work available as possible to meet the specified subcontractor participation percentage and at a minimum an amount of work equal to the subcontractor participation amount. If necessary to reach the specified subcontracting participation percentage, the Work shall include those items normally performed by the Bidder with its own forces, supplies and even items with a dollar value below 1/2 of 1% of the total Bid. Bidders shall utilize Form AA60 to demonstrate compliance with this requirement and submit the completed form with Good Faith Effort documentation.
 3. Solicitation must state that Plans and Specifications are available at no cost to interested SLBE-ELBE firms and how to obtain them.
 4. Solicitations must state that assistance is available from the Bidder for SLBE-ELBE subcontractors in obtaining necessary equipment, supplies, or materials.
 5. Solicitations must state that assistance is available from the Bidder for SLBE-ELBE firms in obtaining bonding, lines of credit, or insurance.
 6. Bidder must solicit **ALL** SLBE-ELBE firms on the City's approved list, who have the NAICS code for the subcontract work sought by the Contractor.
 7. Bidders must provide copies of **ALL** solicitations with one of the following forms of verification that the solicitations were sent:
 - a) If mailed: provide copies of the metered envelopes or certified mail receipts.
 - b) If faxed: provide copies of the fax transmittal confirmation sheet(s).
 - c) If emailed: provide copies of the email delivery confirmation sheet(s).
- No credit shall be given for error messages, busy, cancelled, undeliverable, etc.

C. SLBE-ELBE WRITTEN SOLICITATION FOLLOW-UP REQUIREMENTS

Bidders must follow-up with all SLBE – ELBE firms that were notified of the subcontracting opportunities to determine their level of interest and commitment to bid the Project. When following up with the SLBE – ELBE firms, the Bidder must do the following:

1. Follow up communications must start no less than 5 Working Days prior to bid opening.
2. Bidders must follow up with all SLBE-ELBE firms in writing. Bidders must provide copies of **ALL** written follow up notices with one of the following forms of verification that the follow up notices were sent:
 - a) If mailed: provide copies of the metered envelopes or certified mail receipts.
 - b) If faxed: provide copies of the fax transmittal confirmation sheet(s).
 - c) If emailed: provide copies of the email delivery confirmation sheet(s).

No credit shall be given for error messages, busy, cancelled, undeliverable, etc.

3. Bidders must make at least 3 follow-up telephone calls to each SLBE – ELBE firm at least 5 days prior to bid opening date. Bidders must submit a telephone log as identified below.
 - 3.1. Submit a telephone log, as proof of telephone call, with the following requirements: project name, name of person making the phone call, name of firm contacted, contact person's name, date of call, time of call, and details of conversation.

D. SUBCONTRACT AWARD SUMMARY

Bidders must act in good faith with interested SLBE-ELBE firms and may only reject bids for legitimate business reasons. The Bidder must submit the following documentation:

1. A **DETAILED** summary sheet which includes Bid item number, scope of work, Subcontractor or Supplier name, bid amount, certification type, Subcontractor or Supplier selection and reason for selection or non-selection of all the Subcontractor or Supplier that responded.
2. Copies of all Subcontractor or Suppliers bids received including bids for areas of work that were not included in the outreach and quotes from both certified and non-certified Subcontractors or Suppliers. Subcontractor bid amounts **MUST** match the bid-listed dollar amounts on form AA05 and AA25 submitted with Bidders sealed bid and the summary sheet dollar amounts **MUST** also match these amounts. If the Bidder decides to self-perform a scope of work, the Bidder **MUST** submit a detailed quote to show that the Bidder's price is competitive to the price of the subcontractors that responded to outreach efforts.

All dollar amounts and scopes of work on the Subcontractor or Supplier bid must not be altered by the prime Bidder. If a revision is necessary, a revised quote must be obtained and provided. All verbal quotes **MUST** be substantiated by corresponding written quote from the Subcontractor or Supplier.

E. OUTREACH ASSISTANCE REQUIREMENTS

Written notice of subcontractor opportunities must be forwarded to local organizations or groups to assist with outreach efforts. When contacting local organizations or groups, the Bidder **must do** the following:

1. Contact a minimum of 5 local organizations or groups to provide assistance in contacting, recruiting and using SLBE-ELBE firms by written notice. For a listing of organizations or groups offering assistance, please visit the City's EOC home page at <http://www.sandiego.gov/eoc/>
2. Written notice must indicate the date of the notice and name of the local organization or group. Written notices must be forwarded to the organizations or groups at least 10 Workings Days prior to bid opening.
3. Written notice must state which items or portions of work the Bidder is requesting subcontractor pricing.
 - 3.1 It is the Bidder's responsibility to demonstrate that enough work sufficient to meet the SLBE-ELBE subcontractor participation percentage was made available to SLBE-ELBE firms. The Bidder shall make as many items of Work available as possible to meet the subcontractor participation percentage, and at a minimum an amount of work equal to the subcontracting participation amount. If necessary to reach the subcontractor participation percentage, the work should include those items normally performed by the Bidder with its own forces, supplies and even items with a dollar value below 1/2 of 1% of the total bid. Bidders shall utilize Form AA60 to demonstrate compliance with this requirement and submit the completed form with Good Faith Effort documentation.
4. Written notice must state that Plans and Specifications are available at no cost to interested SLBE-ELBE firms and how to obtain them.
5. Written notice must state that assistance is available from the Bidder for SLBE-ELBE Subcontractors in obtaining necessary equipment, supplies, or materials.
6. Written notice must state that assistance is available from the Bidder for SLBE-ELBE firms in obtaining bonding, lines of credit, or insurance.
7. Bidders must provide copies of **ALL** notices with one of the following forms of verification that the notices were sent:

- a) If mailed: provide copies of the metered envelopes or certified mail receipts.
- b) If faxed: provide copies of the fax transmittal confirmation sheet(s).
- c) If emailed: provide copies of the email delivery confirmation sheet(s)..

No credit shall be given for error messages, busy, cancelled, undeliverable, etc.

4. **SUBCONTRACTING PARTICIPATION PERCENTAGES.** The City has determined a **10% mandatory SLBE-ELBE** subcontracting participation. The City has also determined a **voluntary subcontractor participation of 10%**, equating to **20% in total subcontractor participation**, to enhance competition and maximize subcontracting opportunities. Percentages are based on the Contract Price, less Field Orders, Additive, Deductive and Allowance Bid items
5. **PRE-PROPOSAL MEETING.** A Pre-Proposal Meeting is scheduled for this contract as specified in the RFP. The purpose of this meeting is to inform prospective Bidders of the submittal requirements and provisions relative to the SLBE Program. Bidders are strongly encouraged to attend the Pre- Proposal Meeting to better understand the Good Faith Effort requirements of this contract.
6. **MANDATORY CONDITIONS.** Bid will be declared **non-responsive** if the Bidder fails the following mandatory conditions.
 - 6.1. Bidder's inclusion of SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; OR
 - 6.2. Bidder's submission of Good Faith Effort documentation 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 Public Ranking meeting if the overall mandatory participation percentage is not met..
7. **BID DISCOUNT.** This contract **is not** subject to the Bid Discount program as described in The WHITEBOOK, SLBE-ELBE Program Requirements, Section IV(2).
8. **RESOURCES.** The current list of certified SLBE-ELBE firms can be found on the EOC Department website.

City of San Diego

ADDENDUM "2"



REQUEST FOR PROPOSAL (RFP)

FOR

RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

RFQ NO.: As-Needed Design-Build Services for the Engineering & Capital Projects Department – 5151DB
RFP NO.: 5541DBA
TASK ORDER NO.: 11DB02
BID NO.: K-12-5541-DBA-3
SAP NO. (WBS): S-10010
CLIENT DEPARTMENT: 2013
COUNCIL DISTRICT: CITYWIDE
PROJECT TYPE: HC

REQUEST FOR PROPOSAL (RFP) DUE:

**12:00 Noon
MARCH 28, 2012
CITY OF SAN DIEGO
Public Works Contracting Group
1200 Third Avenue, Suite 200, MS 56P
San Diego, CA 92101**

CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP 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 ABOVE.**

A. ADDENDUM

A1. To Addendum 1, item A2, Request for Proposal (RFP), Section 8.0, SELECTION AND AWARD SCHEDULE, Subsection 8.2, 8.3, 8.4 and 8.5, page 2, **DELETE** in their entirety and **SUBSTITUTE** with the following:

8.2	Proposal Due Date	March 28, 2012
8.3	Interviews	April 18, 2012
8.4	Public Ranking Meeting	April 25, 2012
8.5	Selection and Notification	April 30, 2012

B. CHANGES TO THE REQUEST FOR PROPOSALS

B1. To the Request for Proposal (RFP), Section 9.1, Questions Concerning RFP, page 9, **DELETE** in its entirety and **SUBSTITUTE** with the following:

All questions regarding the RFP shall be made in writing and received by the project manager by 5:00 pm March 16, 2012.

Tony Heinrichs, Director
Public Works Department

Dated: March 13, 2012
San Diego, California

TH/nb/cg/rir

City of San Diego



ADDENDUM "3"

REQUEST FOR PROPOSAL (RFP)

FOR

RECYCLED WATER SYSTEM UPGRADES DESIGN-BUILD CONTRACT

RFQ NO.: As-Needed Design-Build Services for the Engineering & Capital Projects Department – 5151DB
RFP NO.: 5541DBA
TASK ORDER NO.: 11DB02
BID NO.: K-12-5541-DBA-3
SAP NO. (WBS): S-10010
CLIENT DEPARTMENT: 2013
COUNCIL DISTRICT: CITYWIDE
PROJECT TYPE: HC

REQUEST FOR PROPOSAL (RFP) DUE:

12:00 Noon
MARCH 28, 2012
CITY OF SAN DIEGO
Public Works Contracting Group
1200 Third Avenue, Suite 200, MS 56P
San Diego, CA 92101

CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP 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.

A. BIDDER's QUESTIONS

- Q1. Will the City be responsible for obtaining permits from SDG&E for new service connections?
- A1. No. The Design-Builder shall obtain all permits.
- Q2. Who's responsible for the programming of new or modified SCADA panels?
- A2. The City will provide the standard control program and the Contractor shall provide the programming.
- Q3. Will the City provide a telemetry study, or will one be required?
- A3. The City will provide a radio signal path survey for the required locations.
- Q4. Would the City entertain the option of using a solar/battery power system at sites with no available power?
- A4. Yes
- Q5. What SCADA software is the City using?
- A5. The current City standard control software is Concept 2.6 XL SR7 manufactured by Schneider electric.
- Q6. The City has separate standards for wastewater and potable water SCADA equipment. Will this SCADA system be maintained by the wastewater or potable water department of the City?
- A6. The Public Utilities Department (PUD) has operated and maintained the reclaim distribution system. Refer to PUD's Standards at <http://www.sandiego.gov/water/cip/guidelines.shtml>.
- Q7. The existing SCADA equipment at the sites seemed to be obsolete equipment that the City no longer uses. Does that equipment need to be replaced with current standard equipment?
- A7. Yes
- Q9. For the new SCADA equipment shall we assume that all PLC/Radio equipment will be mounted in above grade enclosures? Please provide Any Detail Drawings.
- A.9 Refer to the sample for enclosure housing instrumentation as attached in this addendum.

Q10. Has any preliminary radio survey been done to determine if communications can be established from each of the vault locations?

A10. The stations on the Carmel Valley/ Santa Luz have been communicating with SCADA. A survey is not required for the three stations in Carmel Valley/ Santa Luz.

Q11. If work in the street requires paving or any street restoration, and the existing curb ramps within the “trigger” area are not compliant, is the design builder required to update any effected curb ramps to current city standards?

A11. Yes.

Q12. At Vault 3, Table 2-1 and 2-3 indicate water will be removed by a suction truck, but in the details of V-3 (appendix A) it indicates a 2” drain is needed to the sewer. Which method is required?

A12. Water shall be removed from Vault 3 by a suction truck. Drain to sewer shall be installed.

B. CHANGES TO THE REQUEST FOR PROPOSALS

B1. To the RFP, Attachment A, Project Description, Scope of Work, Technical Specifications and Bridging Documents, Section I – General Requirements, item C. Reference Standards, page 14, **ADD** item 4, City Standards SCDA Panels, pages 4 of 59 through 8 of 59 of this Addendum.

B2. To the RFP, Attachment A, Project Description, Scope of Work, Technical Specifications and Bridging Documents, Section I – General Requirements, page 14, **ADD** item D, Sample Installation, pages 9 of 59 through 11 of 59 of this Addendum

B3. To the RFP, Attachment A, Project Description, Scope of Work, Technical Specifications and Bridging Documents Section II – Design Criteria, page 14 **ADD** item L, Technicals, pages 12 of 59 through 59 of 59 of this Addendum.

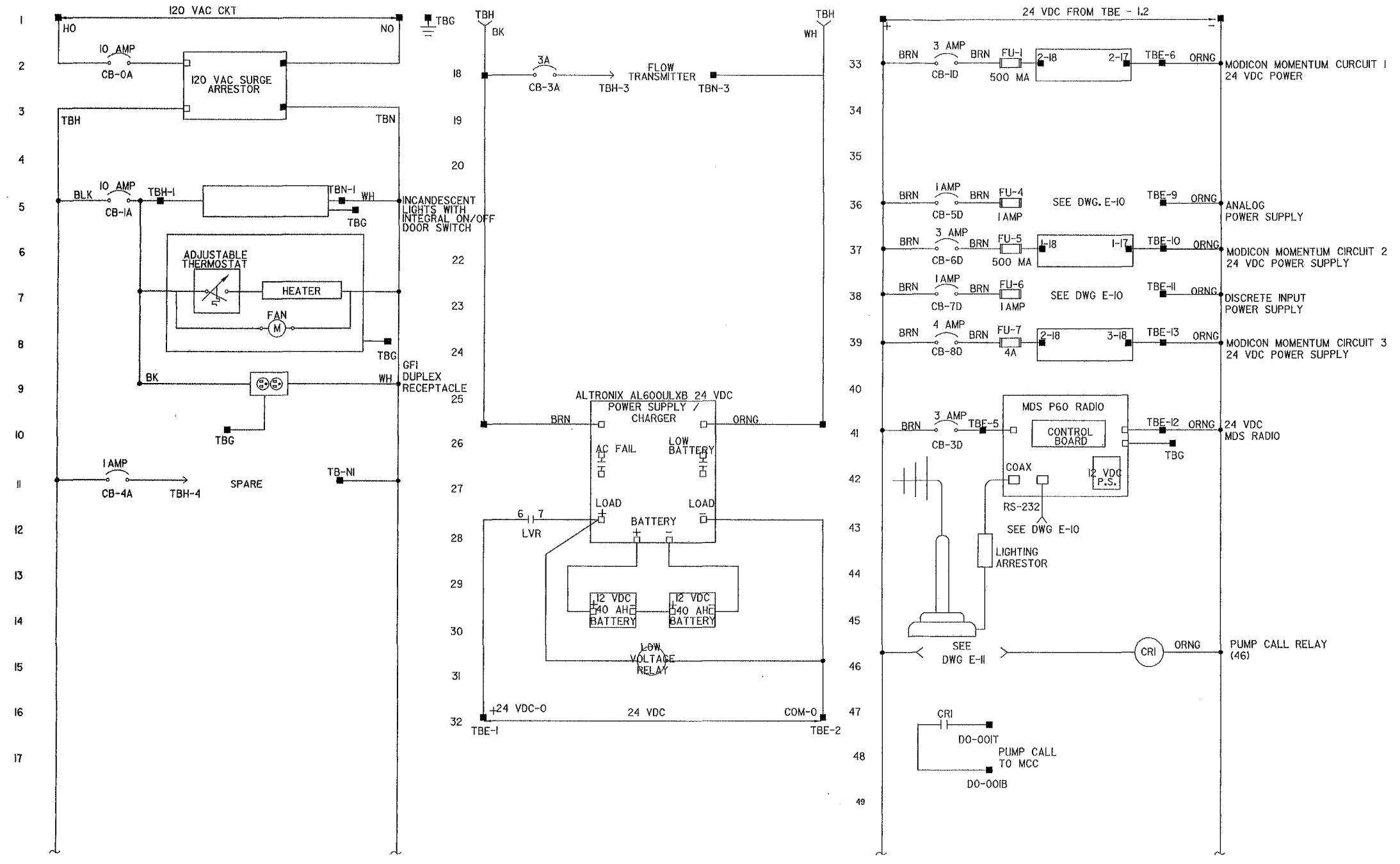
Tony Heinrichs, Director
Public Works Department

Dated: March 22, 2012
San Diego, California

TH/nb/cg/rir

CITY STANDARDS SCDA PANELS

COLOR CODE:	
BK	BLACK
WH	WHITE
BRN	BROWN
ORNG	ORANGE
RED	RED
BLU	BLUE



SAN VICENTE PRODUCTION WELL

E-9

CIP NO. 800169		SPEC. NO. 4906	
CONTRACT DRAWINGS FOR: SAN VICENTE PRODUCTION WELL NO. 1 RCP CONTROL DIAGRAM 1			
CITY OF SAN DIEGO, CALIFORNIA SHEET 16 OF 21 SHEETS		WATER W.O.	
APPROVED BY: <i>[Signature]</i> SENIOR CIVIL ENGINEER	DATE: 12-7-10	DESIGNED BY: <i>[Signature]</i> ASSOCIATE ENGINEER	CONTROL CERTIFICATION LABORER COORDINATES
DESCRIPTION ORIGINAL	BY XX/XX	APPROVED DATE	FILED
CONTRACTOR INSPECTOR		DATE STARTED DATE COMPLETED	35366-16-D

DRAWING STATUS					CONSULTANT						
NO.	DATE	REVISION DESCRIPTION	DWN	CKD	TRD	PE					
							MPA MORABES/PHAM & ASSOCIATES CONSULTING ELECTRICAL & MECHANICAL ENGINEERS 2131 PALMDALE AIRPORT RD., STE. 120 CARLSBAD CA. 92009 (760) 431-7117				

REGISTERED PROFESSIONAL ENGINEER
 MICHAEL M. MONROE
 No. 51023 Exp. 6/30/11
 ELECTRICAL
 STATE OF CALIFORNIA

ENGINEER OF WORK
[Signature] 12/3/10
 DATE

WATER DEPARTMENT
City of San Diego

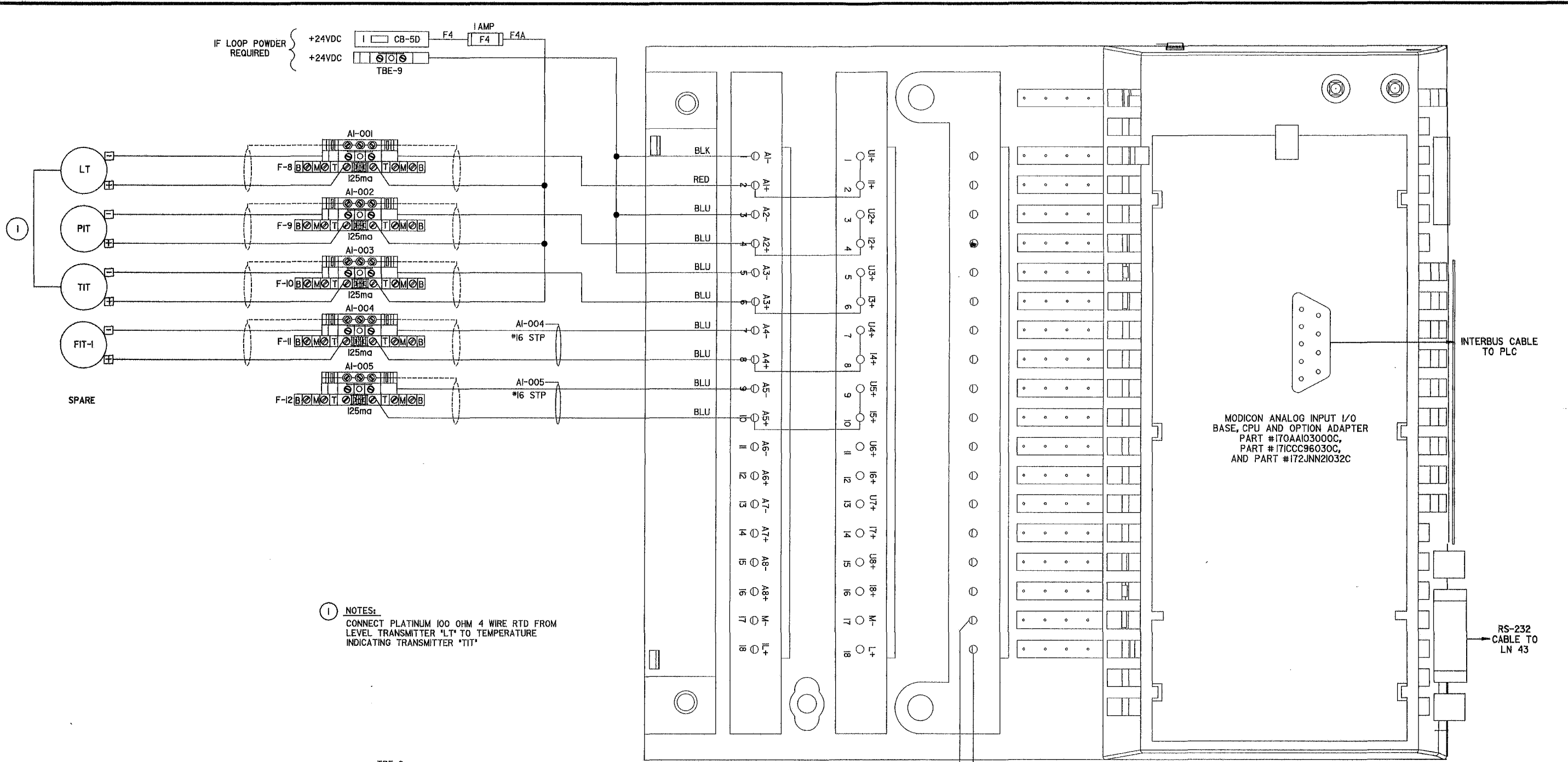
DES: SN
DWN: CAD
CKD: JMM

SCALE: _____

APPROVED BY: _____
FOR CITY ENGINEER

DESIGNED BY: _____
ASSOCIATE ENGINEER

INSPECTOR: _____
AS-BUILT ONLY

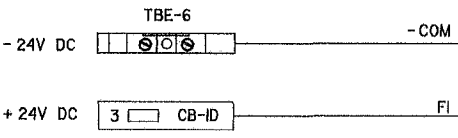


NOTES:
 1. CONNECT PLATINUM 100 OHM 4 WIRE RTD FROM LEVEL TRANSMITTER 'LT' TO TEMPERATURE INDICATING TRANSMITTER 'TIT'

MODICON ANALOG INPUT I/O
 BASE, CPU AND OPTION ADAPTER
 PART #170AA103000C,
 PART #171CC96030C,
 AND PART #172JNN21032C

INTERBUS CABLE TO PLC

RS-232 CABLE TO LN 43



BASE 1

SAN VICENTE PRODUCTION WELL

CONTRACT DRAWINGS FOR: SAN VICENTE PRODUCTION WELL NO. 1 RCP CONTROL DIAGRAM 2	
CITY OF SAN DIEGO, CALIFORNIA SHEET 17 OF 21 SHEETS	WATER W.O. _____
DESIGNED BY: [Signature] DATE: 12-7-10	APPROVED BY: [Signature] ASSOCIATE ENGINEER
DESCRIPTION: ORIGINAL	BY: XX/XX
APPROVED: _____	DATE: _____
FILED: _____	CONTROL CERTIFICATION
CONTRACTOR: _____	DATE STARTED: _____
INSPECTOR: _____	DATE COMPLETED: _____
35366-17-D	

NO.	DATE	REVISION DESCRIPTION	DWN	CKD	RVD	FE

CONSULTANT
MORAN PHAM & ASSOCIATES
 CONSULTING ELECTRICAL & MECHANICAL ENGINEERS
 2131 PALOMAR AIRPORT RD., STE. 120
 CARLSBAD, CA 92009 (760) 451-7177

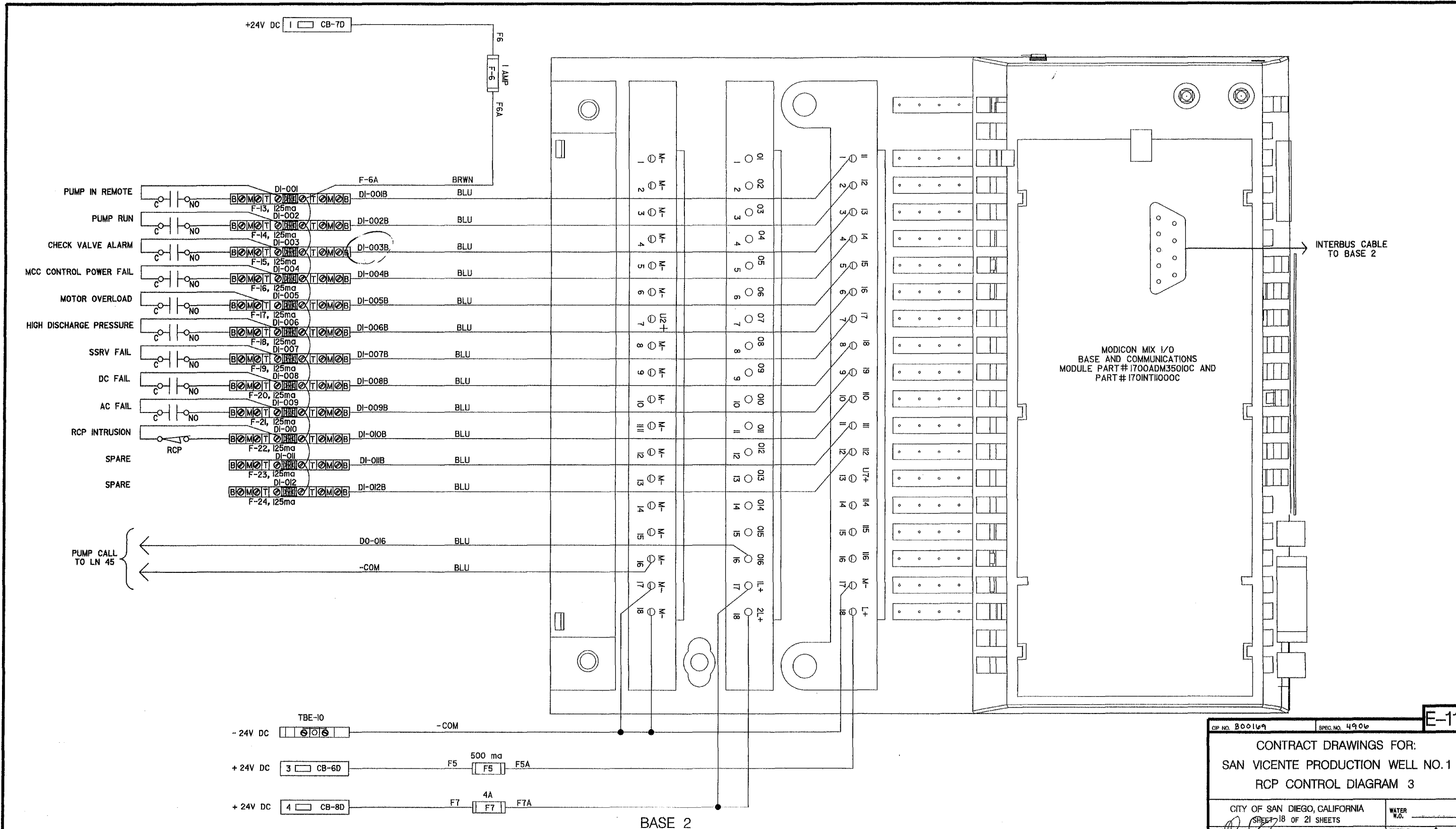


ENGINEER OF WORK
 [Signature] 12/5/10
 DATE

DES: SN
 DWN: CAD
 CKD: JMM

WATER DEPARTMENT
 City of San Diego

SCALE: _____
 APPROVED BY: _____
 FOR CITY ENGINEER
 ASSOCIATE ENGINEER
 INSPECTOR
 AS-BUILT ONLY



SAN VICENTE PRODUCTION WELL

E-11

CIP NO. 800169 SPEC. NO. 4906

CONTRACT DRAWINGS FOR:
SAN VICENTE PRODUCTION WELL NO. 1
RCP CONTROL DIAGRAM 3

CITY OF SAN DIEGO, CALIFORNIA
 SHEET 18 OF 21 SHEETS

APPROVED BY: *[Signature]* DATE: 12-9-10
 SENIOR CIVIL ENGINEER

DESIGNED BY: *[Signature]* DATE: 12-9-10
 ASSOCIATE ENGINEER

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	XI/XK			

CONTROL CERTIFICATION
 270-1791
 LAMBERT COORDINATES
 35366-18-D

CONTRACTOR: _____ DATE STARTED: _____
 INSPECTOR: _____ DATE COMPLETED: _____

DRAWING STATUS					CONSULTANT						
NO.	DATE	REVISION DESCRIPTION	DWN	CKD	RVD	PE					
							MORABIS/PHAM & ASSOCIATES CONSULTING ELECTRICAL & MECHANICAL ENGINEERS 2131 FALLON AIRPORT RD., STE. 120 CARLSBAD, CA. 92009 (760) 431-7177				

REGISTERED PROFESSIONAL ENGINEER
JOSEPH M. MORABIS
 No. 21023 Exp. 8/30/11
ELECTRICAL
 STATE OF CALIFORNIA

ENGINEER OF WORK
[Signature] 12/3/10
 DATE

WATER DEPARTMENT
 City of San Diego

DES: SN
 DWN: CAD
 CRD: JMM

SCALE: _____
 VERT: _____
 HOR: _____

APPROVED BY: _____
 FOR CITY ENGINEER

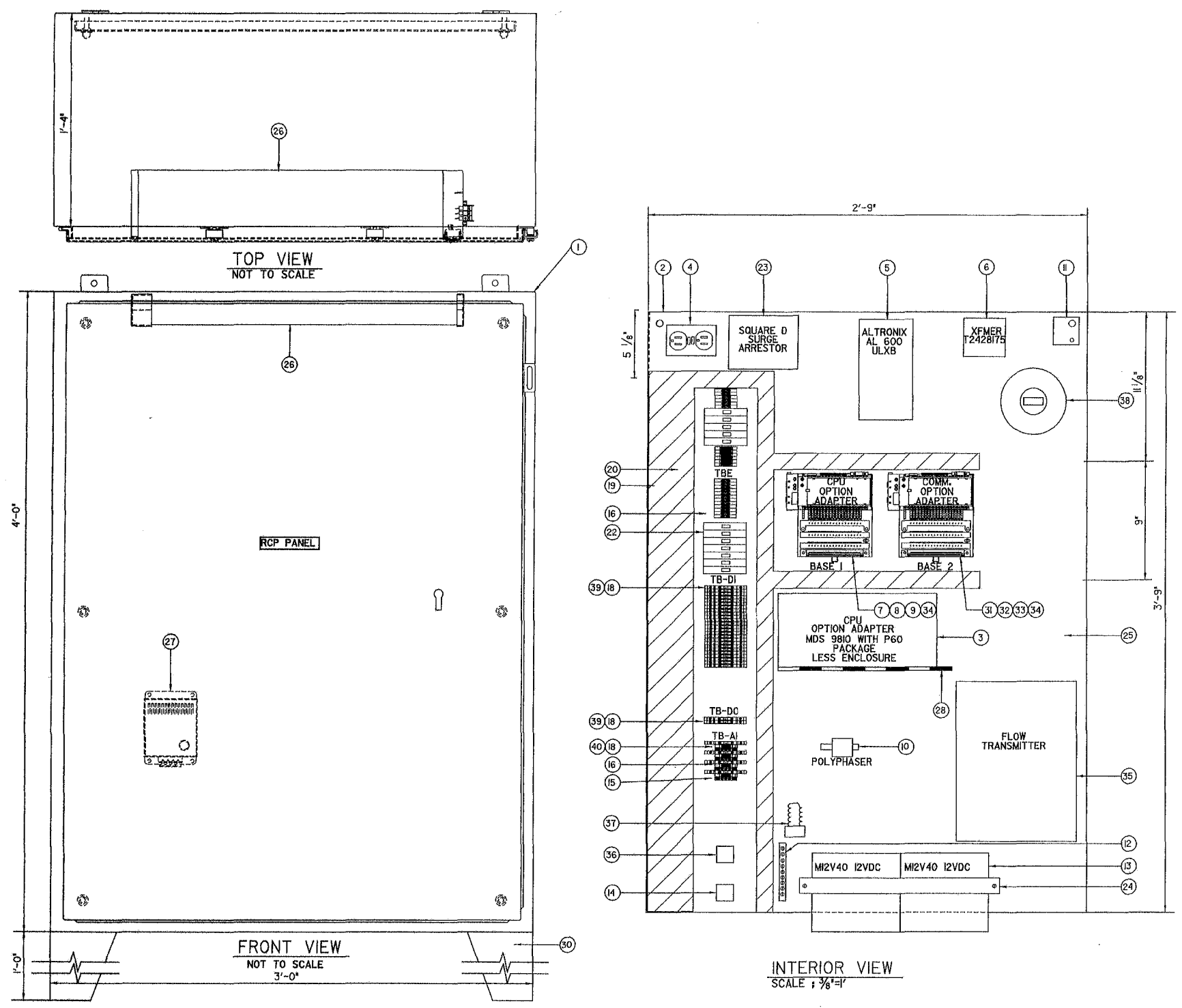
DESIGNED BY: _____
 ASSOCIATE ENGINEER

INSPECTOR: _____
 AS-BUILT ONLY

BILL OF MATERIAL SCHEDULE

ITEM	MANUFACTURER	MODEL NO.	DESCRIPTION
1	HOFFMAN	A-48H3616SSLP3PTW	48x36x16 WHITE ENCLOSURE, NEMA 4X
2	HOFFMAN	A-48P36	45x33x1/8" STEEL BACK PANEL
3	MDS	9810/P60 PACKAGE	900 MHZ RADIO 24DC POWER SUPPLY
4	PHOENIX CONTACT	EM/DU0/120/15 GFI	CONVENIENCE RECEPTACLE
5	ALTRONIX	AL 600UXB	POWER SUPPLY/CHARGER
6	NOT USED	-	-
7	MODICON	I70 AAI 03000C	AI BASE
8	MODICON	I71CCC 96030C	PLC PROCESSOR
9	MODICON	I72 JNN 210 32C	OPTION ADAPTER
10	POLYPHASER	IS-B50LN-C2	LIGHTING PROTECTOR
11	LIMIT SWITCH	802T-AP/802T-WI7	ALLEN BRADELY
12	-	-	GROUND BAR
13	GNB (MARATHON)	M12V40	12 VDC BATTERY X 2
14	POTTER & BRUMFIELD	CSL-38-30010	LOW VOLTAGE RELAY
15	PHOENIX	USLKG 5	GROUNDING TERMINAL BLOCK
16	PHOENIX	UK 5 N	1 LEVEL TERMINAL BLOCK
17	PHOENIX	UK 4-TG	1 LEVEL BASE TERMINAL BLOCK (FUSED)
18	PHOENIX	2774237	3 LEVEL TERMINAL BLOCK
19	PANDUIT	G1X4L66	WIRING DUCT
20	PANDUIT	G2X4L66	WIRING DUCT
21	ALLEN BRADELY	I99-DR1/1492-DR6	DIN RAIL 35MM
22	ALLEN BRADELY	I492-GH	CIRCUIT BREAKERS
23	SQUARE D	TVS120LC20	SURGE PROTECTOR
24	-	-	16 GAUGE BATTERY STRAP
25	-	-	16 GAUGE STAND OFF BRACKET
26	HOFFMAN	A-LTDBI	INTERIOR PANEL LIGHT
27	HOFFMAN	D-AH001A	HEATER MOUNTED ON BACK OF DOOR
28	-	-	14 GAUGE SHELF FOR RADIO
29	NOT USED	-	-
30	HOFFMAN	A-FK1212SS	12 INCH FLOOR STAND KIT PAINTED WHITE
31	MODICON	I70ADM35010C	MIX I/O BASE
32	MODICON	I70INT11000	COMMUNICATIONS MODULE
33	MODICON	I70MCI00700	COMMUNICATIONS CABLE
34	MODICON	I70XTS00100	TERMINAL STRIP
35	SPARLING	TIGER MAG	FLOW TRANSMITTER
36	PHOENIX	5542754	24 VDC RELAY
37	KPSI	815	ANEROID BELLOWS
38	SMAR	TI150I-12-10-BU-T4-L4-II-P0	TEMPERATURE TRANSMITTER AND WALL MOUNT BRACKET
39	PHOENIX	0921037	FUSE PLUG (DI AND DO ONLY)
40	PHOENIX	0921011	FUSE PLUG (AI ONLY)

SAN VICENTE PRODUCTION WELL



CONTRACT DRAWINGS FOR:
SAN VICENTE PRODUCTION WELL NO. 1
RCP LAYOUT DIAGRAM

CITY OF SAN DIEGO, CALIFORNIA
SHEET 19 OF 21 SHEETS

APPROVED BY: [Signature]
DATE: 12-7-10

DESIGNED BY: [Signature]
DATE: 12-7-10

DESCRIPTION: ORIGINAL
BY: [Signature]
APPROVED: [Signature]
DATE: [Blank]
FILMED: [Blank]

CONTROL CERTIFICATION
270-1791
LAMBERT COORDINATES
35366-19-D

DRAWING STATUS					CONSULTANT						
NO.	DATE	REVISION DESCRIPTION	DWN	CKD	RVD	FE					

ENGINEER OF WORK

DES: SN
DWN: CAD
CKD: JMM

DATE: 12/3/10

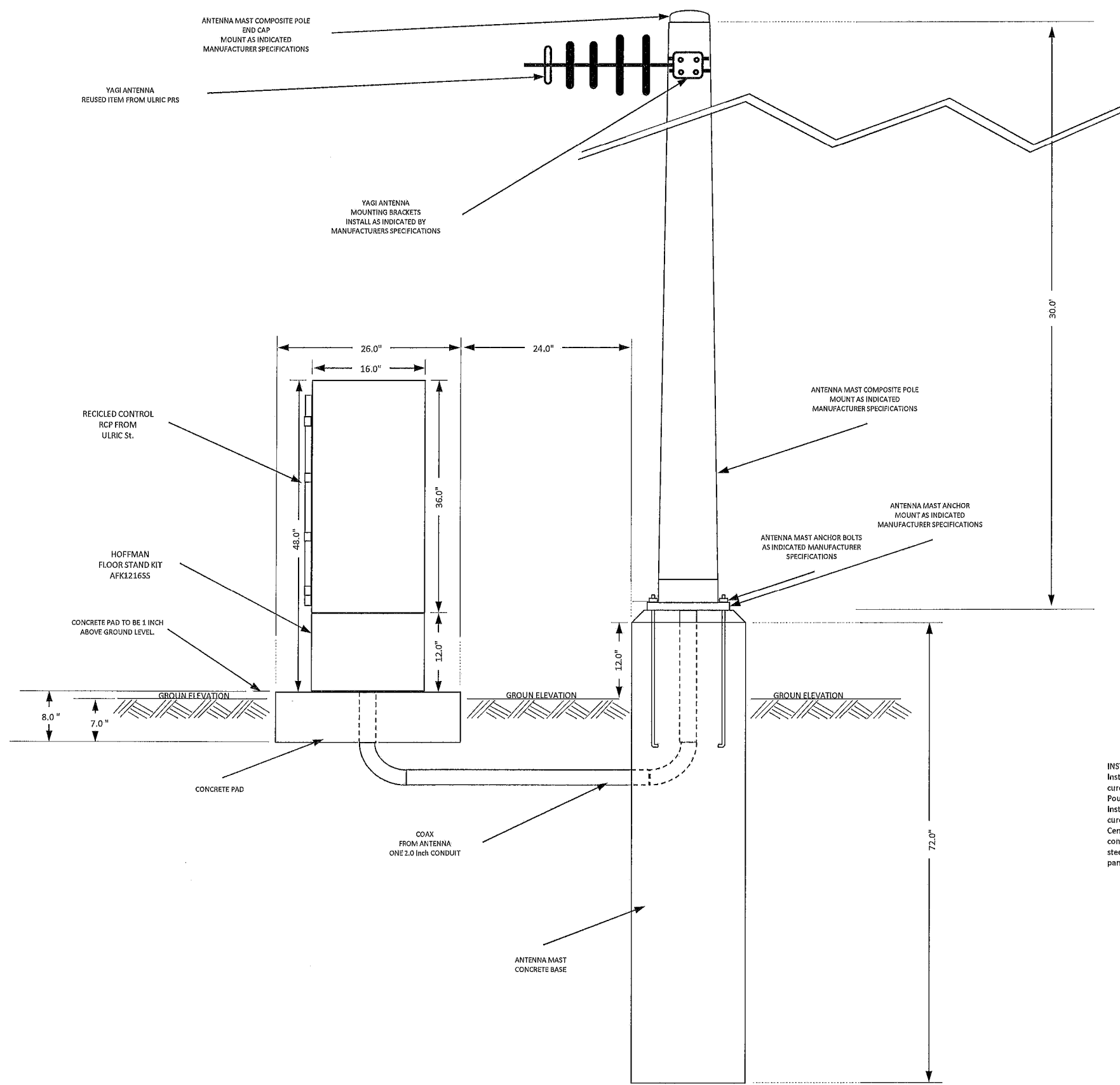
REGISTERED PROFESSIONAL ENGINEER
JOSEPH M. MORAN
No. 91023
Exp. 8/20/11
STATE OF CALIFORNIA
ELECTRICAL

WATER DEPARTMENT
City of San Diego

SCALE: 0 1/2 1
CONTA THE ASS. LIBRARY OF ORIGINAL DRAWING

INSPECTOR: AS-BUILT ONLY

SAMPLE INSTALLATION PANELS - ANTENNAS



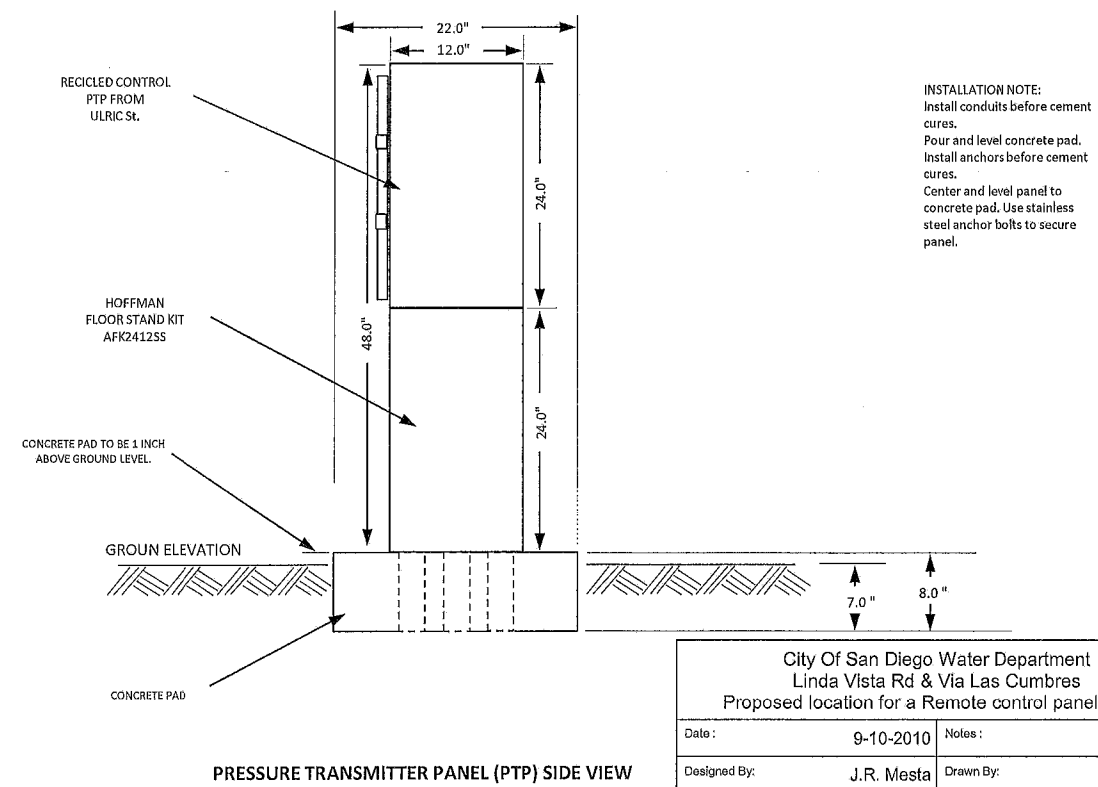
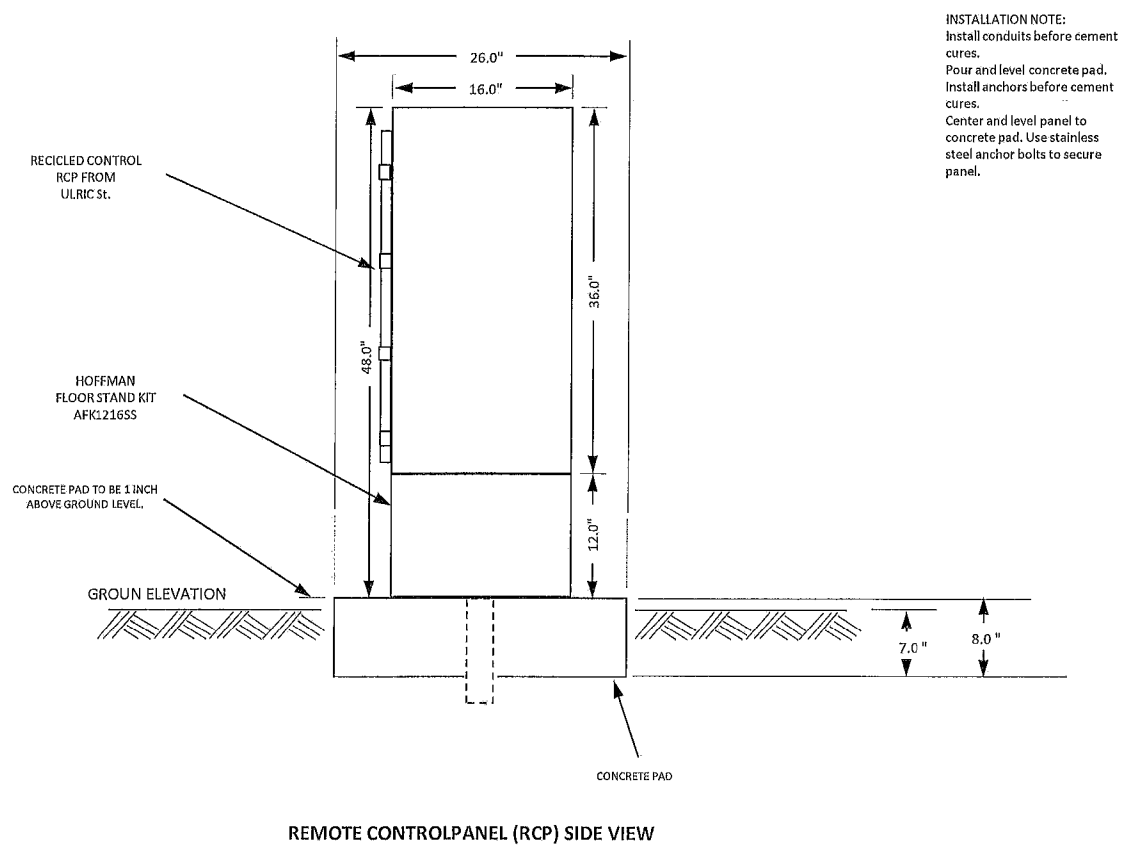
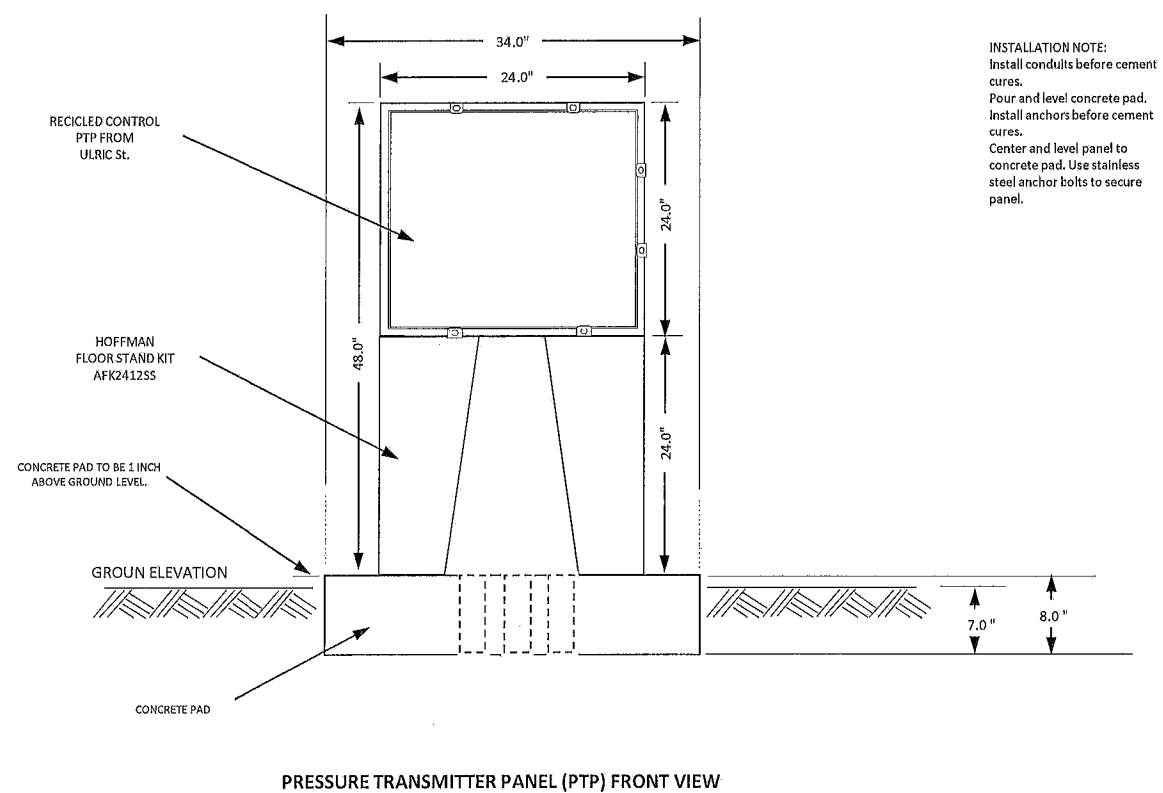
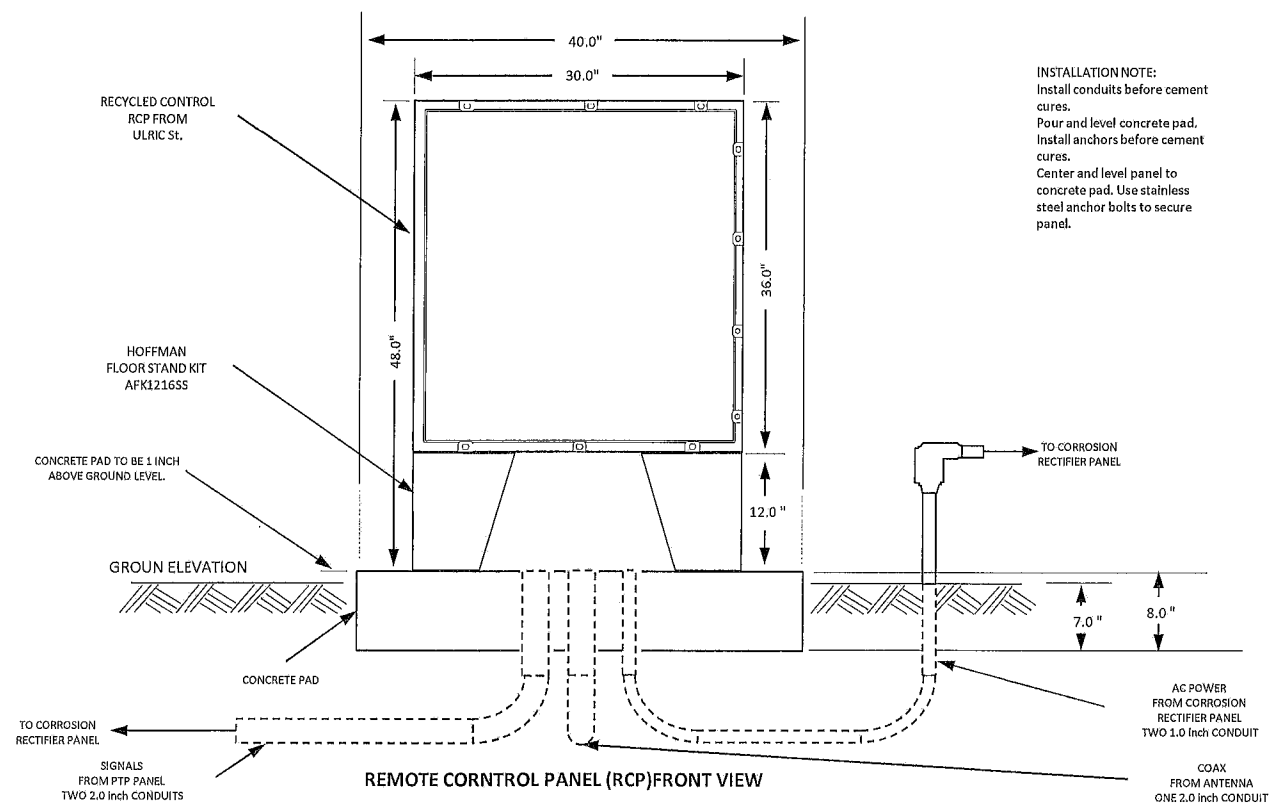
INSTALLATION NOTE:
 Install conduits before cement cures.
 Pour and level concrete pad.
 Install anchors before cement cures.
 Center and level panel to concrete pad. Use stainless steel anchor bolts to secure panel.

REMOTE CONTROL PANEL (RCP) AND ANTENNA BASE
 SIDE VIEW

IMPORTANT NOTE:
 NOT FOR DESIGN! This proposal is not intended to substitute design as built or field measured distances. Confirm measured distances and equipment location as necessary in these plans. make changes as necessary and confirm with owners. NEVER work around local and municipal laws follow safe practice and installation methods as required by code. use as a proposed reference and discard.

City Of San Diego Water Department Linda Vista Rd & Via Las Cumbres Proposed location for a Remote control panel(RCP)			
Date:	9-10-2010	Notes:	Proposal
Designed By:	J.R. Mesta	Drawn By:	J.R. Mesta
Reviewed By:		Revision Date:	
Approved By:		File:	C3-PRJ-LAL-SCADA
Scale:	0.085" to 1.00"	Expiration Date:	12-17-2011
Sheet #:	1 of 2 I-1	Sheet Size:	11 x 17

I-2



IMPORTANT NOTE:
NOT FOR DESIGN! This proposal is not intended to substitute design as built or field measured distances. Confirm measured distances and equipment location as necessary in these plans. make changes as necessary and confirm with owners. NEVER work around local and municipal laws follow safe practice and installation methods as required by code. use as a proposed reference and discard.

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Date:	9-10-2010	Notes:	Proposal
Designed By:	J.R. Mesta	Drawn By:	J.R. Mesta
Reviewed By:		Revision Date:	
Approved By:		File:	C3-PRJ-LAL-SCADA
Scale:	0.085" to 1.00"	Expiration Date:	12-17-2011
Sheet #:	1 of 2 I-1	Sheet Size:	11 x 17

TECHNICALS

SECTION 13300 - INSTRUMENTATION AND CONTROL

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The CONTRACTOR shall provide all Instrumentation and Control systems (I&C) complete and operable, in accordance with the Contract Documents. The requirements of this Section apply to all components of the I&C unless indicated otherwise.
- B. The City shall configure the radios and provide PLC program development.
- C. Responsibilities
 - 1. The CONTRACTOR, through the use of a qualified Instrumentation Subcontractor or vendor and qualified electrical and mechanical installers, shall be responsible to the OWNER for the implementation of the I&C and the integration of the I&C with other required instrumentation and control devices.
 - 2. Due to the complexities associated with the interfacing of numerous control system devices, the Instrumentation Subcontractor or vendor shall be responsible to the CONTRACTOR for the integration of the I&C with existing devices and devices provided under other Sections and provide a completely- integrated control system free of signal incompatibilities.
 - 3. As a minimum, the Instrumentation Subcontractor or vendor shall perform the following work:
 - a. Implementation of the I&C:
 - (1) Prepare shop drawing submittals
 - (2) Design, develop, and electronically draft loop drawings and control panel designs
 - (3) Prepare the test plan, the training plan, and the spare parts submittals
 - (4) Procure hardware
 - (5) Fabricate panels
 - (6) Perform factory tests on panels
 - (7) Perform bench calibration and verify calibration after installation
 - (8) Oversee and certify installation

- (9) Oversee, document, and certify loop testing
- (10) Oversee, document, and certify system commissioning
- (11) Conduct the performance test
- (12) Prepare operations and maintenance information in accordance with Section 01730 - Operations and Maintenance Information
- (13) [Conduct training classes]
- (14) Prepare record drawings
- (15) Prepare calibration sheets
- (16) Certify the installation of the I&C

b. Integration of the I&C with instrumentation and control devices being provided under other Sections:

- (1) Develop all requisite loop drawings and record loop drawings associated with equipment provided under other Divisions and OWNER-furnished and existing equipment.
- (2) Resolve signal, power, or functional incompatibilities between the I&C and interfacing devices.

4. Instrumentation Subcontractor or vendor responsibilities in addition to the items identified above shall be at the discretion of the CONTRACTOR. Additional requirements in this Section and Division 13 that are stated to be the CONTRACTOR's responsibility may be performed by the Instrumentation Subcontractor or vendor.

D. Certification of Intent:

1. Fifteen days after Notice of Apparent Low Bidder, the CONTRACTOR shall submit a certification from the selected Instrumentation Subcontractor or vendor. The certification shall be typed on letterhead paper of the Instrumentation Subcontractor or vendor firm. The certification shall be signed by an authorized representative of the Instrumentation Subcontractor or vendor. The certification shall include the following statements:

- a. (Company name) "hereby certifies intent to assume and execute full responsibility to the CONTRACTOR to perform all tasks defined under Subsection 13300-1.1B3 in full compliance with the requirements of the Contract Documents."
- b. "It is certified that the quotation to the CONTRACTOR includes full and complete compliance with the requirements of the Contract Documents without exception."

E. Documentation of Instrumentation Subcontractor Qualifications:

1. List of at least two instrumentation and control system projects successfully completed, of size and scope similar to that described herein, in which the applicant performed system engineering, system fabrication and installation, documentation (including schematic, wiring and panel assembly drawings), field testing, calibration and start-up, operator instruction and maintenance training. Each of the references cited must be accompanied by a written confirmation of the accuracy of the data by a managerial member of the control system operational staff.
2. In addition, list the following information for each project above:
 - a. Name of plant, OWNER, contact name, and telephone number. All phone numbers and contacts shall be verified by the applicant before submission.
 - b. Name of manufacturer(s) for the majority of instrumentation provided.
 - c. Type of equipment furnished (i.e., transmitters, recorders, indicators, etc.)
 - d. Manufacturer and model number of DCS, SCADA, or PLC to which the analog system interfaced.
 - e. Date of completion or acceptance.
3. Furnish the name of the individual person who will be responsible for office engineering and management of this project, and the individual who will be responsible for field testing, calibration, start-up, and operator training for this project. Include references of recent projects of these individual persons.
4. Submit specific documentation which verifies that Instrumentation Subcontractor employs the minimum of individuals who have been formally trained in the application of the:
 - a. Indicated operating systems.
 - b. Indicated software packages.
 - c. Indicated graphical user interface software packages.
5. Document that the applicant's company has been actively involved in the instrumentation systems business (under the same corporate name).

1.2 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, shall also apply to the extent required for proper performance of this Work.
 1. Section 16050 Basic Electrical Materials and Methods
 2. Division 13

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. The Work of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal code:
 - 1. National Electrical Code (NEC)
 - 2. Uniform Building Code (UBC)
- B. Except as otherwise indicated, the current editions of the following apply to the Work of this Section:
 - 1. ANSI/SA S 5.1 Instrumentation Symbols and Identification
 - 2. ISA-S20 Specification Forms for Process Measurement and Control Instruments

1.4 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with Section 01300 - Submittals and the following:
 - 1. Coordinate the instrumentation Work so that the complete instrumentation and control system will be provided and will be supported by accurate shop drawings and record drawings.
 - 2. Symbology and Nomenclature: In these Contract Documents, all systems, all meters, all instruments, and all other elements are represented schematically, and are designated by symbology as derived from Instrument Society of America Standard ANSI/ISA S5.1 - Instrumentation Symbols and Identification. The nomenclature and numbers designated herein and on the Drawings shall be employed exclusively throughout shop drawings, and similar materials. No other symbols, designations, or nomenclature unique to the manufacturer's standard methods shall replace those prescribed above, used herein, or on the Drawings.
- B. Presubmittal Conference:
 - 1. Arrange and conduct a Presubmittal Conference within 30 days after award of the contract. The purpose of the Presubmittal Conference is to review and approve the manner in which the CONTRACTOR intends to carry out its responsibilities for shop drawing submittal on the Work to be provided under this Section. The CONTRACTOR, the Instrumentation Subcontractor or vendor, and the ENGINEER shall attend. Both the CONTRACTOR and the ENGINEER may invite additional parties at their discretion.
 - 2. Allow one, 8-hour days for the Presubmittal Conference.
 - 3. Submit 3 copies of the following items for discussion at the Presubmittal Conference:

- a. A list of equipment and materials required for the I&C and the manufacturer's name and model number for each proposed item.
 - b. A list of proposed clarifications to the Contract Documents along with a brief explanation of each. Resolution shall be subject to a separate formal submittal and review by the ENGINEER.
 - c. A sample of each type of submittal specified herein.
 - d. A flow chart showing the steps to be taken in preparing and coordinating each submittal.
 - e. A bar-chart type schedule for all system related activities from the Presubmittal Conference through start-up and training. Dates of submittals, design, fabrication, programming, factory testing, deliveries, installation, field testing, and training shall be shown. The schedule shall be subdivided to show activities relative to each major item or group of items when everything in a given group is on the same schedule.
 - f. [An overview of the proposed training plan. The ENGINEER will review the overview and may request changes. All changes to the proposed training shall be resolved at the Presubmittal Conference. The overview shall include the following for each proposed course:
 - (1) Course title and objectives.
 - (2) Prerequisite training and experience of attendees.
 - (3) Course content - a topical outline.
 - (4) Course duration.
 - (5) Course format - lecture, laboratory demonstration, etc.
 - g. A preliminary copy of the Instrumentation Subcontractor Qualification submittal.
4. Take minutes of the Presubmittal Conference, including all events, questions, and resolutions. Before adjournment, all parties must concur with the accuracy of the minutes and sign accordingly.

C. Shop Drawings:

- 1. General:
 - a. Preparation of shop drawings shall not start until adjournment of the Presubmittal Conference.
 - b. Shop drawings shall include the letter head or title block of the Instrumentation Subcontractor. The title block shall include, as a minimum, the Instrumentation Subcontractor's registered business name and address, project name, drawing name, revision level, and personnel responsible for the content of the drawing.

- c. Organization of the shop drawing submittals shall be compatible with eventual submittals for later inclusion in the operations and maintenance information submitted in accordance with Section 01730 - Operations and Maintenance Information. Submittals that are improperly organized or incomplete for a given loop will be rejected.
 - d. Shop drawing information shall be bound in standard size, 3 ring, loose leaf, vinyl plastic, hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 3 inches.
 - e. Interfaces between instruments, motor starters, control valves, variable speed drives, flow meters, chemical feeders and other equipment related to the I&C shall be included in the shop drawing submittal.
- 2 Instrument Submittal: Submit the instrument submittal as a complete bound package at one time within 60 calendar days after the commencement date stated in the Notice to Proceed, including:
- a. A complete index that lists each device by tag number, type, and Manufacturer. A separate technical brochure or bulletin shall be included with each instrument data sheet. The data sheets shall be indexed in the submittal by systems or loops, as a separate group for each system or loop. If, within a single system or loop, a single instrument is employed more than once, one data sheet with one brochure or bulletin may cover all identical uses of that instrument in that system. Each brochure or bulletin shall include a list of tag numbers for which it applies. System groups shall be separated by labeled tags.
 - b. Fully executed data sheets according to ISA-S20 - Specification Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves, for each component, together with a technical product brochure or bulletin. The technical product brochures shall be complete enough to verify conformance to all Contract Document requirements. The data sheets, as a minimum, shall show:
 - (1) Component functional description used in the Contract Documents
 - (2) Manufacturer's model number or other product designation
 - (3) Project tag number used in the Contract Documents
 - (4) Project system or loop of which the component is a part
 - (5) Project location or assembly at which the component is to be installed
 - (6) Input and output characteristics
 - (7) Scale, range, units, and multiplier (if any)
 - (8) Requirements for electric supply (if any)

- (9) Requirements for air supply (if any)
 - (10) Materials of component parts to be in contact with or otherwise exposed to process media and corrosive ambient air
 - (11) Special requirements or features
- c. Flow Meter Sizing Calculations: Calculations shall be submitted on the Instrument Manufacturer letterhead and shall include the following:
- (1) Proposed flow meter size based on indicated minimum, maximum and average flow rates
 - (2) Guaranteed flow meter accuracy based on the upstream and downstream straight runs associated with the location of each flow meter
 - (3) Permanent head loss associated with each flow meter
 - (4) Flow vs. differential pressure curves for all head-type devices. For compressible fluids, curves shall be pressure and temperature compensated.
 - (5) References to ASME and ISA standard equations used
 - (6) Values used for all parameters used in calculations
- d. Calibration sheets in accordance with Subsection 13300-1.4C5.
- e. Priced list of all spare parts for all devices
- f. Instrument installation, mounting, and anchoring details shall be submitted in an electronic INTERGRAPH MICROSTATION format and hard copy format. Each instrument shall have a dedicated 8-1/2" X 11" detail that pertains to the specific instrument by tag number. Instruments that share the same installation detail shall be tabulated by tag numbers on the same detail sheet. As a minimum, each detail shall have the following content:
- (1) Show all necessary sections and elevation views required to define instrument location by referencing tank, building or equipment names and numbers, and geographical qualities such as north, south, east, west, basement, first floor.
 - (2) Ambient temperature and humidity of the environment where the instrument will be installed.
 - (3) Corrosive qualities of the environment where the instrument will be installed.

- (4) Hazardous rating of the environment where the instrument will be installed.
 - (5) Process line pipe or tank size, service and material.
 - (6) Process tap elevation and location
 - (7) Upstream and downstream straight pipe lengths between instrument installation and pipe fittings and valves.
 - (8) Routing of tubing and identification of supports.
 - (9) Mounting brackets, stands, and anchoring devices.
 - (10) Conduit entry size, number, location, and delineation between power and signal.
 - (11) NEMA ratings of enclosures and all components.
 - (12) Clearances required for instrument servicing.
 - (13) List itemizing all manufacturer makes, model numbers, quantities, lengths required, and materials of each item required to support the implementation of the detail.
- 3 Project-Wide Loop Drawing Submittal: Furnish a Project-wide Loop Drawing Submittal (PLDS) that completely defines and documents the contents of each monitoring, alarming, interlock, and control loop associated with equipment provided under the instrumentation sections, equipment provided under sections in other Divisions, existing, and OWNER-furnished equipment that is to be incorporated into the I&C. The PLDS shall be a singular complete bound package electronically drafted in INTERGRAPH MICROSTATION format, submitted within 120 days after contract award, and shall include the following:
- a. A complete index in the front of each bound volume. The loop drawings shall be indexed by systems or process areas. All loops shall be tagged in a manner consistent with the Contract Documents. Loop drawings shall be submitted for every analog and discrete monitoring and control loop.
 - b. Drawings showing definitive diagrams for every instrumentation loop system. These diagrams shall show and identify each component of each loop or system using legend and symbols from ANSI/ISA S5.4 - Instrument Loop Drawings, and as defined by the most recent revision in ISA. Each system or loop diagram shall be drawn on a separate drawing sheet. Loop drawings shall be developed for loops in equipment vendor supplied packages, equipment provided under the instrumentation sections, and OWNER furnished equipment. The loop drawings shall also show all software modules and linkages. In addition to the expanded ISA S5.4 requirements the loop diagrams shall also show the following details:

- (1) Functional name of each loop.
 - (2) Reference name, drawing, and loop diagram numbers for any signal continuing off the loop diagram sheet.
 - (6) MCC panel, circuit, and breaker numbers for all power feeds to the loops and instrumentation.
 - (4) Designation, and if appropriate, terminal assignments associated with every manhole, pullbox, junction box, conduit, and panel through which the loop circuits pass.
 - (5) Vendor panel, instrument panel, conduit, junction boxes, equipment and PLC I/O terminations, termination identification wire numbers and colors, power circuits, and ground identifications.
- c. Itemized instrument summary. The summary shall be prepared with Lotus 1-2-3 software and shall be submitted on 3-1/2-inch floppy disks and hard copy. The instrument summary shall list all of the key attributes of each instrument provided under this Contract. As a minimum, attributes shall include:
- (1) Tag number
 - (2) Manufacturer
 - (3) Model number
 - (4) Service
 - (5) Area location
 - (6) Calibrated range
 - (7) Loop drawing number
 - (8) Associated LCP, PLC, PCM, or RTU

4 Test Procedure Submittals:

- a. Submit the proposed procedures to be followed during tests of the I&C and its components.
- b. Preliminary Submittal: Outlines of the specific proposed tests and examples of proposed forms and checklists.
- c. Detailed Submittal: After approval of the Preliminary Submittal, the CONTRACTOR shall submit the proposed detailed test procedures, forms, and checklists. This submittal shall include a statement of test objectives with the test procedures.

- d. Certify in writing that for each loop or system checked out, and all discrepancies have been corrected.
- 5 Calibration Sheets: Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit:
- a. Project name
 - b. Loop number
 - c. Tag number
 - d. Manufacturer
 - e. Model number
 - f. Serial number
 - g. Calibration range
 - h. Calibration data: Input, output, and error at 10, 50 and 90% of span
 - i. Switch setting, contact action, and deadband for discrete elements
 - j. Space for comments
 - k. Space for sign-off by Instrumentation Supplier and date
 - l. Test equipment used and associated serial numbers
- 6 Training Submittals: Subsequent to the receipt of the CONTRACT MANAGER's input made at the Presubmittal Conference, the CONTRACTOR shall submit a training plan that includes:
- a. A resubmittal of the training plan overview from the Presubmittal Conference with incorporation of all modifications agreed upon at that meeting.
 - b. Schedule of training courses including dates, durations, and locations of each class.
 - c. Resumes of the instructors who will actually implement the plan.

D. Operations and Maintenance Information:

- 1. General: Operations and maintenance information shall be based upon the approved shop drawing submittals as modified for conditions encountered in the field during the Work.

2. Operations and maintenance information submitted in compliance with Section 01730 - Operations and Maintenance Information shall be organized as follows for each process:
 - a. Section A - Process and Instrumentation Diagrams
 - b. Section B - Loop Descriptions
 - c. Section C - Loop Drawings
 - d. Section D - Instrument Summary
 - e. Section E - Instrument Data Sheets
 - f. Section F - Sizing Calculations
 - g. Section G - Instrument Installation Details
 - h. Section H - Test Results
3. CONTRACTOR-certified results from Calibration Loop Testing, Precommissioning, and Performance Testing shall be included in Section H of the operations and maintenance information.
4. Start-up of systems shall begin no sooner than 15 days after final approval of the I&C operations and maintenance information provided in compliance with Section 01730 - Operations and Maintenance Information.

E. Record Drawings:

1. Keep current a set of complete loop and schematic diagrams which shall include all field and panel wiring, piping and tubing runs, routing, mounting details, point-to-point diagrams with cable, wire, tube and termination numbers. These drawings shall include all instruments and instrument elements. One set of record drawings electronically formatted in INTERGRAPH MICROSTATION format and 2 hard copies shall be submitted after completion of all Precommissioning tasks but before Performance Testing. All such drawings shall be submitted for review before acceptance of the completed Work.

1.5 FACTORY TESTING

- A. Arrange for the Manufacturers of the equipment and fabricators of panels and cabinets supplied under this Section to allow the ENGINEER to inspect and witness the testing of the equipment at the site of fabrication. Equipment shall include the cabinets, special control systems, flow measuring devices, and other pertinent systems and devices. A minimum of 10 working days notification shall be provided to the ENGINEER before testing. No shipments shall be made without the ENGINEER's approval.

1.6 PERIOD FOR CORRECTION OF DEFECTS

CITY OF SAN DIEGO WATER DEPARTMENT
PROJECT NO.
PROJECT NAME:

INSTRUMENTATION AND CONTROL
13300-11
DATE: AUGUST 2009

- A. Correct all defects in the I&C upon notification from the OWNER within one year from the date of Substantial Completion. Corrections shall be completed within 5 days after notification.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Code and Regulatory Compliance: All I&C Work shall conform to or exceed the applicable requirements of the National Electrical Code. Conflicts between the requirements of the Contract Documents and any codes or referenced standards or specifications shall be resolved according to Section 01090 - References.
- B. Current Technology: All meters, instruments, and other components shall be the most recent field-proven models marketed by their manufacturers at the time of submittal of the shop drawings unless otherwise required to match existing equipment.
- C. Hardware Commonality: All instruments that use a common measurement principle (for example, d/p cells, pressure transmitters, level transmitters that monitor hydrostatic head) shall be furnished by a single Manufacturer. All panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single Manufacturer.
- D. Loop Accuracy: The accuracy of each instrumentation system or loop shall be determined as a probable maximum error; this shall be the square-root of the sum of the squares of certified "accuracies" of the designated components in each system, expressed as a percentage of the actual span or value of the measured variable. Each individual instrument shall have a minimum accuracy of $\pm 0.5\%$ of full scale and a minimum repeatability of $\pm 0.25\%$ of full scale unless otherwise indicated. Instruments that do not conform to or improve upon these criteria are not acceptable.
- E. Instrument and Loop Power: Power requirements and input/output connections for all components shall be verified. Power for transmitted signals shall, in general, originate in and be supplied by the control panel devices. The use of "2-wire" transmitters is preferred, and use of "4-wire" transmitters shall be minimized. Individual loop or redundant power supplies shall be provided as required by the Manufacturer's instrument load characteristics to ensure sufficient power to each loop component. All power supplies shall be mounted within control panels or in the field at the point of application.
- F. Loop Isolators and Convertors: Signal isolators shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component. Dropping precision wire-wound resistors shall be installed at all field side terminations in the control panels to ensure loop integrity. Signal conditioners and convertors shall be provided where required to resolve any signal level incompatibilities or provide required functions.

- G. Environmental Suitability: All indoor and outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. Provide all power wiring for these devices. Enclosures suitable for the environment shall be furnished. All instrumentation in hazardous areas shall be suitable for use in the particular hazardous or classified location in which it is to be installed.
- H. Signal Levels: Analog measurements and control signals shall be as indicated herein, and unless otherwise indicated, shall vary in direct linear proportion to the measured variable. Electrical signals outside control panels shall be 4 to 20 mA DC except as indicated. Signals within enclosures may be 1 to 5 VDC. All electric signals shall be electrically or optically isolated from other signals. All pneumatic signals shall be 3 to 15 psig with 3 psig equal to 0% and 15 psig equal to 100%.
- I. Control Panel Power Supplies: All control panels shall be provided with redundant power supplies that are configured in a fault-tolerant manner to prevent interruption of service upon failure and interruption of service necessitated by the replacement of a power supply. All power supplies shall have an excess rated capacity of 40%. The failure of a power supply shall be annunciated at the control panel and repeated to the SCADA System.
- J. Alternative Equipment and Methods: Equipment or methods requiring redesign of any project details are not acceptable without prior written approval of the ENGINEER through the "or equal" process of Section 01600 Materials and Equipment. Any proposal for approval of alternative equipment or methods shall include evidence of improved performance, operational advantage and maintenance enhancement over the equipment or method indicated, or shall include evidence that an indicated component is not available.

2.2 OPERATING CONDITIONS

- A. The I&C shall be designed and constructed for satisfactory operation and long, low maintenance service under the following conditions:
 - 1 Environment - water treatment or pumping facility
 - 2 Temperature Range - 32 through 104 degrees F
 - 3 Thermal Shock - 1 degree F per minute, maximum
 - 4 Relative Humidity - 20 through 90%, non-condensing

2.3 SPARE PARTS AND SPECIAL TOOLS

CITY OF SAN DIEGO WATER DEPARTMENT
 PROJECT NO.
 PROJECT NAME:

INSTRUMENTATION AND CONTROL
 13300-13
 DATE: AUGUST 2009

- A. Spare Parts: Furnish the spare parts selected by the ENGINEER from the priced list of spare parts in the Instrument Submittal and Control Panel Engineering Submittal in conformance with Section 13370 - Control Panels.
- B. Special Tools: Furnish a priced list of all special tools required to calibrate and maintain all of the instrumentation provided under the Contract Documents. After approval, furnish all listed tools.
- C. Timing of Submittals: All special tools and spare parts shall be submitted before startup starts, and shall be suitably wrapped and identified.

2.4 ELECTRONIC PRESSURE TRANSMITTERS

- A. Electronic pressure transmitters shall consist of a capsule assemble, bottom works, vent plug, drain plug, cover flange, process connector and connection, amplifier unit, integral indicator, terminal box with cover, block and bleed valves, and conduit connections. Pressure applied to the transmitter shall be transmitted by a sealed fill fluid to both sides of a sensing diaphragm. The sensing diaphragm and the sensor body shall function as the moving and fixed electrodes of a differential capacitor respectively. As the applied pressure causes the diaphragm to move, the capacitance of the cell shall change. The amplifier unit shall convert the change in capacitance to a 4-20 mA DC signal, wire type, with an allowable loop load of no less than 600 ohms. Static pressure rating shall be a minimum of 500 psig. The maximum over-range pressure limit shall be a minimum of 150% of the minimum range. Span shall be adjustable over a minimum of 5:1 range: External adjustments shall include zero and span. Damping shall be provided as an internal adjustment. All equipment shall be suitable for an ambient operating range of - 40 to + 212 degrees F. All wetted parts shall be constructed of Type 316 stainless steel. All block and bleed valves shall be constructed of Type 316 stainless steel. The integral indicator shall be calibrated in process units. Power supply shall be 24 VDC. Accuracy, including linearity and repeatability, shall be a plus or minus 0.1% of span.
- B. The table below of electronic pressure transmitters shall be provided. CONTRACTOR should not consider this a complete Bill of Materials and must provide all equipment necessary for complete working systems. Electronic gauge pressure transmitters shall be Smar Model 301.

Tag No.	Range	Body/Bolt Material	Fill Fluid	Process Connection	NEMA Rating
PIT	0-200 psi	316 SS	Silicone	1/2" NPT	4

2.5 PRESSURE SWITCH

- A. Where adjustable pressure switches are indicated, units shall be diaphragm actuated, dual adjustment pressure switches with SPDT contacts rated for a minimum of 5 A at

120 VAC. The dead band shall be adjustable up to 60% of full scale. Set points shall fall between 20 and 80% of the adjustable range. The diaphragm shall be Buna-N, and the lower housing shall be brass with a 3/8-inch bottom sensing connection, unless otherwise indicated.

- B. The table below of adjustable differential pressure switches shall be provided. CONTRACTOR should not consider this a complete Bill of Materials and must provide all equipment necessary for complete working systems. Products shall be Static-O-Ring, United Electric Series 300, or equal.

Tag No.	Setpoint	NEMA Rating
PSH	50 psi	4

2.6 SUBMERSIBLE TYPE PRESSURE/LEVEL TRANSMITTER

- A. Pressure/level transmitter shall be a sealed stainless-steel diffused silicon transducer that shall generate an electronic analog signal proportional to pressure/level and shall transmit the analog signal via a shielded cable.
- B. The pressure/level transmitter output shall be a true 2-wire device with 24-volt dc power being derived from the control panel. No separate power supply shall be required at the transmitter.
- C. The transmitter output shall be 4 to 20 ma dc into a load of 0 to 450 ohms maximum.
- D. The submersible transmitter's titanium housing shall be waterproof.
- E. Overall accuracy shall be within 0.25% of span.
- F. Ambient temperature limits shall be -40 °C to 60 °C.
- G. Provide all necessary mounting hardware, conduit adapter, remote transducer cable, and shutoff valves.
- H. Suspended transmitters shall be provided with a Kevlar reinforced polyurethane cable or separate stainless steel support cable. The sensor cable shall be of sufficient length so no splice or connector is required in the set or inaccessible area, and the vent tube termination point is located in an area protected from dirt and moisture.
- I. Submersible level transmitter cable shall be without splices and marked off every foot with a permanent marker indicating the length of actual cable that is submersed.
- K. The pressure/level transmitter shall be ranged in engineering units as shown on drawings.
- L. The pressure/level transmitter shall have a 5 year corrosion warranty.

- M. The pressure/level transmitter shall be located 5 feet above the pump.
- N. Submersible transmitters shall be Druck PTX1830-A262 with internal 100 ohm RTD, no equal. Provide aneroid bellows to prevent moisture from entering and condensing in the vent tube. Manufacturer: KPSI Series 815; or approved equal.

Tag No.	Range	Cable Length
LT	0-75 psi	120 feet

2.7 TEMPERATURE TRANSMITTER

A. Acceptable manufacturers:

- 1 Smar, Model TT301

B. Materials:

- 1 Housing: Aluminum.
- 2 Painting: Gray Munsell N 6,5 Polyester

C. Design and fabrication:

- 1 Smart transmitter utilizing microprocessor based electronics.
- 2 Input: 385 platinum 100 ohm 4 wire RTD
- 3 Transmitter inaccuracy shall be in accordance with the following:
 - a. 100 ohm platinum RTD input: +/-0.2 DegF +0.03 percent of span, whichever is greater.
- 4 Stability:
 - b. Greater of: +/-0.1 percent of reading or 0.1 DegC per 24 months.
- 5 Ambient temperature effects:
 - c. 100 platinum RTD input: +/-0.03% of the input resistance or 0.04 ohms whichever is greater
- 6 Ambient temperature limits:
 - d. -40 to 185 Deg F
 - b. Integral LCD meter: -4 to 176 Deg F

- 7 Output: 4-20 mA DC signal linearly proportional to temperature with HART superimposed
- 8 Power supply: 24 Vdc
- 9 Adjustable span
- 10 Adjustable zero
- 11 Digital Indicator
 - e. Up Scale
- 12 316 SST Bracket

D. The following RTD measuring systems shall be provided:

Tag No.	Range	Sensor Type	Well Required	NEMA Rating
TIT	20-70° F	385 Platinum 100 ohm 4 wire RTD	No	4

PART 3 -- EXECUTION

3.1 PRODUCT HANDLING

- A. Shipping Precautions: After completion of shop assembly, factory test, and approval, all equipment, cabinets, panels, and consoles shall be packed in protective crates and enclosed in heavy duty polyethylene envelopes or secured sheeting to provide complete protection from damage, dust, and moisture. Dehumidifiers shall be placed inside the polyethylene coverings. The equipment shall then be skid-mounted for final transport. Lifting rings shall be provided for moving without removing protective covering. Boxed weight shall be shown on shipping tags together with instructions for unloading, transporting, storing, and handling at the job site.
- B. Special Instructions: Special instructions for proper field handling, storage, and installation required by the Manufacturer shall be securely attached to each piece of equipment before packaging and shipment.
- C. Tagging: Each component shall be tagged to identify its location, instrument tag number, and function in the system. A permanent stainless steel or other non-corrosive material tag firmly attached and permanently and indelibly marked with the instrument

tag number, as given in the tabulation, shall be provided on each piece of equipment in the I&C. Identification shall be prominently displayed on the outside of the package.

- D. Storage: Equipment shall not be stored outdoors. Equipment shall be stored in dry permanent shelters, including in-line equipment, and shall be adequately protected against mechanical injury. If any apparatus has been damaged, such damage shall be repaired by the CONTRACTOR at no additional cost to the OWNER. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through tests as directed by the ENGINEER. Such tests shall be at no additional cost to the OWNER, and if the equipment fails the tests, it shall be replaced at no additional cost to the OWNER.

3.2 MANUFACTURER'S SERVICES

- A. Manufacturer's services shall be furnished for the following equipment:

1. All flow meters in new or potable water streams that relate to process control, mass balance calculations, and billing of customers.
2. All process analyzers
3. All hazardous gas detection equipment
4. Instruments that require specialized knowledge, such as vibration detectors.

- B. Furnish the following Manufacturer's services for the instrumentation listed above:

1. Perform bench calibration
2. Oversee installation
3. Verify installation of installed instrument
4. Certify installation and reconfirm Manufacturer's accuracy statement
5. Oversee loop testing, prepare loop validation sheets, and certify loop testing
6. Oversee precommissioning, prepare precommissioning validation sheets, and certify precommissioning
7. Train the OWNER's personnel

3.3 INSTALLATION

- A. General:

1. All instrumentation, including instrumentation furnished under other Divisions, shall be installed under Division 13 and the manufacturers' instructions.

2. Equipment Locations: The monitoring and control system configurations indicated are diagrammatic. The locations of equipment are approximate. The exact locations and routing of wiring and cables shall be governed by structural conditions and physical interferences and by the location of electrical terminations on equipment. All equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the OWNER exercises the right to require changes in location of equipment that do not impact material quantities or cause material rework, make such changes without additional cost to the OWNER.

B. Conduit, Cables, and Field Wiring

1. All conduit shall be provided under Division 16.
2. All 4-20 mA signal circuits, process equipment control wiring, signal wiring to field instruments, SCADA and PLC input and output wiring and other field wiring and cables shall be provided under Division 16.
3. All SCADA and PLC equipment cables, data highway communication networks shall be provided under Division 13.
4. All terminations and wire identification at I&C equipment furnished under this or any other Division shall be provided under Division 13.

C. Instrumentation Tie-Downs: All instruments, control panels, and equipment shall be anchored by methods that comply with seismic requirements that apply to the site.

D. Ancillary Devices: The Contract Documents show all necessary conduit and instruments required to make a complete instrumentation system. The CONTRACTOR shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements at no additional cost to the OWNER. All such additions and all such changes, including the proposed method of installation, shall be submitted to the ENGINEER for approval before commencing the Work. Such changes shall not be a basis of claims for extra work or delay.

E. Installation Criteria and Validation: All field-mounted components and assemblies shall be installed and connected according to the requirements below:

1. Installation personnel have been instructed on installation requirements of the Contract Documents.
2. Technical assistance is available to installation personnel at least by telephone.
3. Installation personnel have at least one copy of the approved shop drawings and data.
4. Instrument process sensing lines shall be installed similar to conduit specified under Section 16050 - Basic Electrical Materials and Methods. Individual tubes

shall run parallel and near the surfaces from which they are supported. Supports shall be used at intervals of not more than 3 feet of rigid tubing.

5. Bends shall be formed to uniform radii with the proper tool without deforming or thinning the walls of the tubing. Plastic clips shall be used to hold individual plastic tubes parallel. Ends of tubing shall be square-cut and cleaned before being inserted in the fittings. Bulkhead fittings shall be provided at all panels requiring pipe or tubing entries.
6. All differential pressure elements shall have three valve manifolds.
7. All flexible cables and capillary tubing shall be installed in flexible conduits. The lengths shall be sufficient to withdraw the element for periodic maintenance.
8. All power and signal wires shall be terminated with crimped type lugs.
9. All connectors shall be, as a minimum, water tight.
10. All wires shall be mounted clearly with an identification tag that is of a permanent and reusable nature.
11. All wire and cable shall be arranged in a neat manner and securely supported in cable groups and connected from terminal to terminal without splices unless specifically approved by the ENGINEER. All wiring shall be protected from sharp edges and corners.
12. All mounting stands and bracket materials and workmanship shall comply with requirements of the Contract Documents.
13. Verify the correctness of each installation, including polarity of electric power and signal connections, and making sure all process connections are free of leaks. Certify in writing that for each loop or system checked out, all discrepancies have been corrected.
14. The OWNER will not be responsible for any additional cost of rework attributable to actions of the CONTRACTOR or the Instrumentation Subcontractor.

3.4 CALIBRATION

- A. General: All devices provided under the instrumentation sections shall be calibrated according to the manufacturer's recommended procedures to verify operational readiness and ability to meet the indicated functional and tolerance requirements.
- B. Calibration Points: Each instrument shall be calibrated at 20, 40, 60, 80 and 100% of span using test instruments to simulate inputs. The test instruments shall have accuracies traceable to National Institute of Testing Standards.

- C. Bench Calibration: Instruments that have been bench-calibrated shall be examined in the field to determine whether any of the calibrations are in need of adjustment. Such adjustments, if required, shall be made only after consultation with the ENGINEER.
- D. Field Calibration: Instruments that were not bench-calibrated shall be calibrated in the field to insure proper operation in accordance with the instrument loop diagrams or specification data sheets.
- E. Calibration Tags: A calibration and testing tag shall be attached to each piece of equipment or system at a location determined by the ENGINEER. Have the Instrumentation Supplier sign the tag when calibration is complete. The ENGINEER will sign the tag when the calibration and testing has been accepted.

3.5 LOOP TESTING

- A. General: Individual instrument loop diagrams per ISA Standard S5.4 - Instrument Loop Diagrams, expanded format, shall be submitted to the ENGINEER for review before the loop tests. The CONTRACTOR shall notify the ENGINEER of scheduled tests a minimum of [30] days before the estimated completion date of installation and wiring of the I&C. After the ENGINEER's review of the submitted loop diagrams for correctness and compliance with the specifications, loop testing shall proceed. The loop check shall be witnessed by the ENGINEER.
- B. Interlocks: All hardware and software interlocks between the instrumentation and the motor control circuits, control circuits of variable-speed controllers and packaged equipment controls shall be checked to the maximum extent possible.
- C. Instrument and Instrument Component Validation: Each instrument shall be field tested, inspected, and adjusted to its indicated performance requirement in accordance its Manufacturer's specifications and instructions. Any instrument that fails to meet any Contract requirement, or, in the absence of a Contract requirement, any published manufacturer performance specification for functional and operational parameters, shall be repaired or replaced, at the discretion of the ENGINEER at no additional cost to the OWNER.
- D. Loop Validation: Controllers and electronic function modules shall be field tested and exercised to demonstrate correct operation. All control loops shall be checked under simulated operating conditions by impressing input signals at the primary control elements and observing appropriate responses of the respective control and monitoring elements, final control elements, and the graphic displays associated with the SCADA and PLC. Actual signals shall be used wherever available. Following any necessary corrections, the loops shall be retested. Specified accuracy tolerances for each analog network are defined as the root-mean-square-summation of individual component accuracy requirements. Individual component accuracy requirements shall be as indicated by Contract requirements or by published manufacturer accuracy specifications, whenever Contract accuracy requirements are not indicated. Each analog network shall be tested by applying simulated analog or discrete inputs to the first element of an analog network. For networks that incorporate analog elements, simulated sensor inputs corresponding to 20, 40, 60, 80 and 100% of span shall be applied, and the resulting element outputs monitored to verify compliance to calculated

root-mean-square-summation accuracy tolerance requirements. Continuously variable analog inputs shall be applied to verify the proper operation and setting of discrete devices. Provisional settings shall be made on controllers and alarms during analog loop tests. All analog loop test data shall be recorded on tests that include calculated root-mean-square-summation system accuracy tolerance requirements for each output.

E. Loop Validation Sheets: Prepare loop confirmation sheets for each loop covering each active instrumentation and control device except simple hand switches and lights. Loop confirmation sheets shall form the basis for operational tests and documentation. Each loop confirmation sheet shall cite the following information and shall provide spaces for sign-off on individual items and on the complete loop by the Instrumentation Supplier:

1. Project name
2. Loop number
3. Tag number, description, manufacturer and model number for each element
4. Installation bulletin number
5. Specification sheet number
6. Loop description number
7. Adjustment check
8. Space for comments
9. Space for loop sign-off by Instrumentation Supplier and date
10. Space for ENGINEER witness signature and date

F. Loop Certifications: When installation tests have been successfully completed for all individual instruments and all separate analog control networks, a certified copy of all test forms signed by the ENGINEER or the ENGINEER representative as a witness, with test data entered, shall be submitted to the ENGINEER together with a clear and unequivocal statement that all instrumentation has been successfully calibrated, inspected, and tested.

3.6 PRECOMMISSIONING

- A. General: Precommissioning shall start after acceptance of all wire test, calibration tests and loop tests, and all inspections have demonstrated that the instrumentation and control system complies with all Contract requirements. Precommissioning shall demonstrate proper operation of all systems with process equipment operating over full operating ranges under conditions as closely resembling actual operating conditions as possible.
- B. Precommissioning Procedures and Documentation: All precommissioning and test activities shall follow detailed test procedures and check lists accepted by the

CONSTRUCTION MANGER. All test data shall be acquired using equipment as required and shall be recorded on test forms accepted by the ENGINEER, that include calculated tolerance limits for each step. Completion of all system precommissioning and test activities shall be documented by a certified report, including all test forms with test data entered, delivered to the ENGINEER with a clear and unequivocal statement that all system precommissioning and test requirements have been satisfied.

- C. Operational Validation: Where feasible, system precommissioning activities shall include the use of water to establish service conditions that simulate, to the greatest extent possible, normal final control element operating conditions in terms of applied process loads, operating ranges, and environmental conditions. Final control elements, control panels, and ancillary equipment shall be tested under start-up and steady-state operating conditions to verify that proper and stable control is achieved using motor control center and local field mounted control circuits. All hardwired and software control circuit interlocks and alarms shall be operational. The control of final control elements and ancillary equipment shall be tested using both manual and automatic (where provided) control circuits. The stable steady-state operation of final control elements running under the control of field mounted automatic analog controllers or software based controllers shall be assured by adjusting the controllers as required to eliminate oscillatory final control element operation. The transient stability of final control elements operating under the control of field mounted, and software based automatic analog controllers shall be verified by applying control signal disturbances, monitoring the amplitude and decay rate of control parameter oscillations (if any) and making necessary controller adjustments as required to eliminate excessive oscillatory amplitudes and decay rates.
- D. Loop Tuning: All electronic control stations incorporating proportional, integral or differential control circuits shall be optimally tuned, experimentally, by applying control signal disturbances and adjusting the gain, reset, or rate settings as required to achieve a proper response. Measured final control element variable position/speed set point settings shall be compared to measured final control element position/speed values at 20, 40, 60, 80 and 100% of span and the results checked against indicated accuracy tolerances.
- E. Precommissioning Validation Sheets: Precommissioning shall be documented on one of two types of test forms as follows:
 - 1. For functions that can be demonstrated on a loop-by-loop basis, the form shall include:
 - a. Project name
 - b. Loop number
 - c. Loop description
 - d. Tag number, description, manufacturer and data sheet number for each component.

- e. Space for sign-off and date by both the Instrumentation Subcontractor and ENGINEER.
- 2. For functions that cannot be demonstrated on a loop-by-loop basis, the test form shall be a listing of the specific tests to be conducted. With each test description the following information shall be included:
 - a. Specification page and paragraph of function demonstrated
 - b. Description of function
 - c. Space for sign-off and date by both the Instrumentation Subcontractor and ENGINEER.
- F. Precommissioning Certification: Submit an instrumentation and control system precommissioning completion report that shall state that all Contract requirements have been met and shall include a listing of all instrumentation and control system maintenance and repair activities conducted during the precommissioning testing. Acceptance of the instrumentation and control system precommissioning testing must be provided in writing by the ENGINEER before the performance testing may begin. Final acceptance of the control system shall be based upon plant completion as stated in the General Conditions.

3.7 ONSITE SUPERVISION

- A. Furnish the services of an on-site service engineer to supervise and coordinate installation, adjustment, testing, and start-up of the I&C. The ENGINEER will be present during the total period required to affect a complete operating system. A qualified team of the Instrumentation Subcontractor personnel shall be on site for [] hours to check all equipment, perform the tests indicated in this Section, and furnish startup services.

3.8 PERFORMANCE TEST

- A. The entire I&C shall operate for 30 days without failure.
- B. Furnish all necessary support staff as required to operate the system and to satisfy the repair or replacement requirements.
- C. If any component fails during the performance test, it shall be repaired or replaced and the I&C shall be restarted on another 30-day period.

3.9 TRAINING

- A. General: Train the OWNER's personnel on the maintenance, calibration and repair of all instruments provided under this Contract.
- B. Instructions: The training shall be performed by qualified representatives of the equipment manufacturers and shall be specific to each piece of equipment.
- C. Duration: Each training class shall be a minimum of 8 hours in duration and shall cover, as a minimum, operational theory, maintenance, troubleshooting/repair, and calibration of instruments.

- D. Schedule: Training shall be performed during the precommissioning phase of the project. The training sessions shall be scheduled a minimum of 3 weeks in advance of when the courses are to be initiated. The ENGINEER will review the course outline for suitability and provide comments that shall be incorporated.
- E. Agenda: The training shall include operation and maintenance procedures, trouble shooting with necessary test equipment, and changing set points, and calibration for that specific piece of equipment.
- F. Documentation: Within 10 days after the completion of each session the CONTRACTOR shall submit the following:
 - 1. List of all OWNER personnel who attended the session.
 - 2. Evaluation of OWNER personnel via written testing or equivalent evaluation.
 - 3. Copy of the training materials used including all notes, diagrams, and comments.

3.10 ACCEPTANCE

- A. For the purpose of this Section, the following conditions shall be fulfilled before the Work is considered substantially complete:
 - 1. All submittals have been completed and approved.
 - 2. The I&C has been calibrated, loop tested and precommissioned.
 - 3. The OWNER training has been performed.
 - 4. All required spare parts and expendable supplies and test equipment have been delivered to the ENGINEER.
 - 5. The performance test has been successfully completed.
 - 6. All punch-list items have been corrected.
 - 7. All record drawings in both hard copy and electronic format have been submitted.
 - 8. Revisions to the operations and maintenance manuals information that may have resulted from the field tests have been made and reviewed.
 - 9. All debris associated with installation of instrumentation has been removed.
 - 10. All probes, elements, sample lines, transmitters, tubing, and enclosures have been cleaned and are in like-new condition.

** END OF SECTION **

SECTION 13370 – CONTROL PANELS

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. General: The CONTRACTOR shall provide control panels, complete and operable, in accordance with the Contract Documents.
- B. The provisions of this Section apply to local control panels provided in equipment systems specified in other sections unless indicated otherwise in those sections.

1.2 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, also apply to the extent required for proper performance of this Work:
 - 1. Section 11000 Equipment General Provisions
 - 2. Section 13300 Instrumentation and Control
 - 3. Section 13374 Control Panel Instrumentation

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following commercial standards apply to the Work of this Section:
 - 1. ASTM A36 Specification for Carbon Structural Steel
 - 2. ASTM A283 Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
 - 3. NEMA ICS-1-101 Industrial Control Systems
 - 4. SSPC-SP6 Specification for the Society for Protective Coating B Commercial Blast

1.4 CONTRACTOR SUBMITTALS

- A. Shop drawings shall be submitted in accordance with Section 01300 - Submittals and Section 13300 - Instrumentation and Control.
- B. Control Panel Engineering Submittal: The CONTRACTOR shall submit a control panel engineering submittal (CPES) for each control panel and enclosure provided under Division 13. The CPES shall completely define and document the construction, finish, layout, power circuits, signal and safety grounding circuits, fuses, circuit breakers, signal circuits, internally mounted instrumentation and SCADA system components, face plate mounted instrumentation components, internal panel arrangements, and external panel arrangements. All panel drawings shall be "B" size, and all data sheets and

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manufacturer specification sheets shall be "A" size. The submittal shall be in conformance with NEMA Standard ICS-1-1.01, shall be submitted as a singular complete bound volume or multi-volume package within 120 calendar days after Notice to Proceed and shall have the following content:

1. A complete index shall appear in the front of each bound volume. Panels shall be indexed by system or process area, and drawings and data associated with a panel shall be grouped together. All panel tagging and nameplate nomenclature shall be consistent with the requirements of the Contract Documents.
2. Scale construction drawings which define and quantify the type and gauge of steel to be used for panel fabrication, the ASTM A36 grade proposed for structural shapes and straps, panel door locks and hinge mechanisms, type of bolts and bolt locations for section joining and anchoring, details and proposed locations on the use of "Unistrut" members, stiffener materials and locations, electrical terminal box and outlet locations, electrical access locations, print pocket locations, writing board locations and lifting lug material and locations.
3. Scale physical arrangement drawings which define and quantify the physical groupings comprising control panel sections, auxiliary panels, subpanels, and racks. Cutout locations with nameplate identifications shall be indicated.
4. Front of panel layouts for all control panels.
5. Schematic/elementary diagrams depicting all control devices and circuits and their functions.
6. Wiring/connection diagrams locating and identifying electrical devices, terminals and interconnecting wiring. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all electrical and control devices.
7. Interconnection diagrams locating and identifying all external connections between the control panel/control panel devices and associated equipment. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all panel ingress and egress points.
8. Control sequence diagrams to portray the contact positions or connections required to be made for each successive step of the control action. Written descriptions explaining the control sequence diagrams and system operation shall be furnished.
9. Completed ISA-S20 data sheets for all instrumentation devices associated with each control panel, supplemented with manufacturer specification sheets which verify conformance to the requirements of the Contract Documents.
10. A bill of material which enumerates all devices associated with the control panel.
11. A priced listing of analog spare parts in conformance with Section 13300 - Instrumentation and Control.

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1.5 SPARE PARTS AND SPECIAL TOOLS

- A. Control panel spare parts selected by the ENGINEER and special tools shall be provided in accordance with Section 13300 - Instrumentation and Control.
- B. All spare parts [and special tools] shall be submitted before startup commences, suitably wrapped and identified.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Environmental Suitability: All outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices no less than 20% below the maximum rated environmental operating level, and at least 20% above the minimum rated environmental operating level. The CONTRACTOR shall provide all power wiring for these devices. Enclosures suitable for the environment shall be furnished.
- B. The control panel controls shall be 24 VDC. Control conductors shall be provided in accordance with the indicated requirements.
- C. The main feeder disconnect shall have a door-mounted handle unless otherwise indicated.
- D. Control panels shall be housed in NEMA 4X enclosures with gasketed doors. Control panels shall be freestanding or pedestal-mounted as indicated. Internal control components shall be mounted on an internal back-panel or side-panel as required.
- E. Each source of foreign voltage shall be isolated by providing disconnecting or pull-apart terminal blocks or a disconnect operable from the control panel front. Each control panel shall be provided with identified terminal strips for the connection of all external conductors. Provide sufficient terminal blocks to connect 25% additional conductors for future use.F. Discrete outputs from the control panel shall be provided by electrically isolated contacts rated for 5 A at 120 VAC. Analog inputs and outputs shall be an isolated 4-20 mA, 2-wire signals with power supply.
- G. Programmable Logic Controllers (PLCs) may be provided in lieu of relays if the programmable logic controllers match the PLCs provided under Section 13374 - Control Panel Instrumentation.
- H. All control panel mounted devices shall be mounted a minimum of 3 feet above finished floor elevation.
- I. Painting: Control panels shall be thoroughly cleaned and sand blasted per Steel Structures Painting Council Specification SSPC-SP-6 (Commercial Blast) after which surfaces shall receive a prime coat of Amercoat 185 or equal 3-mils dry, for a total thickness of the complete system of 6 mils. The finished color of the outside surfaces shall be selected by the ENGINEER, unless otherwise indicated. The interior of the control panel, back-panel, and side-panel(s) shall have a white finish coat.

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2.2 CONTROL PANELS

A. Materials:

1. Panel section faces shall be No. 10 gauge minimum thickness steel for free standing panels and No. 14 gauge minimum thickness steel for wall mounted or pedestal mounted panels. All materials shall be selected for levelness and smoothness.
2. Relay rack high density type panels shall use standard relay racks with No. 14 gauge steel frame and supports.
3. Structural shapes and strap steel shall comply with ASTM A283.
 - a. Bolting Material: Commercial quality carbon steel bolts, nuts and washers, shall be 2-inch diameter with UNC threads. Carriage bolts shall be used for attaching end plates. All other bolts shall be hex head machine bolts. All nuts shall be hot pressed hex, American Standard, heavy. Standard wrought washers shall be used for foundation bolts and attachments to building structures. All other bolted joints shall have SAE standard lock washers.
4. Construction: Dimensions shall be in accordance with vendor's requirements. Elevations and horizontal spacing shall be subject to ENGINEER's approval.
 - a. Fabrication:
 1. End plates, top plates and top closure panels (to hung ceiling) shall be provided when required by the material requisition. End plates, top plates and top closure panels shall be removable with countersunk bolts to match panels. Top closure panels shall be provided in lengths which match the widths of standard panels, except that one top closure panel may extend across two 4-foot 6-inches wide or five 2-foot wide standard panels. The vertical joints of these panels shall align with the vertical joints of the standard panels.
 2. End closure or rear closure doors shall be provided where required. Such doors shall be flush fitting, gasketed, and be of the hinged lift-off type with lockable door handles. A common key shall be provided for all doors on one panel assembly. Removable access panels shall be provided with dished handle fasteners. Screw driver 1/4 turn or Dzus type fasteners are not acceptable.
 - a. The flanged edges of all panels shall be straight and smooth. Corners shall be welded and ground smooth.
 - b. The face of the panel shall be true and level after flanging.
 - c. All panel cut-outs and holes may be cut or drilled by any standard method that does not cause deformation. Burrs shall be ground smooth.
 - d. Adjacent panels shall be assembled with faces flush. Gaps or cracks shall not be visible from the front of the assembled instrument board.
 - e. Stiffeners shall be welded to the back of panels as required to prevent panel deformation due to the weight of face mounted instruments.

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f. Panels shall be self-supporting as defined below.

C. Frameworks and Supports:

1. The rear of each panel section shall have a steel framework assembled to it for supporting conduit, wireways, switches, piping, and all instrument accessory items such as relay or terminal enclosures, transducers, pressure switches, valves, and air relays. The main framework shall be constructed of standard structural shapes. Special shapes such as "Unistrut" may be used for secondary supports. The framework shall neither interfere with instrument connections nor interfere with access needed for maintenance or adjustments.
2. The steel framework shall extend 2 feet 4 inches back from the panel face, or as indicated in the material requisition. Where indicated, individual adjustable leg supports shall be provided at the back of the framework so that the entire panel is self-supporting.

D. Preparation of Panel Surface:

1. The following requirements apply to the front and rear face of the panel, both sides and the edges of all flanges, and the periphery of all holes or cut-outs:
 - a. All high spots, burrs, and rough spots shall be ground smooth.
 - b. The surfaces shall be sanded or sandblasted to a smooth, clean bright finish.
 - c. All traces of oil shall be removed with a solvent.
 - d. The first coat of primer shall be applied immediately.

E. Panel Finishing:

1. A thin coat primer surface shall be applied over the entire panel surface.
2. Wet sand, dry, then quick glaze spot putty on the front of the panel only. Dry, then wet sand again and dry.
3. A primer surface shall be applied on the front of the panel only.
4. Wet sand to smooth clear finish, then dry.
5. At least two coats of air-dry, satin finish, lacquer enamel shall be applied over the entire surface. Color shall be as approved by ENGINEER. Finish shall be suitable for high UV exposure.
6. Furnish two one-pint containers of air drying, matching paint for field touch-up of the panel face.

F. Instrument Finishing: The final coats applied to painted surface of instrument cases, doors, or bezels which are visible from the front of panels shall be manufacturer's standard unless otherwise indicated. Black japan or "crinkle" finishes on instrument cases are not acceptable.

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G. Mounting of Instruments:

1. The panel vendor shall provide cut-outs and shall mount all instrument items indicated to be panel mounted, including any instruments indicated to be furnished by other vendors but installed in panel (if applicable).
2. The panel vendor shall also mount behind the panels other instrument accessory items as required for functionality or as indicated.
3. Equipment mounted at the rear of panel shall be installed to allow for commissioning adjustments, servicing requirements, and cover removal.
4. Spare space shall be kept clear of wiring to give maximum space for future additions.

H. Electrical Requirements:

1. Conduit, wireways, switches, wire, and electrical fittings shall be provided for all 115 V circuits to instruments and other electrical devices as required for a complete and operable installation.
2. Conduit, wireways, junction boxes, and fittings shall be provided for all signal wire, thermocouple, or resistance thermometer lead wire. Conduit or wireway runs shall include those required between temperature sensors and temperature transmitters and between the thermocouple wireway or junction box to instruments.
3. Each terminal connection shall have a plastic plate with a terminal and instrument tag number. All wiring shall be identified with stamped tubular wire and markers.
4. Freestanding panels shall be provided with switched 100-W incandescent back-of-panel lights. One light shall be provided for every 4 feet of panel width and shall be mounted inside and in the top of the back-of-panel area.
5. Freestanding panels shall be provided with a 15-A, 120-V, service outlet circuit within the back-of-panel area. The circuit shall be provided with 3-wire, 120-V, 15-A, duplex receptacles one for every 4 feet of panel width (one minimum per panel), spaced evenly along the back-of-panel area.
6. Wall mounted or pedestal mounted panels shall be so sized as to adequately dissipate heat generated by equipment mounted in or on the panel.
7. Wall mounted or pedestal mounted panels mounted outside or in unshaded areas shall be provided with thermostatically controlled heaters that maintain inside temperature above 40 degrees F.
8. A hand switch controlled 100-W incandescent light and a breaker protected 120-V, 15-A duplex receptacle shall be provided within each wall mounted or pedestal mounted panel.

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9. Wiring methods and materials for all panels shall be in accordance with the NEC requirements for General Purpose (no open wiring) unless otherwise indicated.

10. Signal and Control Circuit Wiring:
 - a. Wire type and sizes: Conductor shall be flexible stranded copper machine tool wire UL listed Type MTW, and shall be rated 600 V. Wires for instrument signal circuits and alarm input circuits shall be No. 14 AWG. All other wires, including shielded cables, shall be No. 16 AWG, minimum.
 - b. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal using white numbered wire markers which shall be plastic-coated cloth, Brady Type B-500 or equal or shall be permanently marked by heat-shrink plastic.
 - c. Flexible conduit is not acceptable except when specifically approved by the ENGINEER in writing.
 - d. Conduit fittings shall be Crouse-Hinds cast fittings or equal.
 - e. Splicing of wires in conduits is discouraged. If permitted, splicing shall be approved by the ENGINEER and splices shall be soldered or pressure type crimped.
 - f. For case grounding, panels shall be provided with a 1/4-inch by 1-inch copper ground bus complete with solderless connector for one No. 4 AWG bare stranded copper cable. The copper cable shall be connected to a system ground loop.

11. Electrical Locations:
 - a. Terminal boxes for incoming and outgoing signal leads shall be located at the top or bottom of the panel as indicated or as otherwise required.

12. Power Supply Wiring:
 - a. Unless otherwise indicated, all instruments, alarm systems, and motor controls shall operate on 24 VDC.
 - b. At a location near the top of the panel (or bottom), the panel fabricator shall provide terminal box connections for the main power supply entry.
 - c. Instruments located on the same panel section and serving the same process unit may be connected to a common branch circuit from the power supply. The number of circuits depends on the circuit load as indicated. Different panel sections or different process units shall not use common branch circuits. When instruments are not equipped with integral fuses, fuses shall

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be provided as required for the protection of individual instruments against fault currents. Fuses shall be mounted on the back of the panel in a fuse holder, and each fuse shall be identified by a service name tag.

- d. Each potentiometer type instrument, electronic transducer, controller, or analyzer shall have an individual disconnect switch. Disconnect switches shall have metal or plastic tags indicating instrument tag numbers. Individual plug and cord set power supply connections may be used without switches when indicated.
13. Alarm Wiring: The panel vendor shall provide all alarms including light cabinets, audible signal units, test and acknowledge switches, and remote logic units as indicated. Interconnecting wiring to panel mounted initiating devices shall also be wired by the panel vendor. The wiring from external initiating devices shall be provided by the installation contractor. Where plug and cord sets are provided for component interconnection, the panel vendor shall harness and support the cables in neat and orderly fashion. Where separate wire is required, panel vendor shall install No. 16 AWG with THWN or THHN insulation between all components.
14. Signal Wiring:
- a. Signal Wire - Non Computer Use:
 - (1) Signal wire shall be twisted pair or triads in conduit or troughs. Cable shall be constructed of No. 16 AWG copper signal wires with THWN or THHN insulation.
 - (2) Color code for instrument signal wiring shall be as follows:

Positive (+): Black
Negative (-): White
 - (3) Multiconductor cables where indicated shall consist of No. 16 AWG copper signal wires twisted in pairs, with 90-C, 600-V fault insulation. A copper drain wire shall be provided for the bundle with a wrap of aluminum polyester shield. The overall bundle jacket shall be PVC.
 - b. Multi-conductor cables, wireways and conduit shall be sized to allow for 10% spare signal wire.
- I. Labor and Workmanship: All panels shall be fabricated, piped and wired by fully qualified workmen who are properly trained, experienced, and supervised.

2.3 RCP ENCLOSURE

- A. Enclosures are Hoffman standard enclosures. Enclosures shall be free of damage and exterior blemishes. Enclosures shall be square with the doors seating properly at the gaskets and operating freely. Enclosures are 48@ H X 36@ W X 16@ D single door wall mount NEMA 4X enclosures with the following features:

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1. 14 gauge type 304 stainless steel with painted white finish.
2. Seams continuously welded and ground smooth, no holes or knockouts.
3. Type 316L stainless steel padlocking handle with 3-point latch.
4. Gasketed doors.
5. Continuous door hinge length > 90% of door height.
6. Removable full back panel Gloss white finish.
7. All exterior hardware type 316 stainless steel.
8. High-impact thermoplastic data pocket mounted to interior of door.
9. 12 inch type 304 stainless steel floor stand kit with painted white finish.

PART 3 -- EXECUTION

3.1 INSTALLATION

A. Preparation and Shipping:

1. Crate panels for shipment using a heavy framework and skids. The panel sections shall be cushioned to protect the finish of the instruments and panel during shipment. All instruments which are shipped with the panel shall further have suitable shipping stops and cushioning material installed to protect parts which could be damaged due to mechanical shock. Each separate panel unit shall be provided with removable lifting lugs to facilitate handling.
2. All shipments shall be by air ride van, unless otherwise indicated.
3. All control panel testing and inspection shall be performed before shipping.

B. Control panels shall be installed in accordance with Section 13300 - Instrumentation and Control.

3.2 CONTROL PANEL SIGNAL AND CONTROL CIRCUIT WIRING

A. Wiring Installation: All wires shall run in plastic wireways except for the following:

1. Field wiring.
2. Wiring between mating blocks in adjacent sections.
3. Wiring to panel-mounted components.

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- B. Wiring to Rear Terminals: Wiring to rear terminals on panel-mount instruments shall be in plastic wireways secured to horizontal brackets above or below the instruments in about the same plane as the rear of the instruments.
- C. Shop drawings shall show conformance to the above wiring installation requirements.
- D. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal using white numbered wire markers which shall be plastic-coated cloth, or permanently marked heat-shrink plastic.
- E. Wires shall be fitted with a crimp type spade lug of the proper size at screw terminals except in the cases of termination fittings designed for compression or solder type termination. There shall be at least 2" of unencumbered wire extending from any point of attachment within the panel. Wire numbers shall be located within 1" of the point of attachment and shall be applied such that the number can be read from the front of the panel without rotating the wire. No more than two wires shall be located at any point of termination, including terminal blocks (terminal blocks specified are designed to accept two points of termination at each side).
- F. Wires shall be routed through Panduit brand wireway of the size shown on the drawings. Routing shall separate 24 Vdc paths from 120 Vac paths as far as possible. Wireway shall be secured to the removable back panel by multiple pan head screws of the proper size at intervals of one at every other mounting hole station provided by Panduit. The mounting hole station shall be completely utilized at the extreme ends of each wireway segment. Within wireway, wire bundles shall be loosely bound with individual plastic tie wraps at intervals of approximately two feet.
- G. External to wireway, wire shall be bundled neatly and secured with plastic tie wraps at intervals of approximately 8". Wire splicing within the Instrument Panel is not acceptable.
 - 1. Wiring color code shall be as shown in this subsection
 - a. Blue: 24vdc +
 - b. Brown: 24vdc B
 - c. White: 120vac common
 - d. Black: 120vac power
 - e. Red: 120vac control power
 - f. Green: ground
 - g. Violet: 12vdc +
 - h. Yellow: 12vdc B

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- i. Belden black (+)
 - j. Belden clear (-)
- H. Panels shall be fitted with a duplex electrical outlet as shown on the drawings. Illumination at the panel interior shall be by incandescent lamps operated by a door switch integral to the lamp assembly (Hoffman A-LTDB1). Provide a door switch wired to the terminal blocks, as shown on the drawings, to indicate when the RCP door is open.
- I. Legend plates shall be laminated plastic or phenolic, black over white engraved by removing black material to reveal white letters. Lettering shall be sharp and clear, 3/16" nominal height. Engraving which is not uniform either letter to letter or within each character will not be accepted. Tags identifying interior components shall be affixed to the cabinet back panel.
- 1. The following interior components shall be labeled with phenolic tags:
 - a. Low voltage relay
 - b. Control relays
 - c. Modicon PLC
 - d. Microwave Data Systems Radio package
 - e. AC line surge arrestor
 - f. DC power supply transformer
 - g. DC power supply
 - h. Each terminal strip

3.3 CALIBRATION, TESTING, AND INSTRUCTION

- A. General: Calibration, testing, and instruction shall be performed in accordance with Section 13300 - Instrumentation and Control.
- B. Inspection and Approval:
 - 1. The panel fabricator shall conduct the following tests before shipment:
 - a. All alarm circuits rung out to determine their operability.
 - b. All electrical circuits checked for continuity and where applicable, operability.
 - c. All nameplates checked for correct spelling and size of letters.
 - d. Any other test required to place the panel in an operating condition.

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2. The CONTRACTOR shall furnish all necessary testing devices and sufficient manpower to perform the tests required by the ENGINEER.
3. If the above tests have not been performed before shipment, the CONTRACTOR shall be liable for back charges by the ENGINEER for the extra time required for inspections.
4. Each control panel shall be tested in the field for functional operation after the connection of external conductors, and before equipment startup.

**** END OF SECTION ****

SECTION 13374 – CONTROL PANEL INSTRUMENTATION

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The CONTRACTOR shall provide all control panel instrumentation, complete and operable, in accordance with the Contract Documents.
- B. The City shall provide PLC program development.

1.2 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, also apply to the extent required for proper performance of this Work:
 - 1. Section 13300 Instrumentation and Control
 - 2. Section 13370 Control Panels

1.3 CONTRACTOR SUBMITTALS

- A. Shop drawings, information, and data sheets shall be submitted in conformance with the requirements of Section 01300 - Submittals, Section 13300 - Instrumentation and Control and Section 13370 - Control Panels.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. The PLC system shall operate in ambient conditions of 32 to 140°F temperature and 5 to 95 percent relative humidity without the need for purging or air conditioning
- B. PLC system shall be designed with high noise immunity to prevent occurrence of false logic signals resulting from switching transients, relay, and circuit breaker noise or conducted and radiated radio frequency interference.
- C. The controller shall be grounded to the panel ground bus with a separate ground conductor sized per the manufacturers grounding requirements.

2.2 PROGRAMMABLE LOGIC CONTROLLERS

- A. The microcontroller system and subsystem components shall be Modicon Momentum M1 Series, No "Or Equal".
- B. Construction: The microcontroller shall be of solid-state design. All CPU operating logic shall be contained within an integral control chassis. Microcontroller terminal base units shall allow for the easy removal and replacement of the controller. The controller shall be capable of operating in a hostile industrial environment without fans, air conditioning, or electrical filtering (up to 60 degrees C and 95 percent humidity).

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- C. The PLC shall be a Modicon Momentum of the latest design/manufacture, consisting of the following individual components:
1. Modicon Momentum, M1 Processor Adaptor; Part No. 171CCC96030C; Qty. 1.
 2. Modicon Momentum, Modbus (RS232/485) Option Adaptor, with TOD Clock & Battery Backup; Part No. 172JNN21032C; Qty. 1.
 3. Modicon Momentum, Interbus Communications Adapter; Part No. 170INT11000; Qty 1.
 4. Modicon Momentum, 8 Channel 4-20mA Differential Analog Input I/O Base; Part #170AAI03000C; Qty. 1.
 5. Modicon Momentum, 24 VDC 16 point Discrete Input and 24 VDC 16 point Discrete Output I/O Base; Part #170ADM35010C; Qty. 1.
 6. Modicon Momentum, Interbus Cable; Part #170MCI00700; Qty. 1.
 7. Modicon Momentum, Terminal Block; Part #170XTS00100; Qty. 2.

PART 3 -- EXECUTION

3.1 GENERAL

- A. Seven Day Acceptance Test: After start-up has been completed, the System shall undergo a 7-day acceptance test. The System shall run continuously for 7 consecutive days. During this period, all System functions shall be exercised. Any System interruption and accompanying component, subsystem, or program failure shall be logged for the cause, time of occurrence and duration of each failure. A failure shall cause termination of the 7-day acceptance test. When the cause of a failure has been corrected, a new 7-day acceptance test shall be started.
- B. Each time the CONTRACTOR's technician is required to respond to a System malfunction, a report shall be prepared which includes details on the nature of the complaint or malfunction and the resulting repair action required and taken.

**** END OF SECTION ****

SECTION 13400 - COMMUNICATIONS

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The Work of this Section includes providing a complete and operational communication system between the remote project facilities and the existing Alvarado Water Treatment Facility Control System (AWTF CCS). The system shall include interface hardware, modules, radio, communication bridges, and application software necessary for a communication network.
- B. The Work, equipment, and services required by this Section shall be provided and furnished by the Communication System Contractor.

1.2 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, shall also apply to the extent required for proper performance of this Work.
 - 1. Section 01300 Submittals
 - 2. Section 13300 Instrumentation and Control
 - 3. Section 13370 Control Panels
 - 4. Section 13374 Control Panel Instrumentation
 - 5. Section 16050 Basic Electrical Materials and Methods

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. The Work of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego:
 - 1. Uniform Fire Code
 - 2. National Electrical Code
- B. Except as otherwise indicated, the current editions of the following standards apply to the Work of this Section:

1.	ISA RP 55.1	Hardware Testing of Digital Process Computers
2.	NEMA ICS-6	Enclosures for Industrial Controls and Systems
3.	MIL Q STD 9858A	Quality Program Requirements
4.	MIL STD 2170	Reliability Prediction of Electronic Equipment
5.	IEEE 802.2	Reliability Prediction of Electronic Equipment
6.	SAMA PMC-32	Logical Link Control
7.	SAMA PMX-32.1	Process Instrumentation Reliability Terminology

1.4 CONTRACTOR SUBMITTALS

- A. Shop drawings shall conform to the requirements of Section 01300 - Submittals.

1.5 ENVIRONMENTAL CONDITIONS

SECTION 13400 - COMMUNICATIONS

- A. The communication systems shall be designed and constructed for operation under the following environmental conditions:
 - 1. Equipment outdoors:
 - a. Temperature range: 40 through 105 degrees F
 - b. Thermal shock: two degree F per minute maximum
 - c. Relative humidity: 20 through 90%

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials: Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
- B. Storage: Products shall be carefully stored in a manner recommended by the manufacturer in an area that is protected from the elements.

[1.7 RECORD DRAWINGS

- A. Accurate drawings of underground antenna cable locations shall be included on the record drawings in compliance with Section 01720 - Project Record Documents.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Where there is more than one item of similar equipment being furnished under this Section, all equipment of the same type shall be the product of a single manufacturer.
- B. All components shall be the most recent field proven models marketed by their manufacturers at the time of submittal of the shop drawings unless otherwise indicated.
- C. All instrumentation shall be suitable for operation in the ambient conditions at the equipment installation locations. Heating, cooling, and dehumidifying devices shall be incorporated with the outdoor instrumentation in order to maintain it within its rated environmental operating ranges. The Communication System Contractor shall provide all power wiring for these devices.
- D. The Communication System Contractor shall coordinate the installation of the communication system with all applicable utility companies and regulatory agencies having jurisdiction to secure approvals and permits which are required.

2.2 RADIO TELEMETRY

- A. Licensing and Surveying:
 - 1. The OWNER has FCC licensing for the sites included in this project. The license allows the OWNER to operate 928-952 MHZ frequencies for multiple address systems (MAS). The equipment provided shall be suitable for use on the assigned frequencies.

SECTION 13400 - COMMUNICATIONS

2. In locations where there is no microwave path to one of the five MAS radio repeaters, a 902-928 MHZ microwave spread spectrum radio shall be provided to transmit to a remote SCADA location having a path to a repeater. Existing radios may be used to provide multiple paths.
 3. The sites included in this Contract have been surveyed and are included in the radio feasibility study performed by the OWNER. The results of this survey indicate reliable radio communications can be implemented between the central station and remote sites. The report is available to the Communication System Contractor from the ENGINEER.
 4. Before installation of the radio equipment, the Communication System Contractor shall verify that the radio paths are still reliable based on the present terrain and structure conditions. Any structures or other objects that may obstruct the radio paths or cause transmission or path fade margin problems shall be brought to the ENGINEER's attention immediately.
- B. Transmission: RF transmitters shall be directly frequency modulated by a built-in digital modem from the digital data stream furnished by the central computer system. RF receivers shall provide a digital data stream to the central computer system. Each assembly shall be capable of transmitting and receiving data at a rate of 9600 baud over a 928-952 MHz FCC assigned channel.
- C. Fixed Frequency Radio Transceiver at the Repeater Site:
1. The fixed frequency radio at the Repeater Site shall be capable of interfacing with a second radio at the Repeater Site and processing data for transmission via an antenna system to Cowles Mountain. The contractor shall install the fixed frequency radio inside the Repeater Cabinet. The radio equipment and accessories shall be mounted on a single panel supplied by the manufacturer. The radio is an MDS 9710B with P60 package (less P60 enclosure).
 2. The telemetry unit shall include solid-state, FM radio transceivers. Units shall operate on 928-952 MHZ multiple address system as assigned by the FCC. Each transmitter shall provide a minimum of RF output of 5 W. TX Frequency 928.03125/RX Frequency 952.03125.
 3. Transmitter frequencies shall be crystal controlled to plus or minus 0.0005% of the assigned carrier frequency over a temperature range of minus 30 degrees C to plus 60 degrees C without the use of heaters. RF power outputs shall be 5 W; and modulation deviations plus or minus 3.0 kHz; transmitter spurious emissions and harmonics shall be more than 60 Db below carrier.
 4. Receivers shall be superheterodyne types employing crystal-controlled local oscillators. Over the specified temperature range, the receivers shall meet the following requirements:
 - a. Sensitivities: SINAD 12dB @ -115dbM.
 - b. Frequency stabilities shall be 0.00015%.

SECTION 13400 - COMMUNICATIONS

5. Remote site transmitters shall have continuous ratings; repeater and central site transmitters shall have continuous duty cycle ratings.
6. Transceivers shall fully comply with all applicable and current EIA Standards and all current FCC Rules and Regulations. Transceivers shall be FCC type accepted for the application.
7. Transceivers shall use high-quality, long-life transistors and diodes throughout. No tubes shall be used.
8. Transceiver shall be mounted in the Repeater Cabinet.

D. Spread Spectrum Radio Transceiver at the Repeater Site:

1. The spread spectrum radio at the Repeater Site shall be capable of interfacing with a second master radio at the Repeater Site and processing data for transmission via an RS-232 data link to the master radio. The Contractor shall install the spread spectrum radio in the Repeater Cabinet. The radio equipment and accessories shall be mounted on a single panel supplied by the manufacturer. The radio is an MDS 9810 with P60 package (less P60 enclosure).
2. Contractor shall provide and install all necessary cables and connections from the radio equipment to the PLC interface. Proper power supply shall be provided.
3. Provide radio/antenna components as shown on the drawings.

E. Spread Spectrum Radio Transceiver at the [Pressure Reducing , Level, Flow or Wellhead stations.](#)

1. The spread spectrum radio at the Wellhead shall be capable of interfacing with the PLC and processing the data for transmission via the antenna system to the Repeater Site. The Contractor shall install the spread spectrum radio in the RCP. The radio equipment and accessories shall be mounted on a single panel supplied by the manufacturer. The radio is an MDS 9810 with P60 package (less P60 enclosure).
2. Contractor shall provide and install all necessary cables and connections from the radio equipment to the PLC interface. Proper power supply shall be provided.
3. Provide radio/antenna components as shown on the drawings.
4. Transceivers and associated equipment shall be designed to operate on 12 VDC. Each transceiver shall have a 12 VDC battery backup system (including a battery charger). The power backup system shall be capable of powering the radio and its associated equipment for a minimum of 8 hours. The battery backup system shall be isolated from the primary power. Upon primary power failure, the power shall be transferred to the backup system by use of relay contacts or diodes. Battery tapping of a 24 V power system to obtain 12 V is not acceptable

SECTION 13400 - COMMUNICATIONS

5. Each battery backup system shall include signals for low battery voltage condition and primary power failure. Batteries shall be designed for standby power use and sized to operate the load for the indicated time. Batteries shall be gel type lead dioxide with sealed construction, be capable of at least 200 charge-discharge cycles and have a service life of at least 3 years.
6. Battery chargers shall be designed to charge the type of battery furnished. The charger shall be automatic dual rate and produce the voltage and current recommended by the battery manufacturer to ensure maximum battery life.

F. Yagi Antenna System at the Repeater Site:

1. The Yagi antenna at the Repeater Site is a Scala TY-900. Antenna system shall be provided complete and functional for the intended use. System shall include antenna, mounting masts and hardware, grounding rods and accessories, and coaxial cables with connectors. Antenna heights shall be based on the radio survey and shall not exceed FCC limitations.
2. Antenna mounting components and hardware shall be hot-dip galvanized steel, stainless steel, or aluminum. Aluminum antennas or mounting components shall be anodized. Lightning suppressors shall be provided on antenna coaxial feed lines.
3. Antennas and antenna poles shall be mounted as indicated.
4. Antenna connections and openings shall be sealed and weatherproofed.
5. Antenna shall be suitable for use on the assigned radio frequency and shall have the gain required for reliable communications. The antennas for all remote sites shall be heavy duty YAGI type meeting the following requirements:

Frequency range	- 890 to 960 MHZ
Forward gain	- 12 Db
Front-to-back ratio	- >20 Db
VSWR	- <1.5 to 1.0 maximum
Polarization	- Horizontal or Vertical
Impedance	- 50 ohms
Horizontal beamwidth	- 48 degrees (half power point)
Input power	- 100 W Maximum
Wind rating	- 150 mph survival (no ice)
Lighting protection	- Direct ground
Input connector	- N female

6. Antenna feed lines shall be 1/4-inch low loss coax for remote sites. Feed lines shall be routed to radio transceivers through conduit or inside the antenna mast. Provide Andrew Superflex FSJ1-50A. Connectors shall be 1/4-inch male N, Andrew F1PNM-H.
7. Transmission lines and the antenna system shall be grounded as indicated.
8. The lightning arrestor is a Polyphaser IS-B50LN-C2.

SECTION 13400 - COMMUNICATIONS

G. Yagi Antenna System at the Wellhead:

1. The Yagi antenna at the Wellhead is a Scala TY-900. Antenna system shall be provided complete and functional for the intended use. System shall include antennas, mounting masts and hardware, grounding rods and accessories, and coaxial cables with connectors. Antenna heights shall be based on the radio survey and shall not exceed FCC limitations.
2. Antenna mounting components and hardware shall be hot-dip galvanized steel, stainless steel, or aluminum. Aluminum antennas or mounting components shall be anodized. Lightning suppressors shall be provided on antenna coaxial feed lines.
3. Antennas and antenna poles shall be mounted as indicated.
4. Antenna connections and openings shall be sealed and weatherproofed.
5. Antenna shall be suitable for use on the assigned radio frequency and shall have the gain required for reliable communications. The antennas for all remote sites shall be heavy duty YAGI type meeting the following requirements:

Frequency range	- 890 to 960 MHZ
Forward gain	- 12 Db
Front-to-back ratio	- >20 Db
VSWR	- <1.5 to 1.0 maximum
Polarization	- Horizontal or Vertical
Impedance	- 50 ohms
Horizontal beamwidth	- 48 degrees (half power point)
Input power	- 100 W Maximum
Wind rating	- 150 mph survival (no ice)
Lighting protection	- Direct ground
Input connector	- N female

6. Antenna feed lines shall be 1/2-inch coax for remote sites. Feed lines shall be routed to radio transceivers through conduit or inside the antenna mast. Provide Andrew Superflex FSJ4-50B. Connectors shall be 1/2-inch male N, Andrew F4PNMV2-HC.
7. Transmission lines and the antenna system shall be grounded as indicated.
8. The lightning arrestor is a Polyphaser IS-B50LN-C2.

D. Omni Antenna System at the Repeater Site:.

1. The antenna used with the spread spectrum radio at the Repeater Site shall be a 3db Omni-directional base station antenna. All hardware shall be stainless steel. Frequency range shall be 890 to 960 MHz (broadband), specifically designed for "spread-spectrum" applications. Antenna shall have foam-potted N-type connectors. All antennas and mast systems shall be grounded per NEC

SECTION 13400 - COMMUNICATIONS

requirements and as shown on the Drawings. The Omni antenna at the Repeater Site is an Andrew DB583-Y.

2. Antenna feed lines shall be 1/2-inch coax for remote sites. Feed lines shall be routed to radio transceivers through conduit or inside the antenna mast. Provide Andrew Superflex FSJ4-50B. Connectors shall be 1/2-inch male N, Andrew F4PNMV2-HC.
3. Transmission lines and the antenna system shall be grounded as indicated.
4. The lightning arrestor is a Polyphaser IS-B50LN-C2.

2.3 NAMEPLATES, TOOLS AND SPARE PARTS

- A. Tools: The Work includes all tools required to repair, calibrate, program, and maintain the equipment.
- B. Test Equipment: It is intended that the diagnostic software furnished with the system shall be able to troubleshoot communications to the circuit board level and that local repairs will be limited to board replacement. Any special diagnostic tester required to perform troubleshooting to this level shall be furnished. A portable calibrator for the radio system shall be furnished.

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. General: The Communication System Contractor shall employ installers who are skilled and experienced in the installation and connection of all the elements, accessories and assemblies of communication systems.
- B. Access: All equipment shall be provided as indicated, or, if not indicated, so that it will be readily accessible for operation and maintenance. The ENGINEER reserves the right to require minor changes in equipment location before roughing in without any additional cost to the OWNER.
- C. Review: The Communication System Contractor shall review the existing site conditions and examine all shop drawings for equipment in order to determine exact routing and final terminations for all wiring and cables. Exact routing shall be shown on the Record Drawings.
- D. Installation and Connection: The Communication System Contractor shall install and connect all field-mounted components and assemblies and as recommended by the manufacturer and as indicated.
- E. Conduits: In building interior locations, conduits shall be surface mounted on walls or ceilings wherever possible and parallel to building lines. Conduit shall not be routed on floors unless indicated otherwise. In exterior locations, conduit shall be routed below grade. Existing concrete or asphalt slabs shall be sawcut, conduit installed, and the cut repaired to original condition. Exposed conduit and raceway shall be installed perpendicular or parallel to building lines.

SECTION 13400 - COMMUNICATIONS

- F. Final Checks: Final check of the communication systems shall be performed as an integral part of the system specified in Section 13300 - Instrumentation and Control.

3.2 FIELD TESTING

- A. RF Equipment Testing: The following measurements shall be made, recorded and compared to normal reading on each RF assembly prior to system testing to ensure that all equipment meets published specifications:
 - 1. Operating voltages
 - 2. Transmitter frequency
 - 3. Transmitter output power (at output of duplexer)
 - 4. Transmitter deviation
 - 5. Receiver local oscillator frequency
 - 6. Receiver sensitivity (10 to -6 BER)
- B. Testing: All systems furnished under this Contract shall be exercised through operational tests in the presence of the ENGINEER in order to demonstrate compliance with requirements. The testing of the communication system shall be performed in accordance with and as an integral part of the testing of the instrumentation and control specified in Section 13300 - Instrumentation and Control.

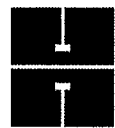
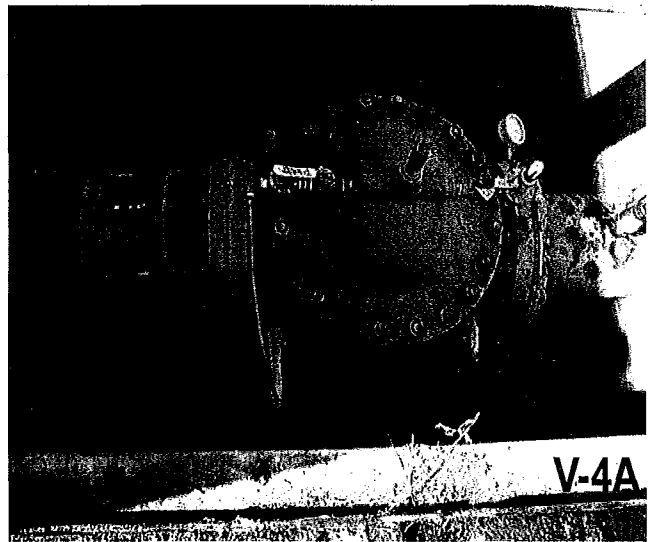
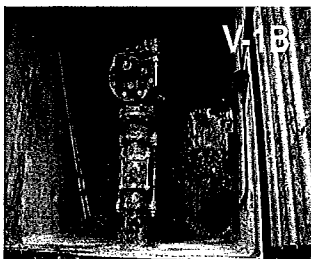
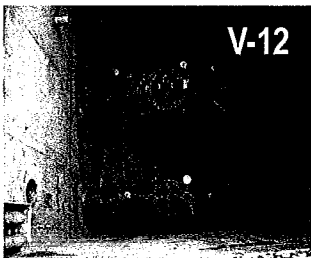
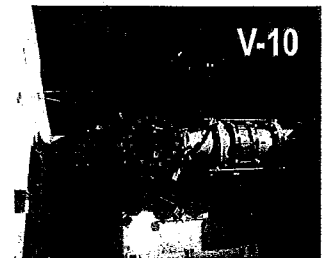
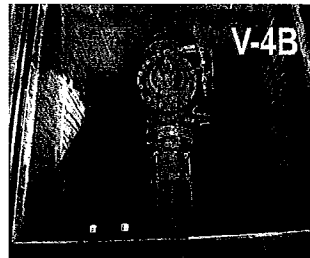
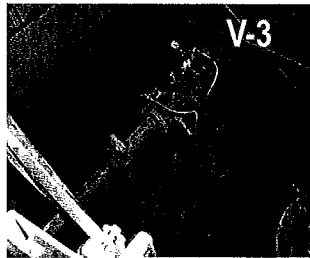
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March 28, 2012



City of San Diego

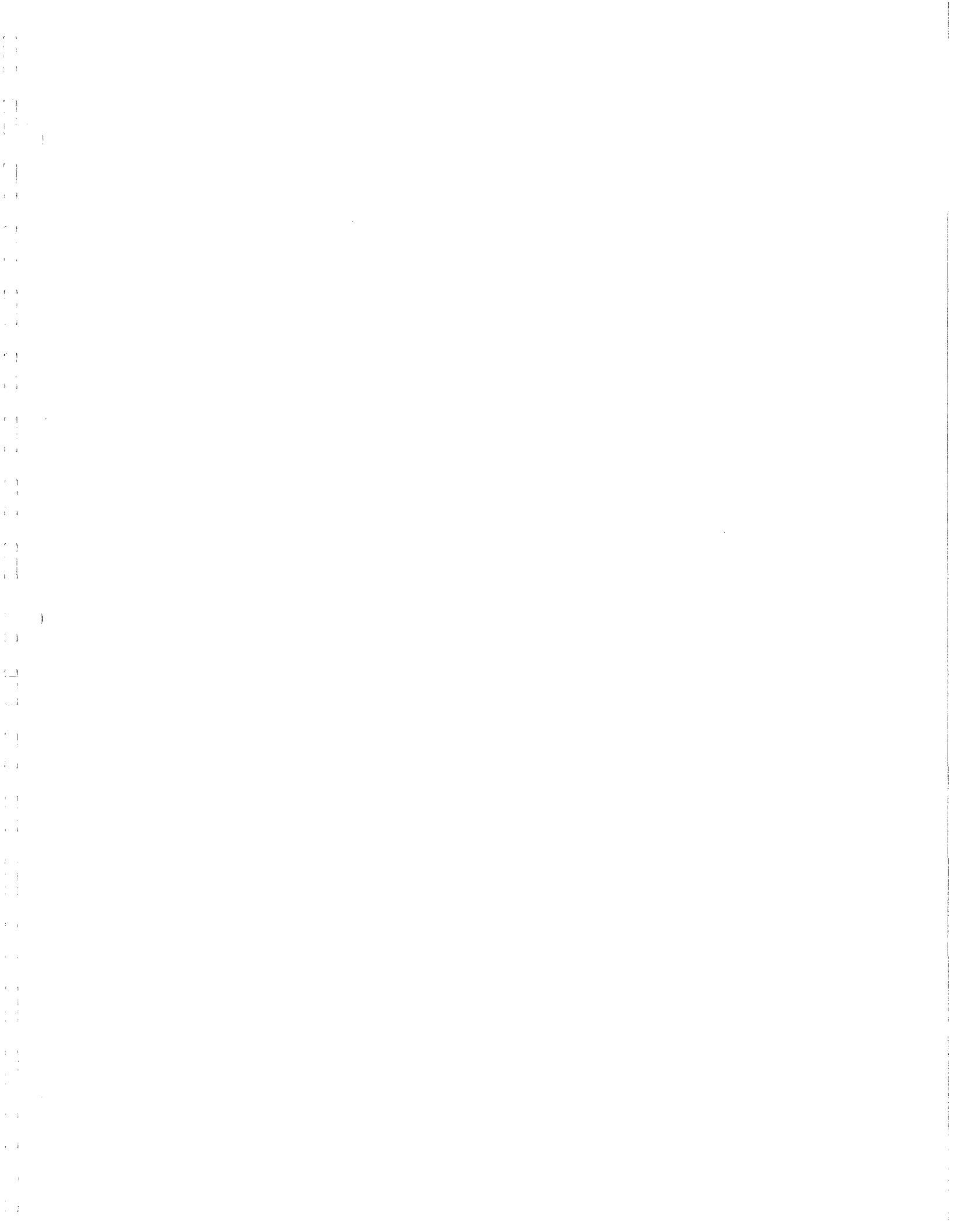
ORIGINAL Technical Proposal for Design-Build Recycled Water System Upgrades



Harris & AssociatesSM

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Section 1: Addenda to this RFP

Orion Corporation and our Design Partner, Harris & Associates, acknowledge receipt of Addendum #1 dated March 2, 2012, Addendum #2 dated March 13, 2012, and Addendum #3 dated March 22, 2012.





Section 2: Exceptions to this RFP

Orion Construction Corporation and our Design Partner, Harris & Associates take no exceptions to this RFP.



SECTION 3
EXECUTIVE
SUMMARY

Section 3: Executive Summary

Orion Construction Corporation (Orion) is a locally owned and operated general engineering construction company that specializes in public water and wastewater infrastructure construction projects. Orion, which opened for business in 1988, has steadily grown in size and capabilities, reaching a level where it has now provided construction and management services for single projects up to \$25 million in value. With a permanent staff of over 80 experienced local employees and a fleet of construction equipment Orion has the resources necessary to complete a project of this magnitude.

Orion has an excellent history of completing quality projects for the City that are on schedule and on budget, in a cooperative relationship with the City staff and the local residents affected by the construction. Orion has previously been engaged by the City to retrofit the City parks.

Harris & Associates (Harris), Orion Construction's design partner for the Design-Build Recycled Water System Upgrades, specializes in the planning, design, and construction management of Public Infrastructure water supply facilities. The Harris team has a long history working on the City of San Diego water and recycled water systems.

Design-Build Team (Orion/Harris). The corporate level of this design-build team, including Rob Wilson, Jason Danks, Daniel Lee, and Ehab Gerges each have twenty plus years of experience working together toward completion of various projects within San Diego County. This is not a team which was formed for the sake of convenience. Rather, this team was formed as strategic collaboration that leverages the industry leading strengths that each firm is capable of providing to fulfill, the mandates of this assignment, and to demonstrate our commitment to working relationships with the City of San Diego. If selected for this design-build contract, the Orion/Harris & Associates team will provide the City of San Diego with the best design-build engineering and construction services possible for the City of San Diego Recycled Water System Upgrades and we will bring to the Design-Build process all the lessons learned from our direct experience constructing the recent D/B water replacement projects for the City, and other local agencies.

Where capabilities and opportunity match, small and emerging local business enterprises (City of San Diego Approved SLBE/ELBE's) have been selected to work on this project.

Project Team

The Orion/Harris project manager will be Rob Wilson and will be solely responsible for the team's schedule and delivery of the project. He will be assisted by a fully integrated design and construction staff with specific segments undertaken by local Subcontractors and Vendors selected for their local knowledge of the City of San Diego environment.

The team as proposed has extensive and direct experience constructing design-build water projects together and the organization charts clearly defines roles and responsibility of individual members ensuring a clear chain of command and accountability. The principal team members are available and committed to the team for the duration of the project. Rob Wilson and Jason Danks as Orion team principals have worked closely on the current D/B Water Group 790 with Harris team members Javier Saunders, Ehab Gerges, and Carlos Mendoza, forging a close effective professional working relationship as the 790 project is brought to completion.

Technical Approach and Design Concept

As our design partner, Harris will focus their extensive experience in delivering design-build plans and specification documents for City of San Diego projects. Utilizing a standardized design sequence developed from direct experience, they are well qualified to engage all of the project stakeholders in the design process and ensure that all points of view are considered in the development of the final approved design. As an integral component of our proposal they have incorporated up to date knowledge from our recent design build and design bid build waterline projects, with special emphasis placed on previous City and Harris quality control design review comments and the Orion field team constructability review to ensure all past lessons learned are incorporated into the design process.

Section 3: Executive Summary (cont'd)

Construction Plan

Orion as the Design Builder will accept full responsibility for the design, construction, quality, cost, and schedule for the project. Rob Wilson as a single point of contact through the design and construction phases will ensure continuity as the project moves from design into the field construction, and he will be assisted by Jason Danks, the Construction Manager. Jason will continue with the aggressive quality assurance plan into the construction phase and will control the day to day field operation of the project. The field operations will be supported from a base of local construction yards in San Diego minimizing the physical impact of activities to the local community. Working closely with the City and our community outreach consultant, a construction phasing plan will be implemented with all project stakeholders having input, special attention being paid to maintaining local traffic flow and regular street sweeping to accommodate local residents. As work proceeds the project coordination will be consistent utilizing regularly documented scheduled construction progress meetings to measure the successful implementation of project phasing, adherence to schedule milestones, traffic control management, community impacts, and the maintenance of up to date as-built plans onsite.

Equal Employment and Contracting Opportunity

The Orion/Harris team affirmatively provides equal opportunity to all employees and qualified applicants for employment without regard to race, color, national origin, ancestry, sex, sexual orientation, marital status, citizenship status, military service status, or any other characteristics protected by State or Federal law or local ordinance. We also comply with City of San Diego Equal Benefits Ordinance which guarantees equal benefits to employees with spouses and employees with domestic partners.



Richard Dowsing, President
Orion Construction Corporation

Section 4: Project Team

Purpose and Objective

The Project Management Plan is provided as a guide for the implementation of management procedures and processes associated with the design and construction of Recycled Water System Upgrades. This document formalizes key management issues including organizational structure, communications, coordination, quality control, and other technical efforts affecting overall project control. The ultimate objective of the project management plan is to focus the Orion/Harris team in delivering the project in a manner well above the expectations of the City of San Diego. Completion of the project on or ahead of schedule with the highest degree of quality and in a safe manner, all while maintaining the public's support and trust in the City and our project team, these are the metrics by which project success will be measured.

Each section of this plan will prescribe detailed management procedures developed to address issues which affect the overall success of the project as defined above. In order to properly define the project management protocols, the plan will address each of the following issues in detail:

- Staffing Plan
- Organizational Chart
- Key Personnel Resumes
- Time Commitment

Project Organization and Staffing

The Orion/Harris team brings the City of San Diego a local, highly reputable experienced design-build team, able to provide quality construction, design, and exceptional service, on time and on budget - every time. Rob Wilson will be the Project Manager and will be solely responsible for the team's schedule and delivery and provide the best design solutions possible, Rob will be assisted by a fully integrated design and construction staff.

Staffing Plan

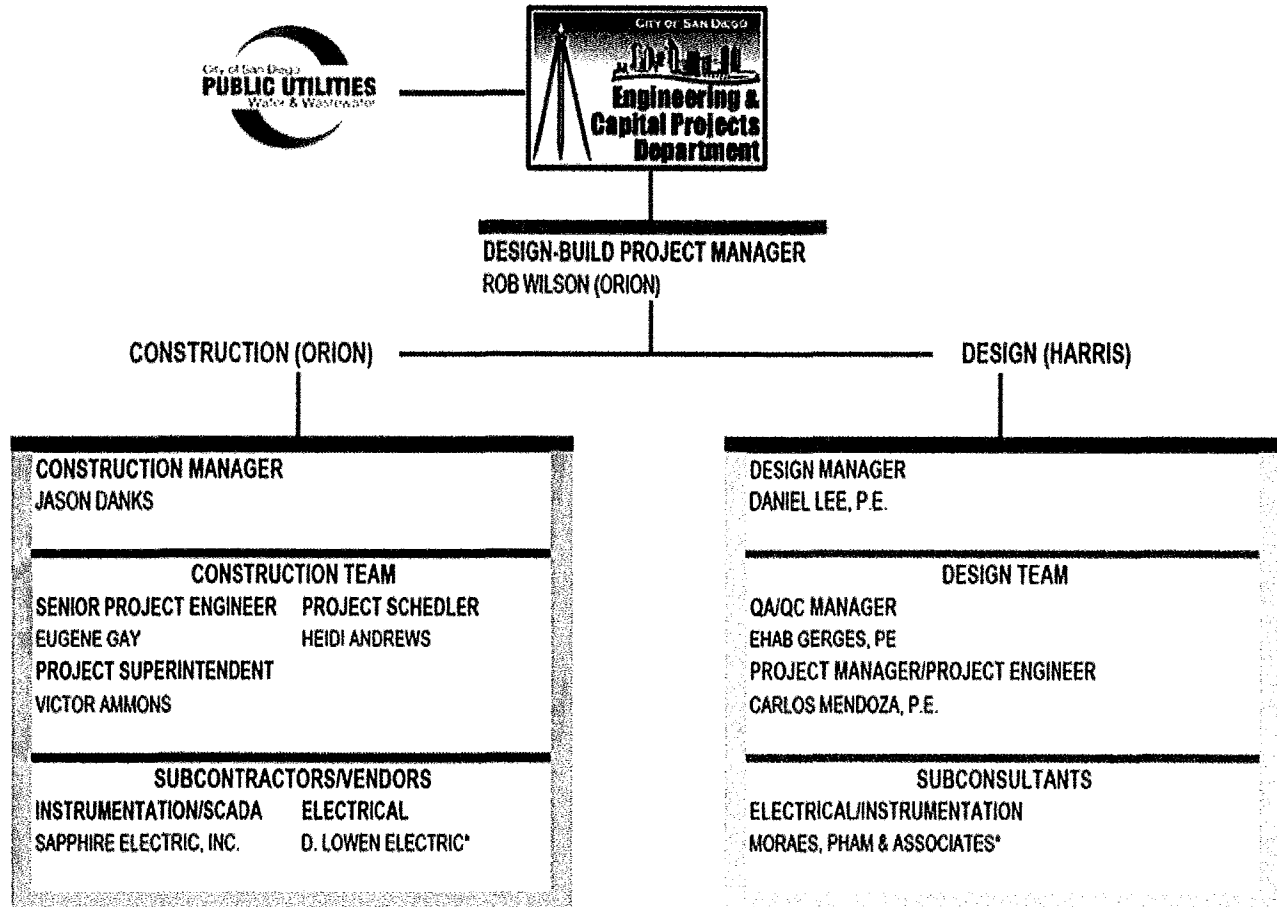
As discussed earlier the Orion/Harris team is comprised of Orion serving as the Prime Proposer and constructor with Harris & Associates providing design services, supported by Moraes Pham & Associates (MPA) performing electrical and SCADA design.

During the construction phase, Orion will use the selected subcontractors to complete specific segments of the project; these subcontractors are included in the organization chart. Orion/Harris team plans to use subcontractors for approximately 49% of this project, focusing on minority, disadvantaged, and small local firms when available.

Key Staff

The Orion/Harris team has extensive and direct experience that is ideally applicable to recycled water system infrastructure designs, including work accomplished under design-build contracts. The following presentation validates our technical capabilities by briefly summarizing key personnel to be assigned to the project, including relevant design and construction experience of the key members of the Orion/Harris team. As illustrated in the Team Chart, the organization and management of the Orion/Harris team will ensure a clear chain of command and accountability of each team member. Personnel available for assignment to this project (see org chart) are on staff, immediately available, and committed to fulfilling their respective assignments for the full term of the project.

Section 4: Project Team (cont'd)



LEGEND

* City of San Diego SLBE/ELBE Certified

** DBE/DVBE/MBE/WBE Certified

Strength of Key Team Personnel

- Civil - Harris & Associates
- Mechanical - Harris & Associates
- Electrical - Moraes, Pham & Associates
- Instrumentation and Controls/SCADA - Moraes, Pham & Associates
- Environmental - Harris & Associates
- Geotechnical - Harris & Associates
- Corrosion - Harris & Associates

Section 4: Project Team (cont'd)

Construction Team

Rob Wilson - Design-Build Project Manager

Rob Wilson has 30 years' experience in the construction industry in managing and estimating water and wastewater construction projects. He is the Director of Design-Build Services for Orion Construction and an active member of the Design Build Institute of America (DBIA). His experience includes sewer and water pumping stations, water and wastewater treatment plants, underground utilities, and water storage facilities. Clients served include the City of San Diego, Otay Water District, Padre Dam Municipal Water District, Sweetwater Authority, and many other local public entities. Rob will be directly responsible for the delivery of this successfully completed D/B project to the City.

Rob is instrumental in preparation of proposals, scheduling, procurement, and long range planning on all of Orion's recent Design-Build projects, including D-B Water/Wastewater pipelines at Camp Pendleton, D-B Old Rose Canyon Trunk Sewer, D-B Harvard Ave Trunk Sewer, and D-B Water Group 790. Rob also served as program manager for multiple Design-Build projects for the U.S. Navy at Coronado, which comprised the rehabilitation of a total of ten (10) pump stations.

Jason Danks - Construction Manager

Jason is a construction professional talented at scheduling and coordinating people, equipment and material resources. Jason consistently completes numerous City of San Diego underground utility projects for which he has been responsible; they are completed on time, within budget, and of a quality standard appreciated by the City.

His broad experience includes wastewater and water treatment plant and pump station construction, rehabilitations, and retrofits as well as water and wastewater pipeline construction. Jason completed the trenchless microtunnel Design-Build Harvard Ave 42" Trunk Sewer and Pump Station for the Irvine Ranch Water District which won the 2008 ASCE Project Achievement award. As Construction Manager he recently completed D/B Water Group 790 which has been City nominated for both ASCE and APWA awards by the City.

Jason currently holds certifications in Safety with an OSHA 10 and 30 hr Construction Industry Safety Training, and 40 hr HAZWOPPER Specialty Safety training for the recognition and handling of hazardous materials. These certifications along with direct access to all of the company's labor and equipment resources make Jason the top choice for the construction management that this project will require.

Gene Gay - Senior Project Engineer

Eugene Gay has 29+ years of experience on the Construction Industry in Southern California in the Field Operations and Office Management. He has completed projects ranging from Water, Sewer, Storm Drains, Wastewater Treatment Plants, Water Filtration Plants, Street Restoration, Civil and ADA Improvements.

Some of the Clients Eugene has performed this work for are; City of San Diego (Have Worked on over 15+ Group Jobs), City of La Mesa, City Of Oceanside, City of Westminster, City of Fullerton, Eastern Municipal Water District, Rincon Del Diablo Water District. Currently Gene is responsible for construction of two ongoing design-build projects for Orion, the Cummings Road Waterline Upgrade project for the U.S. Navy and the Colony Hill Waterline Replacement project with the City of San Diego.

Heidi Andrews - Scheduler

Heidi Andrews has a B.S. degree in Civil Engineering, and has 17 years experience in public works construction. In her 11 years with Orion she has had experience as both a Construction Engineer and Manager on numerous water and wastewater improvement contracts. Her duties include negotiation for buyout of mechanical equipment and pipeline materials, submittal review and approval, developing and maintaining schedules utilizing Primavera. As a veteran Project Engineer she is skilled at coordinating the work of subcontractors and monitoring their performance for conformance with contract specifications. As a Project Manager she has been responsible for the construction of sewer

Section 4: Project Team (cont'd)

and water pump stations, upgrades to both water and sewer treatment plants, steel water reservoirs and pipeline systems. She has worked closely with Jason Danks on numerous City of San Diego pump stations and pipeline upgrades and is an integral member of Orion's Design-Build team. Recent completed D/B assignments as Project Manager have been the Upgrade of Water Treatment Process Systems at the City Metro Biosolids Center and the Steam and Energy Recovery Systems at Marine Corps Training Depot. Currently Heidi is a Project Manager coordinating the design phase of the D/B Naval Pump Station 325 Retrofit at Point Loma Naval Base and the D/B Scripps Ranch Water Pump Station Upgrades project for the City of San Diego. For the D/B Recycled Water System Upgrades Heidi will utilize her scheduling skills to develop and maintain the project schedule from award to final completion.

Victor Ammons - Superintendent

Victor has over 15 years of experience in water and waste water infrastructure upgrades. He began his employment with Orion as Superintendent in 2005. Victor has been the recipient of many accolades by publicly and privately such as the APWA Orange County Chapter Project of the Year for Shaw's Cove Lift station to the singing praise of the La Jolla Community for his work on the City Design Build Water Group Job 790. Victor's pride and professionalism in his duties creates a sense of project success. He is currently construction Orion's D/B Recycled Water project 1043 for the U.S. Navy at Camp Pendleton. 30,000 LF of recycled waterline all in busy paved streets requiring extensive coordination with on-base activities.

Design Team

Daniel Lee, PE - Design Manager

Dan brings over 31 years of experience in project management and design of civil engineering projects throughout California, Arizona, Nevada and Mexico, including recycled water improvements and several miles of potable water mains up to 27-inches in diameter through a heavily congested utility corridor in Rancho Bernardo - very near some of the proposed improvements for this project. Dan's experience in infrastructure planning and design also provides him a big-picture view of how this project relates to the surrounding community.

As San Diego Area Manager of Civil Design for Harris and Associates, Dan will assure that adequate resources are applied to the project to meet deliverable deadlines. He is actively managing several Task Orders for the City of San Diego, and through these relationships will maintain a pulse on issues of importance to the City, so that appropriate solutions are delivered.

Some of Dan's most notable projects include the design of five miles of sewer trunk main for the MTDB Eastline Trolley, infrastructure design for Horton Plaza Shopping Center, grading and drainage improvements for the San Diego Sail Bay Beach Redevelopment project, MCRD Housing Facilities including base sewer, water, storm drain and streets; design of two miles of water transmission mains for the City of San Diego; the design of day-use parking, storm drain, sewer, water, a major arterial widening for Ponto Beach State Park; and, the widening of Palomar Airport Road for the City of Carlsbad.

Ehab Gerges, PE - QA/QC Manager

Ehab has over 21 years of professional experience in public works design. He has managed and designed a wide variety of public works projects including sewer and water improvements, street widening, storm drain, and pavement rehabilitation. Ehab has prepared water line designs for several agencies throughout Southern California. He has been responsible for the preparation of studies and master plan reports for sewer, water, and drainage infrastructures. Ehab's experience also encompasses municipal engineering where he served on assignments helping public agencies in the preparation of request for proposals, consultant selection, contract negotiations, NPDES and other permits' processing, infrastructure studies and bidding, inspection, and construction management for several capital improvements projects.

Ehab provides an experienced set of eyes to QA/QC Check deliverables in accordance with City guidelines. Ehab is authorized to bind Harris

Section 4: Project Team (cont'd)

& Associates in agreements and has orchestrated positive teaming relationships between Orion, City, and Harris staff. These relationships and his technical direction led to the successful completion of design phase deliverables on past and current D/B projects that are underway with the City.

Carlos Mendoza, PE - Project Manager

Carlos brings over 19 years of experience in wet utility engineering, including recent and ongoing design management of City of San Diego water CIP upgrades with aggregate construction values of over \$14,000,000, the majority of which are design-build projects with Orion Construction. Carlos' demonstrated ability to respond to contractor and agency concerns, manage specialty subconsultants, and deliver engineering solutions makes him the ideal candidate to manage the design of this project. Among his projects are water Group Jobs 790, 921, and 922, the replacement of the La Jolla Country Club Reservoir and Pump Station, the design of drain line improvements for the Scripps Reservoir, and the Harbor Drive Emergency Sewer Vault Replacement, spanning the siphon crossing of Chollas Creek.

Carlos' professional experience includes senior level municipal engineering management, giving him a depth of insight on City concerns. This insight helps deliver turn-key solutions.

Subconsultants/Subcontractors

Moraes Pham & Associates (MPA) – Electrical/Instrumentation

MPA is a local engineering firm founded in 1989 to provide integrated mechanical, electrical, and plumbing designs, for advanced technology, institutional, industrial, and municipal facilities. MPA has a twenty-year record of timely delivery within contracted scope and budget. MPA has completed numerous projects for the City of San Diego as an electrical design subconsultant and has been involved in many of the City electrical SCADA projects Orion has completed.

Joe Moraes, PE – Electrical Engineer

Joe is an electrical engineer specialized in the design of electrical and controls systems for water and wastewater facilities, such as reservoirs, pumping stations, sanitary lift stations, PRV station, wells, and treatment plants. In the past five years he has designed over 200 such projects for 43 Southern California municipal end users. With his experience and design activity, Joe maintains proficiency in solutions to complex designs involving generators, variable frequency drives, PLC's, and SCADA systems. He is familiar with San Diego CIP and MWW design and CAD guidelines/standards.

Sapphire Electric, Inc. – Electrical/Instrumentation

Sapphire Electric was founded in 2002. Sapphire is a small San Diego based electrical, PV and instrumentation contractor. They also maintain a UL listed manufacturing facility at their San Diego location. Being signatory to agreements with the IBEW and are members of the National Association of Electrical Contractors and the Instrument Society of America, they have all the resources necessary for a project of this scope. For the last nine years Sapphire has specialized primarily in water and wastewater projects with an emphasis on instrumentation, controls and photovoltaic installations at remote sites. The owners of the firm are actively involved in the management of all projects and take a very active role in customer satisfaction.

Time Commitment

The partnership of Orion/Harris team as the Design-Build team for the Design-Build Recycled Water System Upgrades Project, assert our commitment to keeping the identified Project Manager, Design Manager, Construction Manager, QA/QC Manager, and Design Engineers employed on the project for the duration of the project. We have carefully reviewed project expectations and assessed the staff levels necessary. For a project of this size and scope, the Orion/Harris team has confirmed the availability of the key members of the team as identified and their commitment to this project for the duration of the project or their employment by their respective firms, whichever is

Section 4: Project Team (cont'd)

shorter. Should a key member have to be replaced, the City will have the opportunity to review and approve the resume and experience record of the suggested replacement prior to their assignment to this project. Since this project will begin in June 2011 the Orion/Harris team can and has committed the proposed staff without conflict with ongoing work.

PERSON	ROLE	AVAILABILITY	TIME COMMITMENT	ACCOUNTABLE TO
MANAGEMENT TEAM				
Rob Wilson	D/B Project Manager	From NTP- Throughout Project	40% Design- 30% Construction	City of San Diego
CONSTRUCTION TEAM				
Jason Danks	Construction Manager	From NTP- Throughout Project	10% Design- 50% Construction	Rob Wilson
Gene Gay	Senior Project Engineer	From NTP- Throughout Project	10% Design- 75% Construction	Jason Danks
Victor Ammons	Project Superintendent	Daily Supervising Construction	5% Design- 100% Construction	Jason Danks
DESIGN TEAM				
Dan Lee, PE	Project Director	From NTP- Throughout Project	30% Design- 10% Construction	Rob Wilson
Ehab Gerges, PE	QA/QC Manager	From NTP- Throughout Project	30% Design	Dan Lee
Carlos Mendoza, PE	Project Manager/ Project Engineer	From NTP- Throughout Project	80% Design- 5% Construction	Dan Lee

Staff Availability

Orion/Harris Team Member Full Resumes

Please see Appendix A.

Section 5: Technical Approach and Design Concept

The Orion/Harris team warrants that it has taken steps to ascertain the nature and location of the work and that we have investigated and satisfied ourselves as to the general and local conditions applicable to the proposed work.

We fully understand that the Recycled Water System Upgrades Project, part of the City of San Diego Public Utilities Capital Improvements Program, is to ensure that nuisance water and spills from the City's recycled water system complies with the California Water Code Section 13529.2. The existing identified 15 pressure-reducing recycled water vaults located throughout the City, discharge drainage into the storm water system. These pressure reducing stations will be retrofitted to divert the drainage inside the vault away from storm drain and into the sewer system. The existing damage system to the storm drains will be abandoned in place.

The work shall be completed in accordance with:
STANDARD SPECIFICATIONS

Document No.	Filed	Description
PITS0504091	05-04-09	Standard Specifications for Public Works Construction (The GREENBOOK), 2009 Edition
PITS090110-1	09-01-10	City of San Diego Standard Specifications for Public Works Construction (The WHITEBOOK), 2010 Update
AEC1231064	12-31-06	California Department of Transportation, Manual of Uniform Traffic Control Devices (MUTCD 2006)
769023	09-11-84	Standard Federal Equal Employment Opportunity Construction Contract Specifications and the Equal Opportunity Clause
AEC1230163	12-31-06	City of San Diego Standard Drawings
N/A	VARIES	City of San Diego Standard Drawings-Updates Approved For Use (when specified)
AEC0925061	09-25-06	Caltrans 2006 U.S. Customary Unit Standard Plans

Technical Design Approach

Harris & Associates with subconsultant, Moraes, Pham & Associates, will provide all design services for the project which will include preparing the 100% design. The services will include all necessary design and construction documents required during construction, start-up, closeout, and record as-built drawings.

A complete design for all the elements of the project will be provided including the evaluation of alternative construction approaches to ensure economical designs which will optimize constructability and still meet all contract requirements.

All permits will be applied for and secured in the design phase and it is understood by the design team that they will provide all necessary reports and studies to obtain permits and incorporate the requirements of permitting agencies into the final design.

The Harris team has extensive experience in delivering Design-Build and Design-Bid-Build construction documents for water, sewer, and storm drain infrastructure improvements, having produced many high profile project plans and specifications for the City of San Diego. They are intimately familiar with the "Greenbook", City of San Diego "Whitebook", City Standard Drawings, CADD standards and Microstation V8 resources, the seven volume CIP Design Guidelines, Drainage Design Manual, City approved materials lists, ADA guidelines and policies, Street Design Manual, and the California Manual of Traffic Control Devices (MUTCD), and the preferences of the CIP division, water

Section 5: Technical Approach and Design Concept (cont'd)

operations, traffic engineering section, and field division. They understand through experience how to negotiate evolving standards and competing interests to work out win-win solutions to project challenges.

They are proposing an experienced design team. As Design Manager, Daniel Lee brings decades of City water CIP experience, the design of City of San Diego Reclaimed Water Pressure Reducing Stations such as these. Daniel is the Harris San Diego Area Design Manager and will assure that adequate and appropriate staffing levels to deliver the project on schedule.

They will work closely with the city project manager, Gerry Barca, to focus deliverables on project objectives for our end clients in the operations division. Our approach of actively discussing and documenting agreement on design issues means efficiency, accuracy, and avoidance of surprises and hidden issues that can crop up during construction when solutions are much more difficult and expensive.

Our Design-Build Design sequence includes:

- Issue utility information request letters as soon as possible
- Gather and carefully review record drawings and the latest City standards
- Develop base drawings
- Conduct team field walk with utility base drawings, identifying issues and constraints that may not be evident on record plans.
- Pothole to verify locations and elevations at utility crossings and tie-in points for drainlines.
- Program construction schedule and first items of work
- Develop / QA/QC / and Submit 30 percent design in a meeting
- Address all comments
- Develop / QA/QC / Submit 75 Percent Drawings for construction
- Address any substantial comments and issue 30-day construction notification.
- Develop / QA/QC / Submit 100 percent and final record drawings before construction begins.

The typical SCADA system design for each site is as follows:

Each vault will contain a complete system for communicating the status per RFP design criteria at each site. This is to include a PLC and pressure transmitter panel each mounted above grade in NEMA 4X enclosures. PLC to consist of Modicon PLC and components per the City standard, MDS radio, battery backup and other components per the drawings furnished by addenda. The pressure transmitter panel will be furnished with either one or two SMAR LD301 transmitter(s) depending on site requirements with tubing to vault for process connections. The communications will be transmitted through the MDS radio via a City standard antenna and cable mounted on a 30' composite pole at each site. Each vault will be supplied with a Gems LS-270 flood switch to monitor water level. The design criteria provided for the project requires valve position and intrusion at some sites and we have made provision for this as well.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Towne Center Dr Pressure Reducing Station (V-1A)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes. Concrete bottom. Currently no drain. Just depression.	Install 2" drain. Sump will be 6" deep and all concrete with grate at top.
Drain:	No	Install 4" drain to sewer. 220 LF. See Figure V1A.
Power:	No	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on East side.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	No	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	6", 3"	No change.
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"	No change.
Hinges for Doors:	Several hinges broken.	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.

Towne Center Dr. Pressure Reducing Station

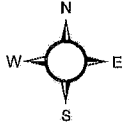
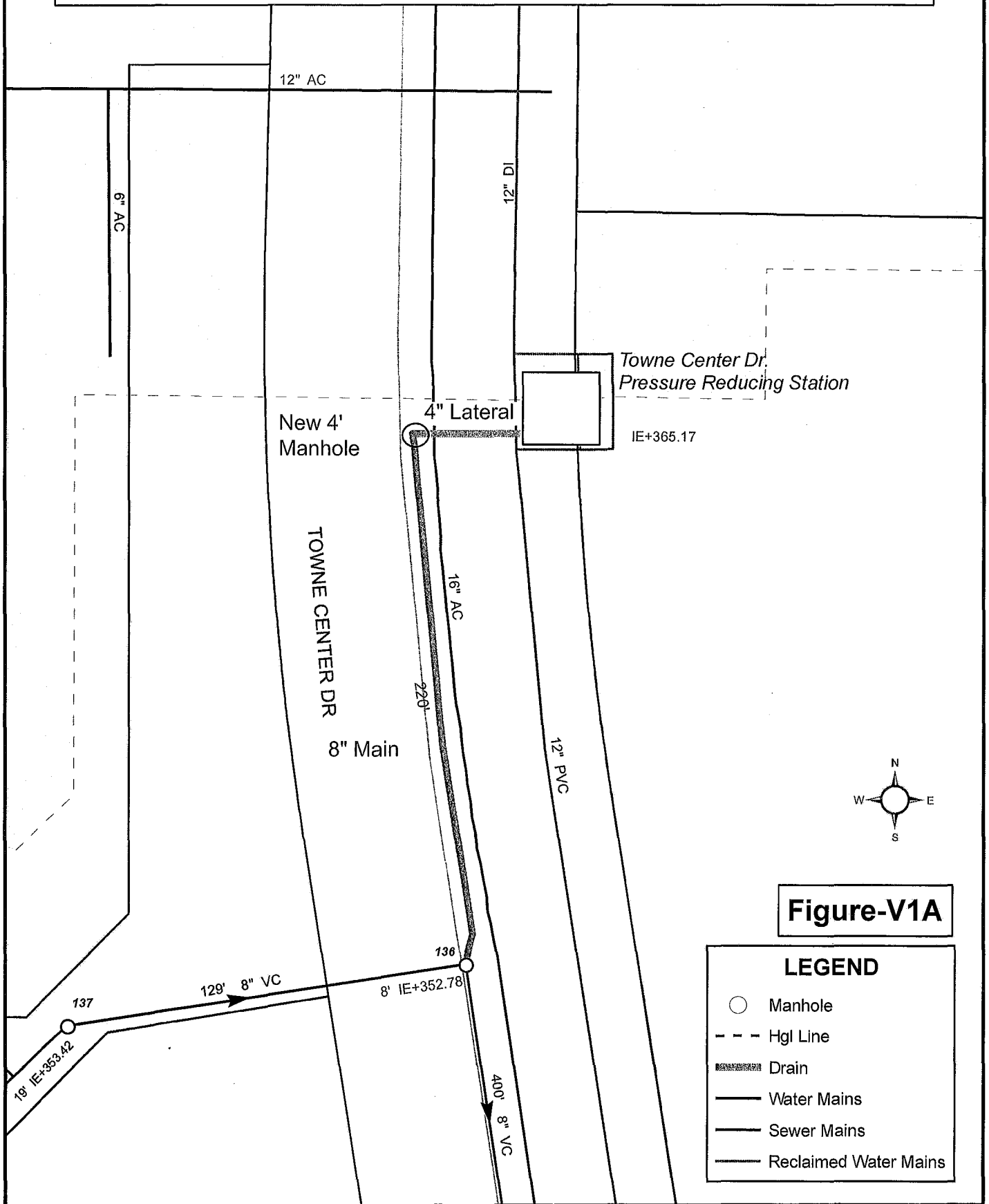


Figure-V1A

LEGEND

- Manhole
- - - Hgl Line
- ▨ Drain
- Water Mains
- Sewer Mains
- Reclaimed Water Mains

Section 5: Technical Approach and Design Concept (cont'd)

Details of Town Center Dr Pressure Relief Station (V-1B)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, but 3" deep. Concrete bottom. Currently no drain. Just depression.	Install 2" drain. Sump will be 6" deep and all concrete with grate at top.
Drain:	No	Install 4" drain to sewer. 400 LF. See Figure V1B. Abandon existing 12" gravity drain and flap gate.
Power:	No	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on South side.	No change.
SCADA	No	Upgrade existing Meter/Transmitter Pedestal. Signal to Chollas. 1) Pressure High. 2) Float Switch Alarm.
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 27987-57-D). Not fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	4"	No change.
Vault Size:	Length: 4' Wide: 4' Deep: 4'	No change.
Hinges for Doors:	Working	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	This is no bypass to the Pressure Release Valve.	

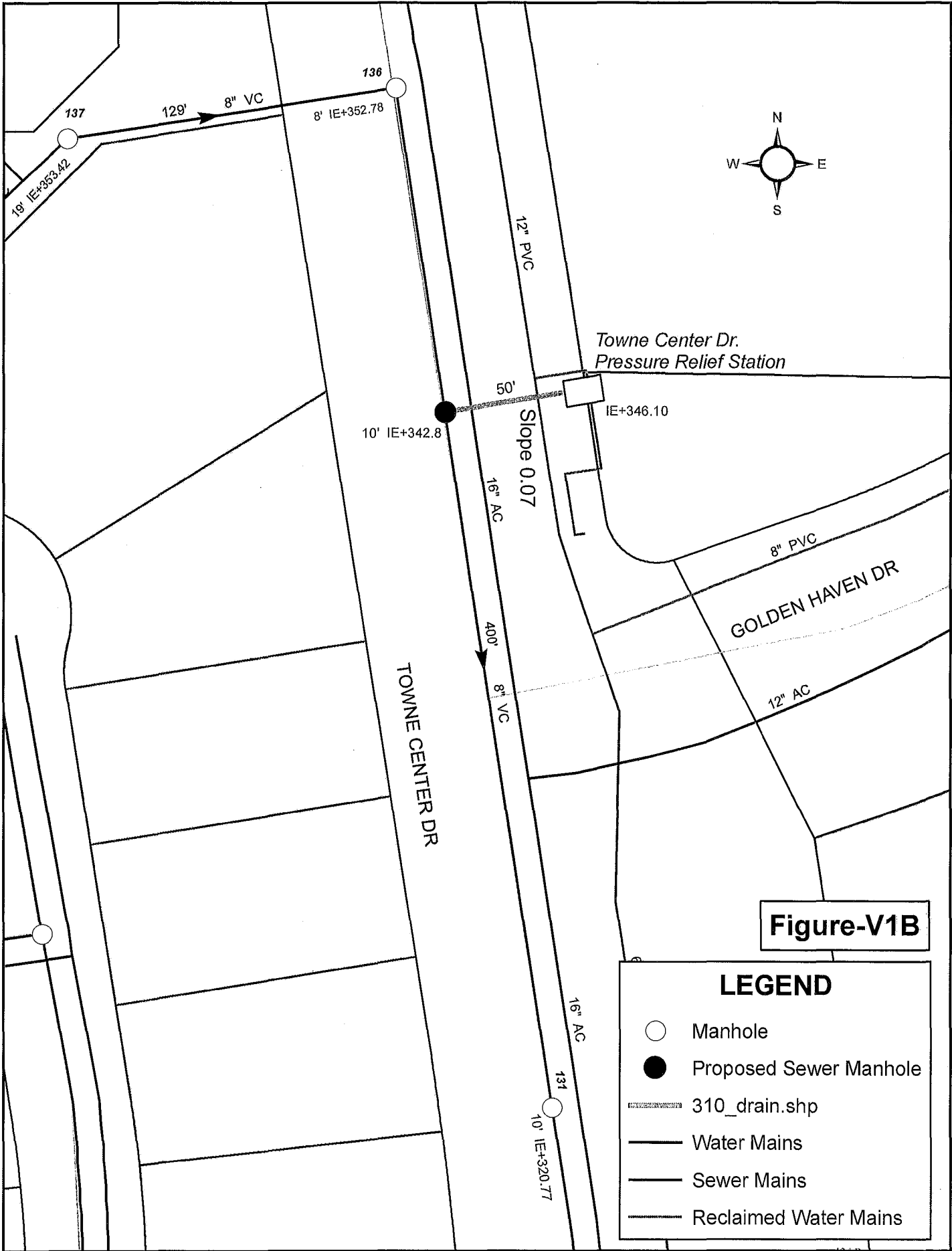


Figure-V1B

LEGEND

- Manhole
- Proposed Sewer Manhole
- 310_drain.shp
- Water Mains
- Sewer Mains
- Reclaimed Water Mains

Section 5: Technical Approach and Design Concept (cont'd)

Details of Governor Dr Pressure Reducing Station (V-2A)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes. Concrete bottom. Currently no drain. Just depression.	Sump will be 12" deep and all concrete. No grate.
Drain:	No	There is no drain. Water will be removed by RW Operation.
Power:	No. Design Engineer needs to check.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on North side.	No change.
SCADA	No	Upgrade existing Meter/Transmitter Pedestal. Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 27987-57-D). Not fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	6", 3"	No change.
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"	No change.
Hinges for Doors:	Working	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	Problem with water coming into vault from irrigation.	Perform minor grading and add small retaining wall around vault so irrigation water does not enter vault.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Governor Dr Pressure Relief Station (V-2B)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes. Concrete bottom. Currently no drain. Just depression.	Sump will be 12" deep and all concrete. No grate.
Drain:	No	There is no drain. Water will be removed by RW Operation.
Power:	No. Design Engineer needs to check.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on North side.	No change.
SCADA	No	Upgrade existing Meter/Transmitter Pedestal. Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	Meter/Transmitter Pedestal and conduits (see As-built 27987-57-D). Not fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	6", 3"	No change.
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"	No change.
Hinges for Doors:	Working	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	Problem with water coming into vault from irrigation.	Perform minor grading around vault so irrigation water does not enter vault.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Regents Rd Pressure Reducing Station (V-3)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes. Concrete bottom. Currently no drain. Just depression.	Sump will be 6" deep and all concrete with grate on top.
Drain:	No	Install 2" drain to sewer.
Power:	No. Design Engineer needs to check.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, three conduit plugs on East side.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	No	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	8", 3"	No change.
Vault Size:	Length: 8' Wide: 6' Deep: 5'-4"	No change.
Hinges for Doors:	One broken.	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	Problem with water coming into vault from irrigation.	Perform minor grading around vault so irrigation water does not enter vault.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Production Ave Pressure Reducing Station (V-4A)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes. Concrete bottom. Currently no drain. Just depression.	Install 2" drain. Sump will be 6" deep and all concrete with grate at top.
Drain:	No	Install 4" drain to sewer. See Figure V-4A.
Power:	No	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, two conduit plugs on South side.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Float Switch Alarm.
SCADA Facilities:	No	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	10", 10", 4"	No change.
Vault Size:	Length: 12' Wide: 6' Deep: 5'-3"	No change.
Hinges for Doors:	Locking hinges. Hatch is heavy.	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	Vault always has water in it.	

Production Ave Pressure Reducing Station

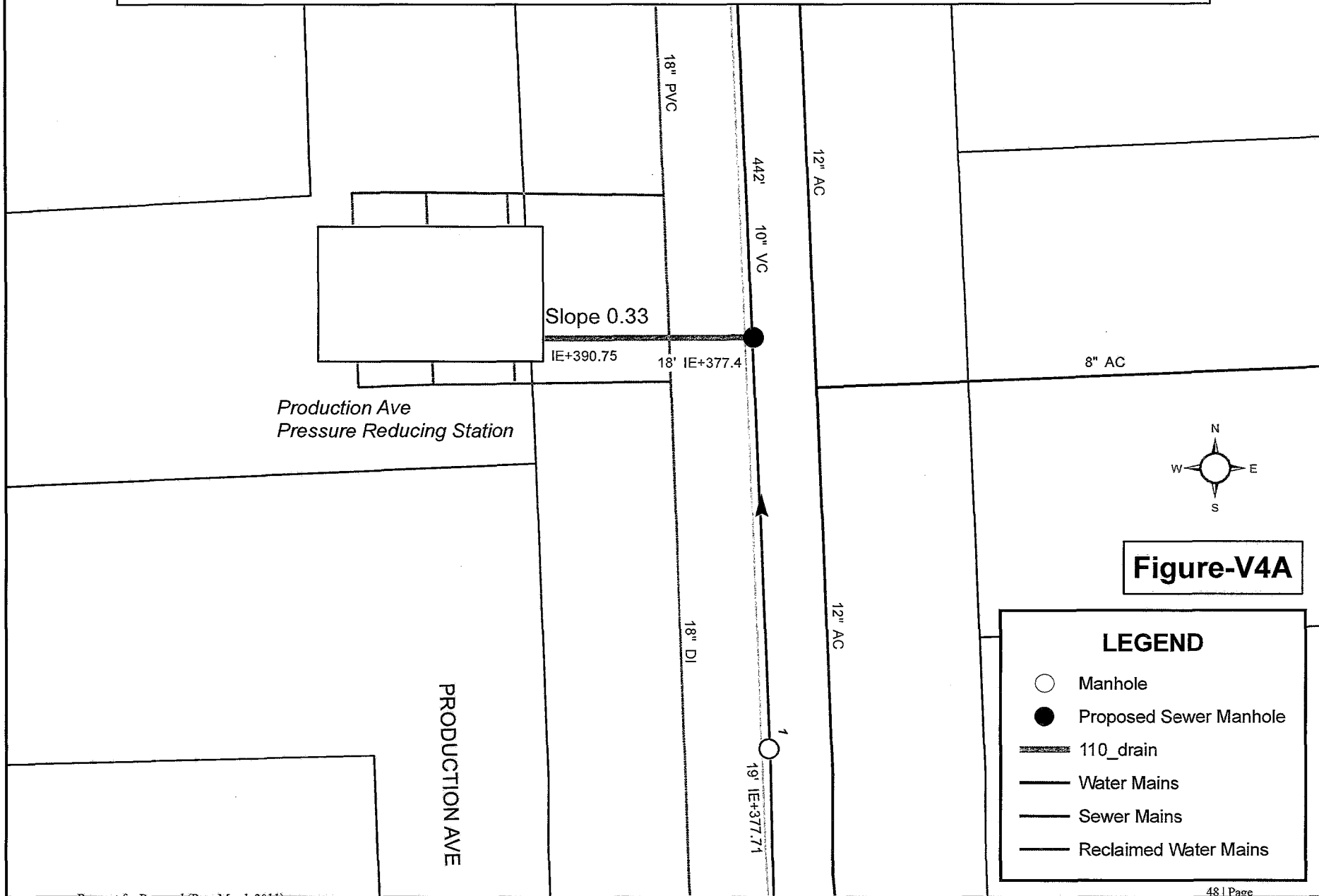


Figure-V4A

LEGEND

- Manhole
- Proposed Sewer Manhole
- 110_drain
- Water Mains
- Sewer Mains
- Reclaimed Water Mains

Section 5: Technical Approach and Design Concept (cont'd)

Details of Production Ave Pressure Relief Station (V-4B)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, but 3" deep. Concrete bottom. Currently no drain. Just depression.	Install 2" drain. Sump will be 6" deep and all concrete with grate on top.
Drain:	No	Install 4" drain to sewer. 350 LF. See Figure V-4B. Abandon existing 18" PVC drain and flap gate.
Power:	No	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes, two conduit plugs on South side.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Float Switch Alarm.
SCADA Facilities:	No	No change.
Instruments:	None	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	6"	No change.
Vault Size:	Length: 4' Wide: 4' Deep: 4'	No change.
Hinges for Doors:	Locking hinges.	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.

Production Ave Pressure Relief Station

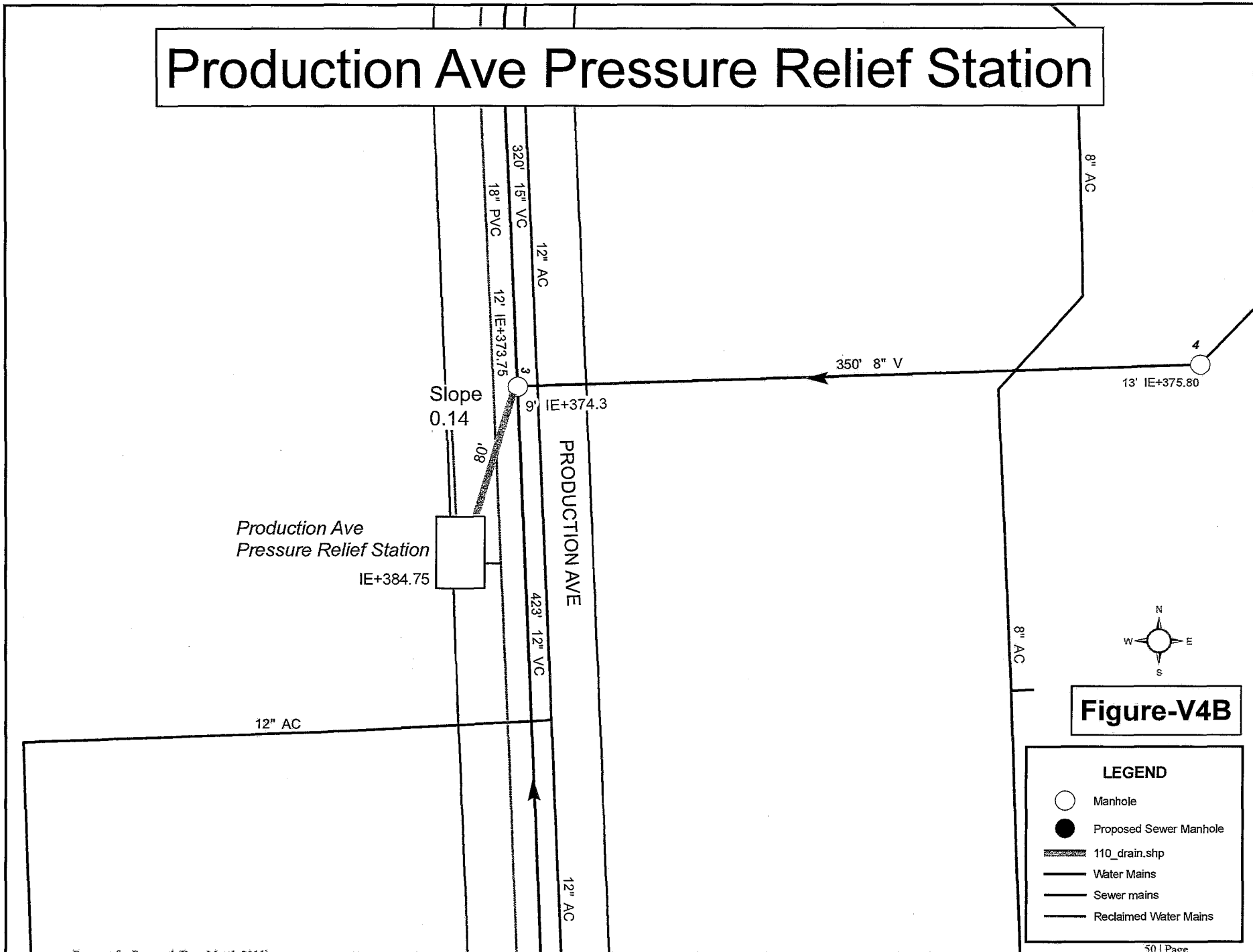


Figure-V4B

LEGEND

- Manhole
- Proposed Sewer Manhole
- 110_drain.shp
- Water Mains
- Sewer mains
- Reclaimed Water Mains

Section 5: Technical Approach and Design Concept (cont'd)

Details of Meanly Dr Pressure Reducing Station (V-5)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, 12" deep with grate cover.	Plug 8" drain.
Drain:	Yes, 8" PVC to storm drain.	Install 4" drain to sewer and sump pump. Sump pump will not be tied to SCADA. Pump will turn on when water in vault reaches 2" water depth. Install a Hydromatic 33 pump or similar.
Power:	No. Design Engineer needs to confirm.	Nearest power in street will be brought to site for instrumentation and sump pump.
Electrical Conduits (Stub Outs):	Yes. Two cabinets with conduits to each of the Pressure Gauges.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	No	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12". Install Pressure Gauge on high and low pressure side of pipeline.
Pipe Size:	6", 2"	No change.
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"	No change.
Hinges for Doors:	Locking hinges. Hatch is heavy.	Replace all hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	Vault floor slopes away from sump. There is a pressure relief valve with in the vault. A truck pull up and fill up station next to vault.	Slope Vault floor towards sump.

Meanley Dr Pressure Reducing Station

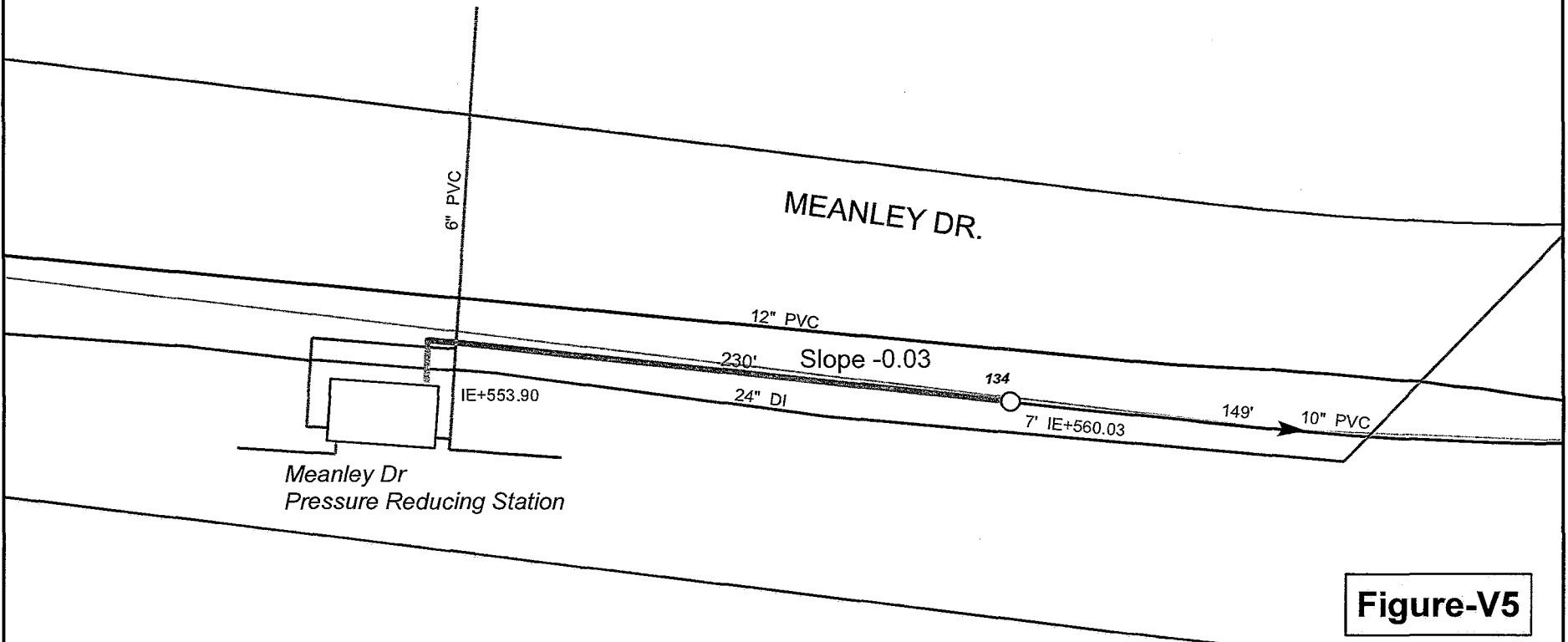
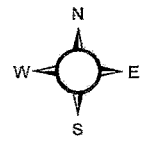


Figure-V5

Legend

- Manhole
- Drain
- Water Mains
- Sewer Mains
- Reclaimed Water Mains



Section 5: Technical Approach and Design Concept (cont'd)

Details of Scripps Ranch Blvd Near Scripps Lake Dr Pressure Reducing Valve (V-6)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, 12" deep with grate cover.	Replace 8" drain with 4" drain.
Drain:	Yes, 8" PVC to sewer.	Replace a short section of 8" drain with 2" pipeline to restrict the flow of water into the sewer.
Power:	No. Design Engineer needs to confirm.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes. Two cabinets with conduits to each of the Pressure Gauges.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	Meter /Transmitter Pedestal and conduits (see As-built 28007-44-D). Not fully installed. Design Engineer needs to check to see if still usable.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to electrical.	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12".
Pipe Size:	6", 2"	No change.
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"	No change.
Hinges for Doors:	Several hinges broken.	Install hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	There is a pressure relief valve with in the vault.	Check drain flap prior to submission of 30% design and if needed will replace.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Mira Mesa Blvd Pressure Reducing Station (V-7)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, 12" deep with grate cover.	Replace 8" drain with 4" drain.
Drain:	Yes, 8" PVC to sewer.	Replace a short section of 8" drain with 2" pipeline to restrict the flow of water into the sewer.
Power:	No. Design Engineer needs to confirm.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes. Two cabinets with conduits to each of the Pressure Gauges.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	Meter /Transmitter Pedestal and conduits (see As-built 28007-44-D). Not fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12".
Pipe Size:	6", 2"	No change.
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"	No change.
Hinges for Doors:	Working	Install hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	There is a pressure relief valve with in the vault.	Check drain flap prior to submission of 30% design and if needed will replace.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Scripps Westview Way Pressure Reducing Station (V-8)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes with grate cover. Probable 12" deep.	Replace 8" drain with 2" drain.
Drain:	Yes, probable 8" PVC to sewer.	Replace a short section of 8" drain with 2" pipeline to restrict the flow of water into the sewer.
Power:	No. Design Engineer needs to confirm.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes. Two cabinets with conduits to each of the Pressure Gauges.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	Meter /Transmitter Pedestal and conduits. Not fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12".
Pipe Size:	6", 2"	No change.
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"	No change.
Hinges for Doors:	Broken. Hatch very heavy.	Install hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	There is a pressure relief valve with in the vault. Vault does not match drawing 28007-D. There is root intrusion in mid high joint. Drain flap valve to sewer is rusted. Areas within the cabinets are heavily rusted.	Check drain flap prior to submission of 30% design and if needed will replace. Repair joint to prevent future intrusion.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Scripps Poway Parkway Pressure Reducing Station (V-9)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, 12" deep with grate cover.	Replace 8" drain with 4" drain.
Drain:	Yes, 8" PVC to sewer.	Replace a short section of 8" drain with 2" pipeline to restrict the flow of water into the sewer.
Power:	No. Design Engineer needs to confirm.	Nearest power in street will be brought to site for instrumentation.
Electrical Conduits (Stub Outs):	Yes. Two cabinets with conduits to each of the Pressure Gauges.	No change.
SCADA	No	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm.
SCADA Facilities:	Meter /Transmitter Pedestal and conduits (see As-built 28007-44-D). Not fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Design Engineer needs to check to see if still usable.	Install float switch which will activate flooding alarm. Alarm will be activated when water in vault reaches 12".
Pipe Size:	6", 2"	No change.
Vault Size:	Length: 12' Wide: 8' Deep: 7'-9"	No change.
Hinges for Doors:	Several hinges broken.	Install hinges. Single person will be able to lift door safely by self. Will coordinate with RW Operation.
Notes:	There is a pressure relief valve with in the vault.	Check drain flap prior to submission of 30% design and if needed will replace.

Section 5: Technical Approach and Design Concept (cont'd)

Details of Carmel Valley Rd Pressure Reducing Station (V-10)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, 12" deep with grate cover.	Remove grate.
Drain:	No, sump pump empties vault. Pumps to street.	Remove sump pump and related pipelines. Patch holes.
Power:	Yes, Design Engineer needs to confirm.	No change.
Electrical Conduits (Stub Outs):	Yes. Meter/Transmitter Pedestal and Instruments.	No change.
SCADA	No, Design Engineer needs to confirm.	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm. 4) Alarm on Transmitter Panel Door.
SCADA Facilities:	Meter /Transmitter Pedestal and conduits (see As-built 31697-D). Fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve (Actuator).	No change.
Pipe Size:	12", 4"	No change.
Vault Size:	Length: 14' Wide: 8' Deep: 9'	No change.
Hinges for Doors:	Good shape.	No change.
Notes:		When float switch is activated RW Operations will be alerted that the water in the vault needs to be removed.

Section 5: Technical Approach and Design Concept (cont'd)

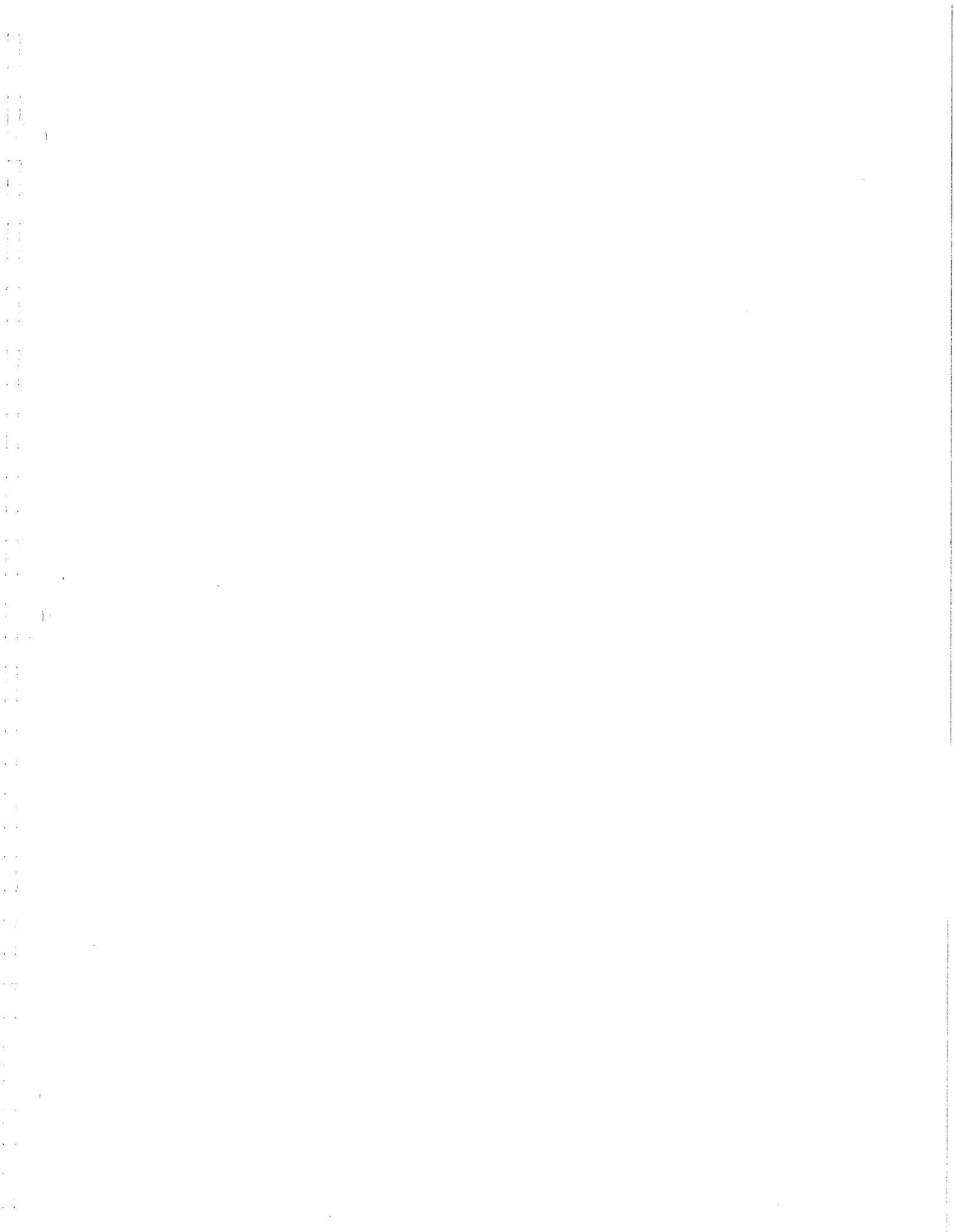
Details of Camino Del Sur Pressure Reducing Station (V-II)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes, 12" deep with grate cover.	Remove grate.
Drain:	No, sump pump empties vault. Pumps to street.	Remove sump pump and related pipelines. Patch holes.
Power:	Yes, Design Engineer needs to confirm.	No change.
Electrical Conduits (Stub Outs):	Yes. Meter/Transmitter Pedestal and Instruments.	No change.
SCADA	No, Design Engineer needs to confirm.	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm. 4) Alarm on Transmitter Panel Door.
SCADA Facilities:	Meter /Transmitter Pedestal and conduits (see As-built 31697-D). Fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve (Actuator).	No change.
Pipe Size:	8", 6"	No change.
Vault Size:	Length: 12' Wide: 8' Deep: 9'-10"	No change.
Hinges for Doors:	Good shape.	No change.
Notes:	Transmitter Panel door hinge broken. The water pumped to the street has created algae trail.	Fix Transmitter Panel door hinge. When float switch is activated RW Operations will be alerted that the water in the vault needs to be removed.

Section 5: Technical Approach and Design Concept (cont'd)

Details of San Dieguito Rd Pressure Reducing Station (V-12)

EXISTING CONDITIONS		PROPOSED
Sump:	Yes with grate cover. Probable 12" deep.	Remove grate.
Drain:	No, sump pump empties vault. Pumps to street.	Remove sump pump and related pipelines. Patch holes.
Power:	Yes, Design Engineer needs to confirm.	No change.
Electrical Conduits (Stub Outs):	Yes. Meter/Transmitter Pedestal and Instruments.	No change.
SCADA	No, Design Engineer needs to confirm.	Signal to Chollas. 1) Pressure High. 2) Pressure Low. 3) Float Switch Alarm. 4) Alarm on Transmitter Panel Door. 7) Actuator
SCADA Facilities:	Meter /Transmitter Pedestal and conduits (see As-built 31697-D). Fully installed. Design Engineer needs to check electrical.	No change.
Instruments:	Two Pressure Gauges. One each on high and low pressure side of pipeline. Float switch. Motor to open and close valve (Actuator). Magnetic Flow Meter.	No change.
Pipe Size:	6", 4"	No change.
Vault Size:	Length: 14' Wide: 8' Deep: 8'-8"	No change.
Hinges for Doors:	Good shape.	No change.
Notes:		When float switch is activated RW Operations will be alerted that the water in the vault needs to be removed.



Section 6: Construction Plan

The construction plan for this design-build project is based on the Orion/Harris team's complete understanding of the project goals and our knowledge and our experience working on the design and construction of waterline replacement projects. Our team is well aware of the complexities and challenges of this pipeline design-build construction project. To address the level of effort involved in the design-build process for the recycled water system upgrade, the Orion/Harris team will complete a detailed work breakdown structure that will be integrated into the final critical path schedule. The work breakdown structure will include responsibilities so that the entire team knows the relationships of the project tasks and the potential for delays if the work is not completed in a timely manner. We have also separately identified all work being done by SLBE/ELBE/DBE/ WBE/MBE/DVBE/DBE as referred to in the contract schedule section of the RFP.

Orion will operate as the Design Builder, accepting full responsibility for the overall design and construction quality, cost, and schedule. The single point of contact for the city staff will be Rob Wilson. To properly manage this design-build project, Orion will maintain control of the schedule and procurement, as described below. An aggressive quality assurance/quality control program will be followed in all phases of design, construction, and activation of the new pipeline.

All communications will either be routed through Rob or he will be "carbon copied" on all major communications between team members, this will allow Rob to monitor the progress of each construction task within the project and keep the project and take the necessary steps to stay on schedule.

Project management for construction begins with the establishment of project accounting, scheduling, procurement, submittal, and other field engineering systems. This work will be accomplished both on site and in the administration office.

Project Waste Recycling

In accordance with the City's and the Orion/Harris team's commitment to sustainable design and maximizing the reduction and recycling of construction waste, the project will be in full conformance with the City's 2008 Construction and Demolition Ordinance.

A.1 Construction Approach and Methods

The project will be logistically supported from our fully staffed construction yards in North County and in Metropolitan San Diego. A field office trailer will be maintained onsite to keep project documentation and as-builts onsite.

Our full time construction manager Jason Danks, responsible for the overall construction will be onsite daily and will be responsible for all construction activities. The project will be staffed by an experienced full time superintendent, Victor Ammons who has previously completed numerous City group watermain replacement projects

Orion owns and will be utilizing the latest model diesel excavation equipment fully compliant with the new state emission control standards. We make extensive use of equipment specifically designed for safe operation in busy City streets, utilizing short counter weight excavators to eliminate the need for the excavator to swing out into adjacent traffic lanes. On our recently completed valve cut-ins on the Alvarado 30" Waterline, it was imperative that this style of machine be used to maintain orderly traffic flows. Owning six almost new machines with this capability allows us to tackle these traffic sensitive projects at short notice and present a very professional image for both ourselves and the City to the general public. A sweeper broom is assigned to each crew or pipeline heading to provide daily sweeping and sediment control throughout the construction work day.

Prior to starting field work pre-existing conditions will be professionally videotaped including final USA - Mark-out, project identification signs will be provided at (2) signs per street where construction is actively occurring. Daytime working hours will be 7:00 to 3:30 pm unless modified by the approved traffic plans.

Section 6: Construction Plan (cont'd)

Principal construction steps per phase:

- Project Field Start –up and community outreach notification
- Schedule and coordinate shutdowns & isolations
- Carefully plan outages and city responsibilities with Water Operations
- Mobilize on site
- Recall USA mark-out and verify utilities to ensure no new utilities have been installed since design
- Video tape project pre-existing conditions and USA mark outs
- Shutdown and isolate vault from the system
- Remove any obsolete piping, electronics, instruments, and SCADA from each vault location
- Make any necessary repairs to the existing Vault, Vault Cover, Vault Floor, and Sump
- Excavate, lay pipe and backfill the required drain lines (including trench cap)
- Excavate and install the required pedestal and conduits for electrical use (including trench cap)
- Install new Electronics, Instruments, and SCADA system inside vault
- Pull Wire and terminate all electrical components
- Test all piping
- Coordinate with SDG&E regarding energizing system
- Power-up all electronics
- Functional Test and Calibrate all Electrical Components, instruments, and SCADA system
- Final Site Restoration and landscaping repairs
- Final Street Restoration , Hardscape and Paving
- Start-up, Training, and Commissioning back into service
- Submit Deliverables, Manuals, Cut sheets, and As-Builts

Orion will take all precautions necessary to assure that no damage or unscheduled shutdowns occur to any adjacent facilities, including piping, utilities, traffic signals, and roads. We will contact Underground Service Alert for verification and location of all utilities and maintain notification current throughout the project. Construction operations will be coordinated to assure efficient and orderly installation of each part of the work in a sequence to obtain the best results and the earliest completion of the project.

Repairs during the one year warranty period are our responsibility along with dealing with all complaints during construction and warranty period. As in the past we will support City staff in their investigations of potential defects providing assistance to identify their causation and apportionment of liability. With over 20 years and numerous successful projects with the City, warranty repairs in or out of the contract warranty period have always been dealt with to the City's satisfaction with prompt attention to minimize third party liability.

A.2 Plan for Operation of Facility during Construction

Orion acknowledges that the City will operate the existing recycled water system at the vaults providing continuous full time service to customers. All integration and start-up of the new electrical and SCADA systems will be carefully coordinated with City staff to ensure minimal interruptions. The drainage improvements will be accomplished without disruption to system operation with special care exercised during construction to protect in place the existing facilities.

Section 6: Construction Plan (cont'd)

A.3 Plan for Phasing of Construction Activities

Phasing and Schedule Narrative

As you can see from the combined Proposed Design and Construction Schedule, the Orion Harris team has already come up with an overall job philosophy that will benefit the community and the project with a quick start to the actual construction activities.

Our overall Phasing and Schedule philosophy is one that minimizes impact to the community and the project in the following ways:

- Shorter time durations for major traffic control closures
- Shorter time durations for heavy equipment in ROW exposure
- Possible Notice to Construct at Approval of 75% plans (Shorter overall project duration – early completion)
- Minimize time required on Site by City Forces Personnel (possible availability of multiple contractor crews performing multiple tie ins to maximize City crew Supervision time)
- Lessen impact to Major Community Center and Surrounding small local businesses

Geographically this project breaks up into three separate phases:

Phase 1-

- V-1A Towne Center Drive
- V-1B Towne Center Drive
- V-2A Governor Drive
- V-2B Governor Drive
- V-3 Regents Road
- V-4A Production Avenue
- V-4B Production Avenue

Phase 2-

- V-5 Meanly Drive
- V-6 Scripps Ranch Boulevard
- V-7 Mira Mesa Boulevard
- V-8 Scripps West View Way
- V-9 Scripps Poway Parkway

Phase 3-

- V-10 Carmel Valley Road
- V-11 Camino Del Sur
- V-12 San Dieguito Road

Please see Construction Schedule in Appendix B.

Section 6: Construction Plan (cont'd)

A.4 General Plan for Functional Testing and Start Up

Once final inspection of each installation is completed, Orion will perform the following functional testing, prior to scheduling final operational test with City staff:

- Verify inside of Vault is draining correctly to sump area (by water testing)
- Verify Vault Drain system works correctly (where applicable, by water testing)
- Verify Vault hatch spring system is working and opening correctly (by operating hatch doors)
- Install PLC Programming (Coordinate with City, City to install)
- Perform loop testing (at site)
- Test local equipment functionality (at site)
- Confirm with City communication with SCADA by means of monitoring from central screens. (at site and at SCADA control center)
- Provide special training to City personal (at site)

A.5 Proposed Safety Program

The Orion/Harris team will prepare a written site-specific Safety Plan/Illness and Injury Prevention Program for submission to the City prior to start of construction. Our Safety Plan will include all applicable requirements of CAL/OSHA. Our Safety Manager will consult with our Superintendent to define the scope and sequence of work, and to then develop specific Job Task Analyses (JTA's) to identify the sequence of events, associated hazards, and implement control measures.

Additionally, all of our project managers, engineers, superintendents, foremen and crew leaders receive regular training in all aspects of safety such as fall prevention, scaffolding, hazardous materials, trench protection, confined space entry and other areas appropriate to our industry.

During the course of construction, we will constantly be monitoring the effectiveness of the JTA's and will modify them and/or write new JTA's as necessary to ensure that a safe work environment is necessary to ensure that a safe work environment is maintained. Our Construction Manager will conduct weekly Planning/Scheduling Meetings with all supervisors on the project to review the safety strategies, identify all possible hazards, and coordinate interaction between the various activities and crafts. The discussions at these meetings will be documented in writing. In addition, we will conduct informal meetings at the beginning of each day with supervisors and workers to discuss safety issues related to that day's work.

We will ensure that personal protective equipment is available to all workers and is used properly. As a minimum, we require the use of high visibility safety vest; ANSI approved hard hats, safety glasses with side shields, and footwear appropriate to the construction activity.

Every new employee that comes to the jobsite receives safety orientation and training prior to starting work. Apprentices receive special attention because of their relative unfamiliarity with the overall construction process. Additionally, all new employees wear a hardhat with a distinctively-colored band for the first month identifying them as new to the jobsite. We have found from this practice that long-term employees are much more willing to assist new employees in the safety practices of the company. We also designate a key craft worker on the job as a "safety monitor" responsible for assuring safe working conditions. This individual is empowered to correct any deficiencies in work practices immediately as the conditions are identified.

Section 6: Construction Plan (cont'd)

The Orion/Harris team understands and shares the goals articulated in the City Safety Program, namely:

- Pursue Error free Performance
- Aim for Zero Incidents
- Achieve True "World Class" Safety Performance

A.6 Proposed Emergency Response Plan

Orion Construction will create a chain of communications between the City, subcontractors, utility agencies, and other related public entities for after-hours communications in the event of an emergency. Orion Construction will work with the City to develop a specific emergency response plan tailored for this project.

Prior to the start of construction, Orion will develop and submit to the City, for review and approval, a written Emergency Response Plan. Orion will observe and comply with the City's policy of zero hazardous material spills. The Emergency Response Plan shall be developed to respond to any construction related spill(s). This plan will include but not limited to:

- Identify all nearby environmentally-sensitive areas such as waterways, channels, catch basins and entrances to existing underground storm drains.
- Making arrangements for an emergency response unit, stationed at or near the job site, comprised of emergency response equipment and trained personnel to be immediately dispatched in the event of spill(s). This could also include field biologists and/or archaeologists if in an environmentally-sensitive area such as a canyon.
- Developing an emergency notification procedure, this includes an emergency response team with telephone numbers and arrangements for backup personnel and equipment. The emergency response unit shall be able to dispatch to the site 24 hours a day 7 days a week including weekends and holidays. Orion will designate primary and secondary representatives, their respective phone numbers, pager numbers, and mobile phone numbers. Orion's representatives will be accessible and available at all times to respond immediately to any sewer spill event.

In the event of a utility contact:

- Secure the area, block access to all unauthorized people
- Notify the utility
- Provide a support role to the utility company repair people upon arrival
- Note: Orion Construction has personnel available 24/7 in the event of emergency utility issues. Orion will keep an on-site assortment of various size pipe repair couplings in case of such an issue.
- Pre-planning
- Perform a JHA (Job Hazard Analysis) for each expected utility emergency
- Know where shut-off valves (if applicable) are for each utility
- Locate utility as best as possible before digging

Section 6: Construction Plan (cont'd)

A.7 Proposed Construction Schedule

Orion will be utilizing the latest version of Primavera Project Management Software to further develop and update the schedule as follows:

- The schedule takes into consideration City design reviews and building department plan checking.
- Comprehensive Work Breakdown Structure into logical jobsite activities
- Implement interface procedures to communication between Orion computer network scheduling software and City network scheduling software
- Activity network for submittal to the City for review and concurrence
- Orion will furnish activity status and network updates on disc formatted for interface with city scheduling software.

The development will be accomplished in a minimum of 3 steps:

1. Development of work breakdown structure by Orion and submittal to the City for review and comment.
2. Orion will develop interface procedure to communicate from Orion computer network to City computer network.
3. Final step being Orion activity network submitted to the City for review and approval.

The project CPM schedule will serve as a baseline schedule from which work progress will be measured. Included in the construction plan that identifies all Project Milestones set forth in this RFP, as well as all critical activities, Orion anticipates performing and coordinating with others to complete the Project prior to the Final Completion Date. The schedule has a final completion date 480 working days from NTP. The final design phases are shown as well as the City review and approval times of 4 weeks for each phase. Included in the 100% design phase is the City plan check review.

Please see Appendix B for the Design and Construction Schedule.

A.8 Traffic Control Management

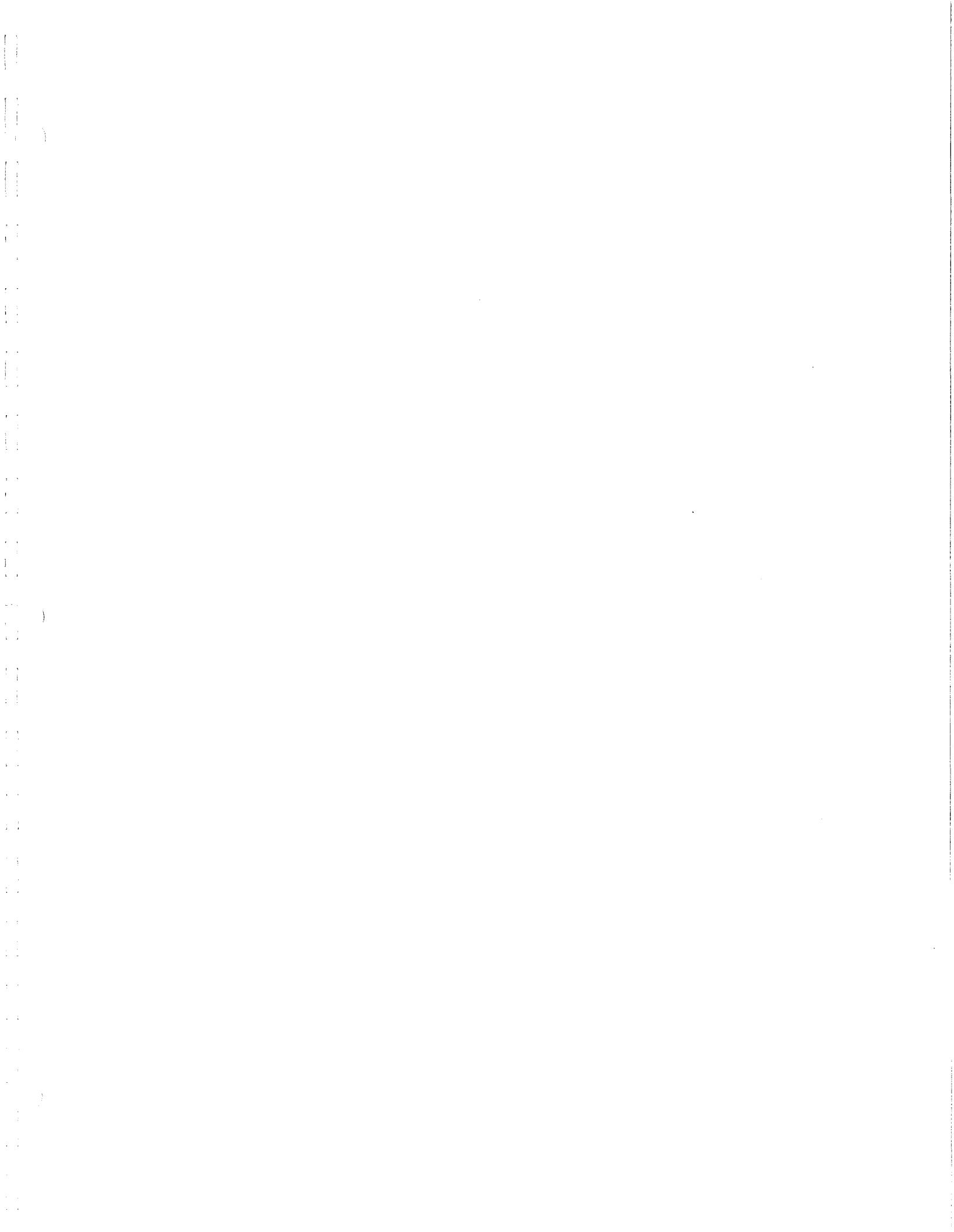
The management of the traffic control comes from the development of the traffic control plans. The field foreman are engaged early on in the process so that all installation methods are taken in to account during the work stages. This is coupled closely with the safety of the general public, pedestrians, and cyclists.

Traffic Control Plans are strictly adhered to and traffic flows are monitored daily and discussed between the field foreman and the RE. Any delays, back up, or disgruntled drivers are reported and possible solutions are discussed if there are any.

A.9 Plan to Reduce Community Impact

The impact to the community on this project will be similar to that undertaken on water group replacement projects. We will be in the public right of way with the equipment and some of the materials, and will have traffic control set up and multiple stages throughout the project. During working hours there will be saw cutting and large equipment that produces noise and some dust.

Our early notifications and involvement with local stakeholder groups provides the community with a "what to expect" during construction. This helps to minimize complaints and cut down on City staff time routing complaints and calls. Passing out of Door hanger notices by the construction crews also keep s residents and business up to date or re informed of upcoming work or water outages in their actual area rather than the whole project.



Section 7: Extended Performance Phase

A.1 Proposed Maintenance Plan

Maintenance procedures include preventive maintenance and inspection procedures for equipment such as the sump pump, vault hatches, instrumentation and SCADA, circuit breaker cleaning and inspection, testing and calibration of instruments. These procedures will be developed from O&M manuals supplied with the new equipment incorporating manufacturer's recommendations and will include lubrication schedules. Maintenance procedures will be provided in a word processing format with recommended maintenance periods. This information will be delivered to maintenance personnel well in advance of equipment turnover to City staff. The digital files of maintenance procedures can be incorporated into the computerized maintenance management system for work order scheduling.

A.2 Proposed Operations Plan

Standard operation procedures will include a step by step procedures for startup, normal operation, and shutdown. These procedures include procedures such as lockout/tagout and requirements for meeting regulatory requirements. Procedures will include diagrams of panels and electrical cabinets to identify locations of important controls, breakers and switches as described in the standard operating procedure. New equipment standard operating procedures will be enhanced to clearly describe procedures for safe startup, shutdown and normal operation of the new equipment with safe operational instructions posted in the vault.

A.3 Proposed Methods of Coordination with Owner's Work Force

Orion Construction will coordinate with City Operation Staff responsible for recycled water throughout design and construction phases by requesting coordination meetings when necessary, and by providing 3-Week Look Ahead Schedules. The purpose of these schedules will be to identify in what areas of the system we will be working, what activities we are performing, and to provide dates for required shutdowns or impacts to operation.

Proposed Operator Training Program

City personnel will be instructed by manufacturer's personnel on all equipment such as SCADA and instrumentation. City personnel will also receive system training, as required, by Orion D/B staff covering the following items:

- A. Description of instrumentation/SCADA system equipment – briefly describe new equipment not covered by manufacturer's instruction.
- B. How the System Works- describe the operation of the system and what signals, alarms and controls are included and coordinated with the distributed control system.
- C. Limiting Factors and Monitoring Requirements – describe process limiting factors and monitoring requirements to assure proper systems operations.

Section 8: Equal Employment and Contracting Opportunity

Work Force Report

Please see Appendix C for Orion’s Work Force Report.

Subcontractor Documentation

Please see Appendix D for a listing of subcontractors, design professionals, and vendors that we propose to use for this project. As a local company, Orion supports the goals of the City’s SLBE program to increase participation of SLBE and ELBE firms in City contracting. We have regularly used many of the subcontractors and vendors on the City’s List of Certified SLBE/ELBE’s and will continue to do so as opportunities arise. In addition, we will encourage other qualified local small businesses to become certified in the City program. We believe that the City SLBE program can be a powerful asset to promote equal opportunity for all segments of the contracting community.

The bid form includes a “City Contingency” allowance in the amount of \$63,620, which is included in the total contract price. Since the allowance amount is not available for subcontracting opportunities, we have deducted this amount from the total contract price before calculating the percentages for the listed subcontractors and vendors. Based on these calculations we have computed the following percentages for participation.

In accordance with Section 2.3 of the RFP, We have exceeded the mandatory and voluntary goals for subcontracting participation in this project as follows:

	GOAL	Actual
Mandatory SLBE-ELBE Subcontracting	10%	25.60%
Voluntary Additional Subcontracting	10%	23.90%
Mandatory & Voluntary Total Subcontracting	20%	49.50%

Also, in accordance with RFP, Attachment B, Item 8, we have attained the following percentages of subcontractor and vendor participation for SLBE/ELBE/DVBE/DBE:

Moraes, Pham & Associates	3.41%
Rancho Coastal Engineering	0.32%
Transtar Pipeline	3.68%
D. Lowen Electric	17.72%
Robcar DBA Hudson Safe-T-Lite	0.47%
TOTAL	25.60%

The percentage exceeds the 25% participation level required for award of 25 points under this factor.

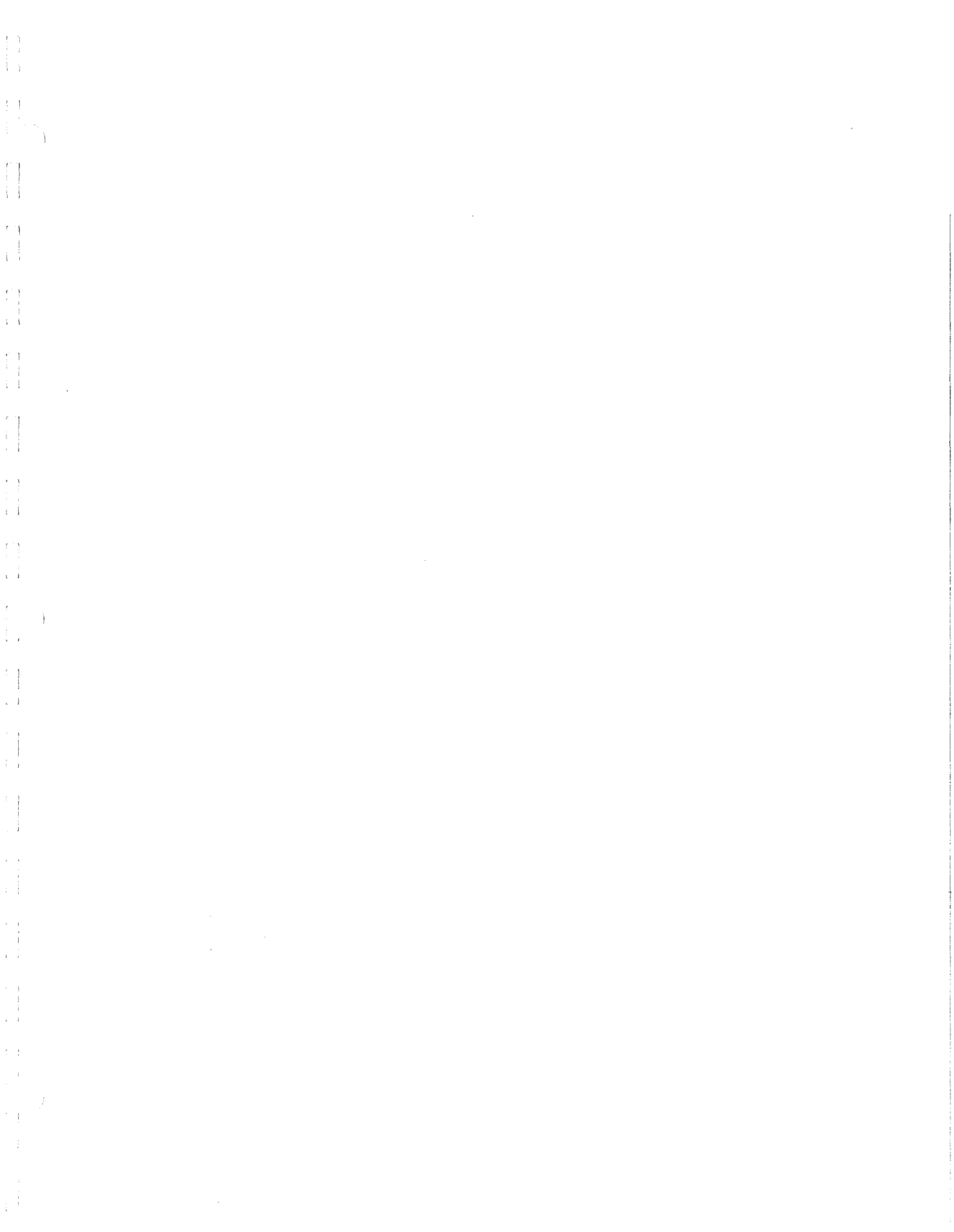
Equal Employment Opportunity Plan

Please see Appendix E for Orion’s EEO Plan.

Section 9: Presentation and Interview

The Orion/Harris team will provide a presentation to the City panel at a time to be scheduled.





Appendix A

Orion/Harris Team Member Full Resumes





ROBERT B. WILSON

PROFESSIONAL EXPERIENCE

**ORION CONSTRUCTION CORPORATION
DIRECTOR OF DESIGN/BUILD/CHIEF ESTIMATOR**

NOV 1998 – PRESENT

- ◆ Responsible for the preparation of Design-Build proposals and post-award planning and implementation of design-build policies and procedures. Representative D/B projects.
 - \$5.2 Million P-113 Brine Pipeline, MCB Camp Pendleton, CA
 - \$5.2 Million Old Rose Canyon Trunk Sewer Relocation Project, City of San Diego, CA
 - \$5.4 Million Water Group 790, City of San Diego, CA
 - \$1.7 Million Rehabilitation of Reservoir 20813, MCB Camp Pendleton, CA
- ◆ Responsible for preparation of detailed estimating for bidding on public works construction projects. This includes sewer and water pumping stations, water and wastewater treatment plants, underground utilities, and water storage facilities. Clients include the City of San Diego, Otay Water District, Padre Dam Municipal Water District, Sweetwater Authority, and many other public entities.

**C. E. WYLIE CONSTRUCTION CO., SAN DIEGO, CA
PROJECT MANAGER/ESTIMATOR**

FEB 1993 – OCT 1998

- ◆ Responsible for managing ongoing contracts for a general and engineering contractor. Also responsible for preparation of detailed mechanical estimates for sewer and water treatment facilities.
 - \$16.3 Million Rancho Penasquitos Trunk Sewer Relief/Pump Station, San Diego, CA
 - \$10.0 Million Infrastructure Phase II, California State University, San Marcos, CA
 - \$3.0 Million Carlton Hills Reservoir, Padre Dam Municipal Water District, Santee, CA

**CAL SOUTHWEST CONSTRUCTION INC.
PROJECT MANAGER**

NOV 1988 – JAN 1993

- ◆ Responsible for managing ongoing contracts for a general and engineering contractor, and for preparation of detailed estimates for bidding. Projects included Sewage and Water Pump Stations, Wastewater Treatment Plants, Water Storage Facilities, Underground Utilities, and Groundwater Remediation Systems.

COMMERCIAL BUILDERS AND CONTRACTORS, INC.

JAN 1988 – OCT 1988

- ◆ Responsible for managing ongoing contracts for a general and engineering contractor, and estimating.

**CROWN CONTRACTING, INC.
VICE PRESIDENT**

NOV 1981 – DEC 1987

- ◆ Responsible for managing ongoing contracts for a mechanical contracting company, and estimating. Also responsible for major equipment purchases and sub-contract negotiations. The primary focus of the company was military and government construction as a prime contractor. Projects managed and estimated included major wastewater, steam distribution, boiler and cogeneration plants, pier utilities, and fuel distribution projects. Clients included the US Navy, Army Corps of Engineers, City of San Diego, and San Diego State University. Value of contracts ranged from \$100,000 to \$4 million.

**ROICC SAN DIEGO AREA AND PT. MUGU/PORT HUENEME
SUPERVISORY CIVIL ENGINEER**

APRIL 1977 – JAN 1981

- ◆ Administrated over 100 contracts worth more than \$80 million, the largest being \$24 million. These contracts involved major electrical and mechanical utility work, waterfront construction, sewage treatment facilities, new industrial, recreational, medical, educational, and warehouse facilities.

**ROICC CAMP PENDLETON, CA
CIVIL ENGINEER**

APRIL 1975 – APRIL 1977

- ◆ Assisted in the administration of over 30 contracts, including construction of new barracks, dental facilities, water distribution systems, and sewage treatment plants.

**PROFESSIONAL DEVELOPMENT PROGRAM OF THE NAVAL FACILITIES ENGINEERING
COMMAND**

JULY 1973 – APRIL 1975

CIVIL ENGINEER

- ◆ Participated in a two year internship program, rotating through a variety of jobs in Washington, D. C., San Bruno, CA, and Camp Pendleton, CA. Assignments included construction management, civil and structural design, cost estimating, and

specification writing.

EDUCATION

Design Build

- Principals of Design-Build Project Delivery, 2009, Design-Build Institute of America (DBIA)
- Avoiding Unintended Economic Consequences of Poorly Planned Growth on Water and Sewer Service, 2009, American Society of Civil Engineers (ASCE)

Construction Safety

- OSHA 30 Construction Course, 2009, Click Safety
- Trenching & Shoring / Competent Person, 2009, Pacific Safety Council
- Hazwoper 40 Hour, 2009, Safety Trainer Online
- Fall Protection, 2009, presented by National Environmental Trainers
- C2 CAL HAZCOM, 2009, Click Safety
- Confined Space, 2006, Orion Construction
- Adult/Pediatric CPR, 2009, Cuyamaca College
- C1 CAL IIPP, 2009, Click Safety
- G2 CAL/OSHA Heat Illness R2, 2009, Click Safety

Quality Control

- Quality Management in the Design Organization, 2009, ASCE
- NAVFAC Contractor Quality Management (CQM) 2009, NAVFAC
- Fundamentals of CQC, 2009, American General Contractor's Association/NAVFAC

Anti-Terrorism Standards

- CFATS Chemical Facility Anti Terrorism Standards, 2009, ASIS International

Sustainability

- Introduction to Green Design, 2009, ASCE
- Green Building Basics and LEED Course, 2009, U.S. Green Building Council
- LEED Core Concepts and Strategies Workshop, 2009, U.S. Green Building Council

B. S. in Civil Engineering, 1973

Union College, Schenectady, New York

PROFESSIONAL EXPERIENCE**ORION CONSTRUCTION CORPORATION****OCT 2003 – PRESENT**

PROJECT MANAGER: Manages construction operations from rough grading to structural concrete. Provides direct management and oversight in the installation of mechanical and buried pipe systems, installation and operation of water and sewer pumps, and all related process equipment.

Current Projects:

- ◆ **NAVFAC Southwest – Replace 16" Potable Water NAS North Island**
Work includes removal and installation of a new 16" 4,200 LF watermain on Quentin Roosevelt and McCain Blvd including removal of existing 12" and 16" AC pipe. The existing system service is maintained during installation until the new pipeline is tested and chlorinated with final tie-ins accomplished by line stops.
- ◆ **NAVFAC Southwest – Design-Build Repair Watermain, Cummings Rd NAVAL Base San Diego**
The D/B repair of 3,000 LF of 10" potable watermain by a slip lining method with cured in place NSF approved liner. The existing system is highlined and service maintained during replacement and repairs. Scope included final pressure test, disinfection, and pre and post CCTV of the system as repairs proceeded.
- ◆ **NAVFAC Southwest – Design-Build Advanced Water Treatment Plant P-113**
Installation of 56,000 LF of 14" HDPE water/brineline from the newly constructed plant to the Oceanside Harbor diffuser along Vandergrift Blvd. Installation by conventional open cut trench excavation and trenchless methods used for crossing North County Transit District Railroad and Oceanside Harbor Tank pads.

Work is being accomplished with alternating day and night shifts to accommodate Base traffic flows with two mainline installation, pipe appurtenant and paving crews. A separate traffic control crew lead by a foreman is onsite at all times maintaining up to 1 mile of traffic lane diversion supporting aggressive pipeline installation schedules. The pipeline is hydrostatically tested in 5,000 LF section with final chlorination prior to pump station and reservoir connections.

Recent Projects:

- ◆ **City of San Diego – Miramar Water Pipeline Corrosion Inspection**
The dewatering and inspection of 33,000 LF of 54" and 66" diameter watermain for the City of San Diego, scope included constructing new pipeline access manways, dewatering and dechlorinating pipeline and rechlorinating pipeline in segments as it was placed back in service.
- ◆ **City of San Diego – Design-Build Water Group 790**
 - Project is 100% complete removing and replacing deteriorating cast iron and ACP waterlines—a total of 30,000 L.F.
 - Service laterals, fire hydrants, new ADA compliant handicap ramps with final slurry seal, and trench cap.
 - Developed existing service highline plan, purchased and implemented system hydrostatically testing and chlorinating to City health standards.
 - During course of construction, consistently informed home owners and other community stakeholders of the project schedule and impacts utilizing public meetings, written notices, and verbal communications.
- ◆ **City of San Diego – Water and Sewer Group 684A**
 - Removal and replacement of 20,000 L.F. old deteriorating clay cast iron and ACP sewer and waterlines located in the metropolitan areas of San Diego.
 - Existing waterlines were highlined and service maintained to customers during replacement
 - The sewage system was bypassed and diverted one section at a time, allowing for timely replacement with a zero spill policy
 - Trenchless methods used to minimize impacts to the public and environment
- ◆ **NAVFAC Southwest – Design-Build Replace Steam and Condensate Piping MCRD**
Replace 1,200 LF of 6" to 12" steam and condensate buried piping, scope included demolition of all existing piping provision of temporary steam/condensate lines to provide work stop page at MCRD buildings. Upgrade pipe, valve, pumps, and tanks at mechanical pump room.
 - Project received overall outstanding CCASS Rating and a Safety Star Award
- ◆ **NAVFAC Southwest – Design-Build Repair Natural Gas Distribution System Phase 1, 2, & 3**
Basewide upgrade of natural gas system both the mainline distribution system, primarily in paved roadways and airfield areas. The scope included the installation of 42,000 LF of new gasline and of the testing and commissioning system to the end users. Following installation, the existing system was purged with nitrogen and abandoned in place.
- ◆ **Irvine Ranch Water District – Design-Build Harvard Avenue Sewer & Pump Station**
 - Design-Build and installation of 1,200 lineal feet of 42" polycrrete sewer pipe utilizing microtunnel trenchless method
 - Construction of a 46 foot deep buried reinforced concrete pump station and diversion structure, requiring extensive dewatering and shoring.

◆ **Grossmont Union High School District – Wet Utilities at Five High Schools**

- Replacement of underground utilities at high school campuses, including sewer, water, storm drain, and natural gas piping, sizes from 6” to 24”, 120,000 LF total.
- Surface restoration, including asphalt paving, concrete hardscape, landscaping, retaining walls, metal guard rails, and ADA ramps.
- All work was accomplished on a fast track basis during summer recess, utilizing multiple crews with extensive overtime.

◆ **City of San Diego – Sewer Pump Station 19**

- Complete Sewer Pump Station Rehab of existing station
- Includes new cast in place concrete pump station and colored architectural concrete beach face access and public stair way
- Installed all new electrical and process equipment including new emergency generator and jib cranes.

EDUCATION

- AGC Construction Management
- AGC Advanced SWPPP
- OSHA 30 Construction Course, 2009, Click Safety
- Trenching & Shoring / Competent Person, 2009, Pacific Safety Council
- Hazwoper 40 Hour, 2009, Safety Trainer Online
- Fall Protection, 2009, presented by National Environmental Trainers
- C2 CAL HAZCOM, 2009, Click Safety
- Confined Space, 2006, Orion Construction
- Adult/Pediatric CPR, 2009, Cuyamaca College
- C1 CAL IIPP, 2009, Click Safety
- G2 CAL/OSHA Heat Illness R2, 2009, Click Safety
- Fundamentals of CQC, 2009, American General Contractor’s Association/NAVFAC

Mesa College – Construction Management Certificate Program, Subcontractor Management, Advanced Plan Reading and Construction Trade Practices.

Grossmont College – Auto Cad Program, Beginning and Advanced, Beginning Architecture and Engineering Courses.

Granite Hill High School – General Education

PROFESSIONAL EXPERIENCE**ORION CONSTRUCTION CORPORATION****APRIL 2011 – PRESENT**

PROJECT MANAGER: Manages construction operations from rough grading to structural concrete. Provides direct management and oversight in the installation of mechanical and buried pipe systems, installation and operation of water and sewer pumps, and all related process equipment.

Recent Projects:

- ◆ **City of San Diego – Water Group 3013 Replacement** **\$2,096,473**
 This group job is broken-up into 4 separate water group jobs: Group 764, 764A, 821 and 821 A. This project is located in the Point Loma Area of San Diego.
 The project is comprised of:
 - Approx. 11,000 Linear feet of 8” C-900 water pipe.
 - Approx. 2,000 Linear feet of 12” C-900 water pipe
 - 300 + new 1” water services
 - Concrete Restoration
 - New Curb Ramps to Current ADA Standards at Various locations
 - 500,000 + square feet of Slurry Seal of existing Streets
 - Cold Milling and Ac overlay of Multiple Streets within the Project boundaries.
- ◆ **City of San Diego – Design-Build Water Group 790** **\$5,397,000**
 - Assumed responsibilities from Jason Danks as Project Manager at the 70% completion stage.
 - Project is 80% complete removing and replacing deteriorating cast iron and ACP waterlines-a total of 30,000 L.F. replaced to date.
 - Service laterals, fire hydrants, new ADA compliant handicap ramps with final slurry seal, and trench cap.
 - Developed existing service highline plan, purchased and implemented system hydrostatically testing and chlorinating to City health standards.
 - During course of construction, consistently informed home owners and other community stakeholders of the project schedule and impacts utilizing public meetings, written notices, and verbal communications.
- ◆ **City of San Diego – Design-Build Water Group Job 921** **\$2,337,000**
 - Design phase constructability

BRH GARVER WEST, INC.**2003 – APRIL 2011****PROJECT MANAGER / ESTIMATOR:**

- ◆ In Charge of Contract Administration, Project Set-up, Sub-Contractor Coordination and Invoicing Review, Progress Billing, Administrative Change Orders and Negotiations and Project Close-Out
- ◆ Prepare Material Take-offs, Baseline Schedules, Look-a-Head Schedules
- ◆ Negotiate Buy-Outs, Material Procurement and Sub-contractor final Quotations
- ◆ Responsible for Development and Implementation of an Excel based Purchase Order (PO) tracking system to manage and provide real time forecasting of Job Cost in real time on multi-million dollar projects
- ◆ Assemble, Direct and Submit Project Estimates as the Lead Estimator in both the Private and Public Works Sector for General Engineering Projects ranging in value from under 1 million to 24 million

NIELSEN DILLINGHAM BUILDERS, INC.**1996 – 2003****PROJECT MANAGER:**

- ◆ **Alvarado Water Filtration Plant, Upgrade and Expansion Phase 1 for the City of San Diego Capitol Improvements (Project value 55 million)**
 - Coordinated project Checkout, Start-up Testing and Commissioning of Plant Equipment and their Systems
 - Led a group which took care of project Quality Control of all Piping installations
 - Oversaw the Delivery and Acceptance of Equipment
 - Insured the completion of Jobsite Photography and Progress Documentation
 - Coordination of Plant personnel Training, Operations and Maintenance Manual
- ◆ **Point Loma Wastewater Treatment Plant Central Boiler Facility and Gallery Upgrades for the City of San Diego Metropolitan Wastewater District (Project value 13.6 Million)**
 - Involved with project from Estimating, Construction, Project Close-out and Warranty

ARRIETA CONSTRUCTION, INC.

1993 – 1996

PROJECT MANAGER:

◆ **Senior Estimator / Estimator / Foreman**

- Estimated Pipeline Projects in the San Diego Area
- Assembled Estimates, Solicited WBE, DVBE and MBE sub-contractors for upcoming projects
- In charge of Project Field Operations, Equipment Utilization and Logistics
- Ran a Production Pipeline Crew installing infrastructure pipeline

EDUCATION

- Cal OSHA 10-Hour Training
- Cal OSHA Competent Person
- Cal OSHA Certified Cranes & Rigging
- Cal OSHA Confined Space Certified
- CAL OSHA 40 Hour Training
- CPR Certified
- SWPPP QSD Trained

San Diego State University – Construction Management Practices

Grossmont Community College – Associates Degree

AWARDS:

- Managed City of San Diego Water and Sewer Group 539 project value 3.2 Million (2003 Premier Partner Award Winner) San Diego Center City Development Corporation
- Managed Eastern Municipal Water District San Jacinto Valley Interceptor Sewer project value 14.5 million (Project Award Winner) and Featured on the cover of California Builder & Engineer Magazine 12/17/07

PROFESSIONAL EXPERIENCE

ORION CONSTRUCTION CORPORATION
SENIOR PROJECT ENGINEER/PROJECT MANAGER

JAN 2002 – PRESENT

Recent Projects:

- ◆ **City of San Diego – Pump Station 77A and B Project Manager**
 - Retrofit PS 77B by refurbishing the existing pumps and installing Magnadrives on the existing pumps. Install new Instrumentation and Controls such that PS 77A and B can now communicate.
 - Retrofit PS 77A with new sewage pumps, variable frequency drives, switchgear equipment and Instrumentation and Controls. And, modified the existing office area and wet well.
- ◆ **City of San Diego/Stowe-Pasco – Princess Park Pump Station**
 - Potable water variable frequency speed drive vertical turbine pump station. Masonry building, wood framed roof, standby generator, surge tank and site piping.
- ◆ **Olivenhain Water District/4S Kelwood – Thelma Miller Reservoir**
 - Above ground weld steel water tank with aluminum dome roof, appurtenant piping, equipment building, sodium hypochlorite generation and reservoir management system.
- ◆ **City of San Diego/Sewage Pump Station 24**
 - New pumps and overhead crane.

VADNAIS CORPORATION
PROJECT MANAGER

OCT 2001 – JAN 2002

La Jolla Crossroads

- ◆ Estimate/negotiate change orders with the owner.
- ◆ Manage the subcontracts and material contracts.

KIEWIT PACIFIC, CALIFORNIA DISTRICT
MECHANICAL SUPERINTENDENT

NOV 1997 – SEPT 2001

Henry J. Mills Filtration Plant Oxygen/Ozone Facilities Construction – \$30 Million

- ◆ Manage the contracts for mechanical equipment, and mechanical subcontracts, e.g., fiberglass tanks, chemical steel tanks, pumps, HVAC subcontractor, etc.
- ◆ Create the schedule for the mechanical work on the project.

MECHANICAL SUPERVISOR/ENGINEER

South Bay Water Reclamation Plant – \$100 Million

- ◆ Supervise mechanical work in the field. As a mechanical supervisor, I scheduled the work for two areas, created work plans for field operations, and watched over field operations.

PROJECT ENGINEER

Ocean Boulevard Pump Station – \$5 Million

- ◆ Produce monthly cost projections, cost reports and negotiate Change Orders with the owners.
- ◆ Manage the contracts for the subcontractors and the equipment on the job.

SUBCONTRACTOR COORDINATOR/STRUCTURAL ENGINEER
B271 Metro Rail Station – \$25 Million

PETER KIEWIT SONS – EASTERN CANADA DISTRICT
FIELD ENGINEER/ESTIMATOR

1993-1997

Hibernia Project – Newfoundland - \$2 Billion

Highway 416 Bridges - Ottawa, Ontario – \$24 Million

EDUCATION

Bachelor of Engineering, Civil, McGill University – Montreal, Canada, 1991

PROFESSIONAL CERTIFICATES

Profession Engineers – Ontario, Canada

PROFESSIONAL EXPERIENCE**ORION CONSTRUCTION CORPORATION****2005 - PRESENT**

- ◆ **PROJECT SUPERINTENDANT/SITE SAFETY HEALTH OFFICER:** Responsible for construction of mechanical projects in Waste and Water Treatment Facilities. Interacting directly at the jobsite with Owner and A/E to ensure successful project implementation. Coordinates project completion utilizing company labor, subcontractors, material and men. Responsible for jobsite safety and implementation of the company Accident Prevention Plans and ensuring all subcontractors adhere to project safety standards.
Recent Projects include the following:

Recent Projects

- ◆ **CITY OF SAN DIEGO - DESIGN-BUILD WATER GROUP JOB 790**
 - Replacement of 25,000 LF of 8" and 12" water main
 - Removal and disposal of hazardous Asbestos Cement Pipe
- ◆ **L.A. COUNTY SANITATION - VESTA STREET PUMPING PLANT UPGRADE**
 - New below grade structural concrete at 30' depth
 - Installation of 7000 gallon surge tank and 600kW emergency generator
 - Installation of 4-75 HP dry pit submersible pumps
 - Construction of two CMU buildings for pump controls and access
- ◆ **CITY OF LAGUNA BEACH - SHAW'S COVE LIFT STATION**
 - Complete Rehabilitation of an existing pump station
 - Installation of an emergency generator
- ◆ **Safety Duties include:**
 - Implementation of safety program covering all aspects of jobsite safety
 - Conducting weekly safety meetings and daily site safety inspections to find and eliminate unsafe work practices
 - Conducting new employee and site safety orientations
 - Development and implementation of Site Specific Activity Hazard Analysis
 - Conducting daily safety audits
 - Daily monitoring of excavation safety for onsite excavations and trenches
 - Ensuring safe work during lockout/tag out
 - Implementing traffic control plans and safety measures during road work
 - Daily safety awareness monitoring of, confined space entries, welding, fall protection, scissor lift and fork lift operations
 - Meeting company insurance safety engineer and conducting onsite audits on individual projects
 - Record keeping, accident investigation and job safety analysis
 - Implementing safe practices in welding and oxy-acetylene torch use
 - Implementing safe practices in Fall Protection
 - Monitoring and assessing safe work practices of subcontractors
 - Monitoring asbestos removal on a project by project basis
 - Coordinating toxic air sampling and industrial hygiene inspections prior to work in tanks and pressure vessels
 - Conducting investigations of safety incidents and completing reports recommending corrective action and consulting with senior project staff to develop safety procedures and upgrade safety equipment purchasing when necessary

PERSONAL CERTIFICATIONS

- NAVFAC Construction Quality Management (CQM) for Contractors
- NAVFAC Construction Quality Control (CQC) for Contractors
- NAVFAC EM-385 Jump Start 10 Hour
- NAVFAC EM-385 40 Hour
- OSHA 30 Hour Construction Safety and Health
- OSHA 10 Hour Construction Safety and Health
- Competent Person Trained in: Confined Space Entry, Excavation and Trenching, Fall Protection, Forklift, Scaffolding
- CPR/Basic First Aid
- Asbestos Removal Certified

Daniel A Lee, PE, QSP, QSD

Manager of Civil Design

Education:

BS, Civil Engineering, San Diego State University

Registrations:

Professional Civil Engineer, CA

Professional Civil Engineer, AZ

Professional Civil Engineer, NV

Certifications:

California Stormwater Quality Association (CASQA), Qualified SWPPP Practitioner (QSP), Qualified SWPPP Developer (QSD)

Affiliations:

American Council of Engineering Companies (ACEC), Member

American Public Works Association (APWA), Member, 2012

American Society of Civil Engineers (ASCE), Member

Construction Management Association of America (CMAA), Member, 2012

Introduction

Mr. Lee has over 31 years of experience in project management and design of civil engineering projects throughout California, Arizona, Nevada and Mexico, including extensive experience in major transportation and water resource public works projects, residential, commercial, resort and industrial land development projects.

As a leader and manager of engineering staff, Mr. Lee has been responsible for conceptualizing and preparing feasibility studies for routing alignments, mass grading, and technical studies; verifying efficiency and quality by reviewing reports, drawings, estimates, and specifications; and was responsible for marketing and the hiring of staff.

Mr. Lee's extensive public works experience includes infrastructure design of transportation and water resource projects. Some of Mr. Lee's most notable projects include the design of five miles of sewer trunk main for the MTDB Eastline Trolley, infrastructure design for Horton Plaza Shopping Center, grading and drainage improvements for the San Diego Sail Bay Beach Redevelopment project, MCRD Housing Facilities including base sewer, water, storm drain and streets; design of two miles of water transmission mains for the City of San Diego; the design of day-use parking, storm drain, sewer, water, a major arterial widening for Ponto Beach State Park; and, the widening of Palomar Airport Road for the City of Carlsbad.

Horse Lake Desiltation Project and Reclaimed Water Reservoir and Pump Station, Camp Pendleton, CA. Mr. Lee was the Project Manager responsible for the preparation of an engineering concept/feasibility study for restoring and/or increasing the water storage capacity and analysis and grading studies for the desiltation of golf course irrigation lake for the Marine Corps Base. Horse Lake is a reclaimed water reservoir and is drawn upon for golf course and landscape irrigation. The study included evaluation of present and desired storage capacities, lake capacity after desilting, alternatives for increasing storage capacity, and recommendations of preferred alternatives and construction costs.

Carmel Valley Village Sewer and Water Systems in San Diego, CA. As Project Manager, Mr. Lee was responsible for the design and construction staking of all sewer and water mains and appurtenances for this 300-acre site.

High Country West Community Water and Sewer Systems in San Diego, CA. As Project Manager and Project Engineer, Mr. Lee was responsible for the preparation of the Sewer Master Plan for a 579-unit community development project, a 160-acre subdivision in Rancho Bernardo. He performed engineering design of all sewer and water mains, stations, force mains, pressure reducing stations and associated appurtenances. Services included mass grading, street design, drainage design, sewer and water systems, cost estimation, construction management, subdivision mapping, community workshops, feasibility studies, agency processing (Caltrans D. 11), and as-builts.

State Route 86 - Sewer Manhole Rehabilitation Project, City of El Centro. Mr. Lee was the Project Manager for this sewer rehabilitation project for the City of El Centro in connection with Caltrans District 11. This work included preparation of PS&E for the rehabilitation of 57 brick sewer manholes, traffic control, surveys, WPCP reports, and Caltrans Encroachment Permitting.

Calaveras Hills Community Water and Sewer Systems, City of Carlsbad, CA. Mr. Lee was the Project Manager responsible for the preparation of the Sewer Master Plans for a community development project consisting of 600 acres. The project included the design of sewer mains and water main systems.

Horton Plaza Shopping Center, San Diego, CA. Mr. Lee was the Project Manager for the preparation of PS&E for the replacement or realignment of sewer, water and drainage systems within Fourth Avenue, First Avenue, "G" Street, and Broadway Place for the Center City Development Corporation.

Marine Corps Recruiting Depot Housing Facilities and Redevelopment, San Diego, CA. Project Manager responsible for the preparation of drainage area studies storm drain improvement plans, cost estimates, specifications and construction staking on this 70-acre site.

Rancho Bernardo Road Water Main Upsizing Project (A Capital Improvement Project for the City of San Diego), San Diego, CA. Project Manager for the realignment and upsizing of approximately two miles of 27" water main through heavily congested area of Rancho Bernardo. Work included design and construction staking of mains, appurtenances and pressure reducing stations.

San Diego Eastline Trolley Water and Sewer Main Replacement/Realignment, San Diego, CA. Project Manager for the preparation of plans, specifications and estimates for the replacement and realignment of sewer trunk mains, laterals, water mains and services along five miles of the Eastline Trolley for the Metropolitan Transit Development Board.

Westwood Valley Community Water and Sewer Systems in San Diego, CA. Project Manager for the preparation of the Sewer Master Plan and Water Master Plan for this 1,000+ unit community development project. Design and construction staking of all sewer and water mains, sewage lift stations, sewer force mains, water pressure reducing station, sewage detention facilities and associated appurtenances were included.

Sudberry Properties, Quarry Falls Project. Mr. Lee was the Project Manager and Engineer for this high profile project in San Diego which involved mass grading a 230-acre inactive mining reclamation site to develop for commercial, residential, school, and park use. Key components include obtaining tentative maps; conditional use permits; specific plans; and water, sewer, and drainage studies. Water quality management services were also provided.

Ehab Geroges, PE

Project Engineer

Education

BS, Civil Engineering

Registration

Civil Engineer, CA

Mr. Geroges has over 20 years of professional experience in public works design. He has managed and designed a wide variety of public works projects including site development, pavement rehabilitation, street widening, storm drain, sewer and water improvements. He has been responsible for the preparation of studies and master plan reports for sewer, water, and drainage infrastructures. Mr. Geroges' experience also encompasses municipal engineering where he served on assignments helping public agencies in the preparation of request for proposals, consultant selection, contract negotiations, NPDES and other permits' processing, infrastructure studies and bidding, inspection, and construction management for several capital improvements projects.

City of San Diego, Design/Build Services for Water Group 790. As the Principal-in-Charge, Mr. Geroges' responsibilities include approving resource allocations, budget and progress, and ensuring that project objectives, changes, major decisions, and client satisfaction are maintained. Teaming with Orion Construction, Harris & Associates is providing Design/Build Services for the City of San Diego. Work and services required of the Orion-Harris Team include those during design, construction, and startup of the project. This design/build team is also responsible for providing all management, supervision, labor, services, equipment, tools, supplies, and any other item of every kind and description required for the complete design, construction, and start-up of the project. Water Group 790 is part of a program established by the City of San Diego and the California Department of Public Health mandating the replacement of all cast iron water mains currently in service. Water Group 790 is located within two separate planned communities and comprises the following components:

- The first is located within the Paradise Hills/Skyline Community Plan area which consists of the replacement of 14,137 lineal-feet of water mains ranging from 2"-12" diameter. The majority of water mains to be replaced will be constructed within existing paved City rights-of-way. Acquisition of water easements for portions of proposed water facilities (approx. 300 lineal-feet) will be required, provided that an alternative method of providing service can not be designed. Design will include the abandonment of several water facilities which will need to adhere to all applicable City standards. The second site is located within the La Jolla Community Plan and consists of the replacement and addition of a total of 9,184 lineal-feet of water mains ranging from 6"-12" in diameter. All new water main facilities will be constructed within the existing paved City rights-of-way. This area of the project will also require the abandonment of several water facilities which will need the adhere to all applicable City standards.

City of Tustin, Hewes Avenue Water Main Replacement. QA/QC Manager responsible for the preparation of PS&E construction documents for the City-approved \$575,000 water improvements that will add needed capacity to the system. The project consists of the upsizing of an existing 700' of existing 3-inch CIP with a new 8" PVC water main in Hewes Avenue from Vale Avenue to Fairhaven Avenue.

City of Lomita, Water Master Plan and Urban Water Management Plan. Project Manager. The system is supplied by two connections to the Metropolitan Water District (MWD) water system through a distribution network of approximately 42 miles of pipe. The system's total average demand is 2.2 million gallons per day. The City's transmission and distribution network was modeled using the City's water atlas maps as well as available record drawings for the City's Water Replacement Program. All pipes 4-inches and larger were included in the model. Water system demands for the model were calculated using historical water consumption records, zoning information, land use, and information included in the City's General Plan and provided by the City's Planning Department. Due to the City's topography, the system is broken into three different pressure zones to deliver water at adequate pressures to its customers. The study will identify systems deficiencies as well as recommended improvements. The study will also

provide financing options available to fund the capital improvements outlined in the master plan study. In addition to modeling the water system an Urban Water Management Plan will be prepared. (2003)

City of Lomita, Pennsylvania Avenue Water Main Replacement. Program Manager for the design of the replacement of over one mile of 8" and 12" DIP water mains. Associated appurtenances such as fire hydrants, service laterals, meters and cross connections were also upgraded. Traffic control and existing utility constraints, as well as maintaining the existing water line that was in service, was all addressed as a part of the design.

City of Artesia, Water Master Plan. Design Engineer. The City's System comprised of three different water purveyors systems that served the City's customers. The water system is supplied by three groundwater wells and several connections with County and other private water systems through a distribution system of approximately 35 miles of pipes. The modeling of present and projected demands was based on existing and future land uses provided in the City's General Plan as well as several specific plans. The Master Plan study evaluated the existing water facilities and identified existing deficiencies and recommended capital improvements. The study also evaluated the possibilities and the benefits of consolidating the existing three systems into one system.

City of Seal Beach, Water Master Plan. Project Engineer. The system is supplied by three ground water wells and one connection to the Metropolitan Water District (MWD) water system through a distribution system of approximately 65 miles of pipe. The system's total average demand is 3.5 million gallons per day. A computer model for the water system was developed and calibrated. The model included present and demand projections based on land use information included in the City's General plan and flow-meter information provided by the City's Water Department. The study identified systems deficiencies as well as recommended capital improvements. The study also provided financing options available to fund the capital improvements outlined in the master plan study.

City of Bell Gardens, Drilling and Equipping of Well No. 1. Project Manager for the design and construction of Well No.1. The project included the drilling of a new 1,050 foot deep domestic water well and construction of a 400 HP gas engine driven pump, 1,400 square feet masonry pump house, a chlorinating system and a comprehensive acoustical system to minimize noise impacts of the project on the adjacent residential neighborhood. The project also encompassed the construction of 1,000 linear feet of 14-inch water main, the rehabilitation of an existing interconnect with the Metropolitan Water District and the construction of a City wide SCADA system. As chlorine gas was used as means of water disinfecting, a Risk Management Prevention Program (RMPP) was required for this project.

City of Fullerton, Water Main System Replacement and Upgrade. Project Manager for the design of approximately 14,000 linear feet of 6- to 12-inch water mains. The project involved replacement of existing fire hydrants, water services and the upgrade of the Christlieb Well discharge piping system.

City of Paramount, Water Main Replacement Motz, Marcelle Allen, and Texaco. Project Engineer/Manager for the design of approximately 3,000 linear feet of 8-inch water mains. The project involved the replacement of existing fire hydrants, water services and connection to existing facilities.

City of Cerritos, Water Main Extension in Norwalk Blvd. Project Engineer/Manager for the construction of 450 feet of 8-inch water main. The water main was to be bored under Union Pacific Railroad UPRR/MTA tracks. The project involved the design of 18-inch steel casing and extensive coordination with UPRR/MTA. The project also involved the design of water main crossing over an existing triple 9.5- by 9.0-foot RC Box.

City of Coronado, Margarita Avenue Sewer and Roadway Rehabilitation. Project Manager. Harris completed the design of ½ mile of Margarita Avenue. The street is lined with mature large canary island pine trees which the residents love. The project replaced 1200 L.F. of VCP sewer with PVC sewer main. The project was designed with gutter plates and root barriers to slow future root growth. The root intrusion contributed to the severe sewer main damage, pavement alligator and transverse cracking. Harris prepared construction documents that required the contractor to have an arborist on staff and to cover the exposed roots with wet soil overnight. Our services included conducting a geotechnical investigation, field survey field review arborist review and community meetings. We also prepared PS&E for the pavement rehabilitation and sewer replacement.

Carlos Mendoza, PE

Design Engineer

Education

MBA

BS, Hydrology, ~ Civil Engineering

Registration

Civil Engineer, CA #60470

Mr. Mendoza has 16 years of progressively responsible experience including particular expertise in water resources and hydraulic utility systems planning, design, and management. Mr. Mendoza is currently managing the design of the City of San Diego Water Group Job 790 with Orion Construction. Mr. Mendoza served for seven years as Senior Engineer for the City of Vista / Buena Sanitation District. He performed as Subdivision Engineer, Sanitation Engineer, and Floodplain Administrator with signature authority over approvals of plans, permits, and revisions. Mr. Mendoza's projects include four master plans, analyses, investigations, value engineering, as well as the preparation of plans, specifications, and cost estimates for projects with multi-million dollar construction values. He is experienced at public outreach, presentations, and training. He also has experience in construction phase engineering, interagency negotiation, and conflict resolution.

Mr. Mendoza has experience managing, supervising, directing, and developing engineers, technicians, project managers, plan checkers, and inspectors in citywide programs. He led rewrites of citywide Ordinances, has developed citywide programs and policy. By managing municipal programs, projects, and budgets, he has in-depth knowledge of the roles and responsibilities of developers, regulators, utilities, contractors, owners, and stakeholder groups.

City of San Diego, Design-Build Group Job 790 Water Replacement Project. Mr. Mendoza is currently managing the design of nearly 4.5 miles of water pipeline replacements up to 12-inches in diameter under the design-build project delivery method for the City of San Diego. The scope of services includes the assessment and design of over 100 curb ramps for ADA Compliance, preparation of Traffic Control Plans, public outreach, and coordinating with the City in maintaining water and fire service to the area. Mr. Mendoza is managing the day-to-day design, budget and schedule updates, meetings and coordinations, contract changes, and payment processing.

City of San Diego, Murphy Canyon Emergency Storm Drain Replacement Project. Mr. Mendoza prepared contract specifications, preliminary hydrology report, and assisted in design, bid, and construction phase engineering services for the replacement of failed storm drain facilities that caused a sinkhole and flooding within the San Diego Chargers Practice Facility in 2008. Replacement facilities include a 1150 feet of 4' x 7' Reinforced Concrete Box pipeline, a series of drop structures, cleanouts, and connection to a 13'x24' Corrugated Metal Arch Pipe., 600 feet of Sliplining, 550 feet of 18" to 24" pipeline replacements, and the crossing of 12kV and 69kV power Lines, the replacement of 1200 SF of Keystone retaining wall, and associated facilities for a complete project. The bid award was over \$3.1 Million.

City of Arvin, Sewer Capacity Analysis and Master Plan. Mr. Mendoza is currently managing a capacity analysis using Bentley SewerGEMS, and the preparation of a master plan for sewer improvements for a 35 mile sewer collection system with pumping and treatment.

Buena Sanitation District, York Drive Sewer Replacement Project. As Sanitation Engineer, he managed the design, construction, agency permitting, and onsite mitigation for the installation of over 8000 linear feet of eight to twelve inch gravity sewer mains along with easement widening and easement road improvements for this canyon sewer project. Project involved extensive community outreach, 36 easement acquisitions, two condemnation proceedings, and litigation support. Contractor was Orion Construction.

City of Vista, Raceway Pump Station Replacement. As Sanitation Engineer, he managed the design, bid construction of the 1.2 mgd pump station, including underground and above ground structures. Project included coordination with multiple developers, agencies, resource permits, and spill response.

City of Vista, Vista-Carlsbad Interceptor Improvements. Led technical and administrative negotiations with Carlsbad on the planning, design, and cost sharing for over \$40 Million dollars in improvements to the shared line. Improvements include a 36 mgd pump station, force mains, gravity lines, and a trestle bridge crossing of the Agua Hedionda Lagoon. He led the resolution of a significant design conflict between two affected agencies.

City of Vista, Vista-Carlsbad Interceptor Reaches VC1-VC3 Rehabilitation Project. He managed the design, bidding, construction, and project agreement with the City of Carlsbad, for rehabilitating over 3600 linear feet of 36-inch to 42-inch diameter pipelines and thirty-six manholes. His involvement started when the project had a \$7,200,000 microtunneling construction value and a \$2,240,000 construction budget. He represented Vista in negotiating a change in direction and project agreement with engineering staff at Carlsbad to redirect and redesign the project as a \$2,200,000 relining project. He managed bid, award, and completed construction for nearly \$1 Million under the awarded value with no change orders.

Buena Sanitation District, Spill Response and Emergency Construction. Responded to force main breaks in 2007 by managing emergency response and emergency bypass operations and managing design and construction of over 900 linear feet of 8-inch force main replacement within one month.

City of San Diego, Sanitary Sewer Pump Station Rehabilitations. Projects involve demolition, removal, replacement, and rehabilitation of three coastal pump stations handling approximately one million gallons per day each. He was responsible for preparing engineering calculations, reports, construction specifications, and for general project coordination between the client, staff, and subconsultants.

City of Chula Vista, Salt Creek Interceptor Replacement. Completed plans, specifications, hydraulic analyses, and construction cost estimate for approximately 24,000 linear feet of 24-inch to 48-inch sewer pipeline connected to the City of San Diego's (METRO) sewer system.

Buena Sanitation District, Buena Outfall Force Main Phase II Project. As Sanitation Engineer, managed the design and negotiated and managed the reimbursement agreement for the realignment and upsize of over 3000 linear feet of 24-inch sewer force main within Faraday Road as part of the Carlsbad Oaks North Development.

City of Vista, Los Angeles Avenue Sewer Replacement and Upsize. He managed design and construction for a 330 linear foot trenchless sewer realignment and upsize using Horizontal Directional Drilling (HDD) to facilitate a low-income housing project.

City of Vista / Buena Sanitation District, Interagency Flow Agreements. He organized, analyzed, and managed aging interagency flow agreements codes, and ordinances. Recovered \$500,000 in unbilled revenue (found money) from Oceanside, and identified approximately \$600,000 per year in unbilled excess capacity charges that are planned for correction in 2009/2010.

City of Vista / Buena Sanitation District, Sanitation Department Plan Check Management. Senior Engineer. He managed all discretionary and ministerial approvals with final signature authority over Sanitation Section of all final plans and permits under jurisdiction of the City of Vista and Buena Sanitation District. He resolved field conflicts; and represented the City and District in negotiating approvals and agreements with developers, the City of Carlsbad, the City of Oceanside, the City of San Marcos, Vista Irrigation District, Vallecitos Irrigation District, the County of San Diego, San Marcos Unified School District, Vista Unified School District, and dry utility agencies.

City of Vista / Buena Sanitation District, CCTV Inspection Program. Applied understanding of organizational behavior, process flow, engineering, and program management to redirect the Vista CCTV inspection program. By affecting the reassignment of staff in operations, engineering, inspection, IS and finance divisions, the team completed more in six months than what was done in the previous 18 years. Each team member felt personally responsible for the success, and the product supported a \$40 million CIP program funded by a sewer rate increase.

JOE MORAES, PE (#E11023)

Project Manager/Electrical Engineer

Mr. Moraes is a California registered electrical engineer specialized in the design of electrical and controls systems for water and wastewater facilities, such as reservoirs, pumping stations, sanitary lift stations, PRV stations, wells, and treatment plants. In the past five years he has designed over 200 such projects for 43 southern California municipal end users. With his wealth of experience and continuous design activity, Mr. Moraes maintains proficiency in state of the art solutions to complex designs involving pumping systems, generators, variable frequency drives, PLC's, telemetry, and SCADA systems. Relevant recent SCADA project experience includes the following:

Eastern Municipal Water District

- Commonwealth and Warren Road Pump Stations Upgrades (2010)
- HSJ IRRP Phase 1 Raw Water Recharge Basins (2006)
- Orange and Ellis Tanks (2010)
- Menifee Tanks (2010)

Yorba Linda Water District

- San Antonio Pressure Reducing Station (2009)

Santa Margarita Water District

- Upper Chiquita Reservoir and Pump Station (2009)

City of San Clemente

- Well No. 8 (2007)

City of Carlsbad

- Cannon Road Lift Station (2003)
- El Fuerte Lift Station (2006)

South Coast Water District

- Lift Stations #13 and #14 (2005)
- Reach 7 PRS (2008)

City of Oceanside

- Peacock Hills PRS (2008)
- Wells 10 and 11 (2008)

Vallecitos Water District

- Meadowlark Water Reclamation Facility Expansion 2 MGD to 5 MGD (2006)
- Questhaven Lift Station #3 (2006)
- North Twin Oaks Reservoir (2007)
- High Point Booster Pump Station (2006)

Leucadia County Water District

- Leucadia Lift Station Electrical Upgrade (2005)
- Avacado & Diana SLS Upgrades (2009)
- Saxony Pump Station Upgrades (2011)

City of Poway

- Highland Ranch SLS Upgrade (2008)

Elsinore Valley Municipal Water District

- Mc Vicar Lift Station Upgrade (2004)
- Alberhill 1601 and 1801 Pump Stations and Reservoirs (2005)
- Wildomar Pump Station (2006)

Olivenhain Municipal Water District

- Midpoint Lift Station (2005)
- Via Ambiente Lift Station (2007)

Pala Casino

- Pala WWTP (2009)

City of Garden Grove

- Wellsite Chlorination Project (2008)
- Westhaven Pump Station Upgrade (2010)

Helix Water District

- Valve Vault Replacements (2008)

Otay Water District

- 640 Zone Reservoir (2006)

Irvine Ranch Water District

- PA 6 Tomato Springs Pump Station and Reservoir (2005)
- Zone 6 & D Reservoirs (2005)
- Add RMS at Nine Reservoirs (2006)
- Add Mixers at Ten Reservoirs (2007)
- Reservoir Dechlorination Project (2009)
- Upgrade Various PRV's (2009)
- Santiago Permanent Generator Additions (2011)



Appendix B

Project Schedule



Activity ID	Activity Description	Orig Dur	%	Early Start	Early Finish	Total Float	2012												2013					2014							
							JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR		
PROJECT TIMELINE AND ADMINISTRATION																															
PROJECT DURATION																															
PT-010	NOTICE TO PROCEED	0	0	31MAY12		0	[Gantt bar from May 2012 to April 2014]																								
PT-020	CONTRACT DURATION	480	0	31MAY12	30APR14	0	[Gantt bar from May 2012 to April 2014]																								
PT-030	CONTRACT COMPLETION	0	0		30APR14	0	[Gantt bar from May 2012 to April 2014]																								
SUBMITTALS/APPROVALS/PROCUREMENT																															
SUBMITTALS																															
S-010	FACT FINDING - POT HOLING	20	0	31MAY12	27JUN12	0	[Gantt bar from May 2012 to June 2012]																								
S-020	SUBMIT 30% DESIGN	20	0	28JUN12	26JUL12	0	[Gantt bar from June 2012 to July 2012]																								
S-030	SUBMIT 75% DESIGN	20	0	24AUG12	21SEP12	0	[Gantt bar from August 2012 to September 2012]																								
S-040	SUBMIT 100% DESIGN	20	0	22OCT12	19NOV12	340	[Gantt bar from October 2012 to November 2012]																								
S-050	SUBMIT MATERIALS	20	0	22OCT12	19NOV12	0	[Gantt bar from October 2012 to November 2012]																								
REVIEW AND APPROVE SUBMITTALS																															
R-020	REVIEW / APPROVE 30% DESIGN	20	0	27JUL12	23AUG12	0	[Gantt bar from July 2012 to August 2012]																								
R-030	REVIEW / APPROVE 75% DESIGN	20	0	24SEP12	19OCT12	0	[Gantt bar from September 2012 to October 2012]																								
R-040	REVIEW / APPROVE 100% DESIGN	20	0	20NOV12	19DEC12	340	[Gantt bar from November 2012 to December 2012]																								
R-050	REVIEW / APPROVE MATERIALS	20	0	20NOV12	19DEC12	0	[Gantt bar from November 2012 to December 2012]																								
FABRICATION AND DELIVERY																															
F-050	MATERIAL FABRICATION / DELIVERY	60	0	20DEC12	20MAR13	0	[Gantt bar from December 2012 to March 2013]																								
CONSTRUCTION WORK																															
MOBILIZATION																															
100	NOTICE TO CONSTRUCT	1	0	22OCT12	22OCT12	99	[Gantt bar from October 2012 to October 2012]																								
110	PRECONSTRUCTION MEETING	1	0	21MAR13	21MAR13	0	[Gantt bar from March 2013 to March 2013]																								
120	MOBILIZE	10	0	21MAR13	03APR13	0	[Gantt bar from March 2013 to April 2013]																								
PHASE 1																															
1000	BEGIN PHASE 1 CONSTRUCTION	1	0	04APR13	04APR13	0	[Gantt bar from April 2013 to April 2013]																								
1010	PHASE 1 CONSTRUCTION DURATION	65	0	04APR13	05JUL13	0	[Gantt bar from April 2013 to July 2013]																								
1020	START-UP / FUNCTIONAL TEST PHASE 1	20	0	08JUL13	02AUG13	0	[Gantt bar from July 2013 to August 2013]																								
PHASE 2																															
2000	BEGIN PHASE 2 CONSTRUCTION	1	0	05AUG13	05AUG13	0	[Gantt bar from August 2013 to August 2013]																								
2010	PHASE 2 CONSTRUCTION DURATION	75	0	05AUG13	19NOV13	0	[Gantt bar from August 2013 to November 2013]																								
2020	START-UP / FUNCTIONAL TEST PHASE 2	20	0	20NOV13	19DEC13	0	[Gantt bar from November 2013 to December 2013]																								
PHASE 3																															
3000	BEGIN PHASE 3 CONSTRUCTION	1	0	20DEC13	20DEC13	0	[Gantt bar from December 2013 to December 2013]																								
3010	PHASE 3 CONSTRUCTION DURATION	45	0	20DEC13	26FEB14	0	[Gantt bar from December 2013 to February 2014]																								
3020	START-UP / FUNCTIONAL TEST PHASE 3	15	0	27FEB14	19MAR14	0	[Gantt bar from February 2014 to March 2014]																								
SITE IMPROVEMENTS																															
9000	SITE RESTORATION	15	0	20MAR14	09APR14	0	[Gantt bar from March 2014 to April 2014]																								
9010	STREET RESTORATION	5	0	10APR14	16APR14	0	[Gantt bar from April 2014 to April 2014]																								
PROJECT COMPLETION																															
10000	TRAINING / OPERATIONS AND MAINTENANCE	10	0	20MAR14	02APR14	15	[Gantt bar from March 2014 to April 2014]																								
10001	PUNCH LIST	5	0	17APR14	23APR14	0	[Gantt bar from April 2014 to April 2014]																								
10010	AS BUILT DRAWINGS	5	0	24APR14	30APR14	0	[Gantt bar from April 2014 to April 2014]																								
10020	DEMOBILIZATION	5	0	24APR14	30APR14	0	[Gantt bar from April 2014 to April 2014]																								
10030	PROJECT COMPLETION	0	0		30APR14	0	[Gantt bar from May 2012 to April 2014]																								

Start Date 31MAY12 RW00
 Finish Date 30APR14
 Data Date 31MAY12
 Run Date 28MAR12 09:54

ORION CONSTRUCTION CORPORATION

 CITY OF LA HABRA
 LA BONITA PARK WATER FACILITIES
 DESIGN -BUILD PROJECT

Sheet 1 of 1

Appendix C

Work Force Report



WORK FORCE REPORT – Page 2

NAME OF FIRM: Orion Construction Corporation

DATE: September 30, 2011.

INSTRUCTIONS: For each occupational category, indicate number of males and females in every ethnic group. Total columns in row provided. Sum of all totals should be equal to your total work force. Include all those employed by your company on either a full or part-time basis. The following groups are to be included in ethnic categories listed in columns below:

- (1) African-American, Black
- (2) Latino, Hispanic, Mexican-American, Puerto Rican
- (3) Asian, Pacific Islander
- (4) American Indian, Eskimo
- (5) Filipino
- (6) Caucasian
- (7) Other ethnicity; not falling into other groups

OCCUPATIONAL CATEGORY	(1) African-American		(2) Latino		(3) Asian		(4) American Indian		(5) Filipino		(6) Caucasian		(7) Other Ethnicities		
	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	
Executive, Administrative, Managerial						1						2	1		
Professional Specialty															
Engineers/Architects					1							4	1		
Technicians and Related Support															
Sales															
Administrative Support/Clerical				1	1	2							2		
Services															
Precision Production, Craft and Repair															
Machine Operators, Assemblers, Inspectors															
Transportation and Material Moving	1		3									4			
Handlers, Equipment Cleaners, Helpers and Non-construction Laborers*												1			

*Construction laborers and other field employees are not to be included on this page

TOTALS EACH COLUMN	1		3	1	2	3						11	4		
--------------------	---	--	---	---	---	---	--	--	--	--	--	----	---	--	--

GRAND TOTAL ALL EMPLOYEES

25

INDICATE BY GENDER AND ETHNICITY THE NUMBER OF ABOVE EMPLOYEES WHO ARE DISABLED:

DISABLED															
----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

NON-PROFIT ORGANIZATIONS ONLY:

BOARD OF DIRECTORS															
VOLUNTEERS															
ARTISTS															

WORK FORCE REPORT – Page 3

NAME OF FIRM: Orion Construction Corporation

DATE: September 30, 2011

INSTRUCTIONS: For each occupational category, indicate number of males and females in every ethnic group. Total columns in row provided. Sum of all totals should be equal to your total work force. Include all those employed by your company on either a full or part-time basis. The following groups are to be included in ethnic categories listed in columns below:

- | | |
|--|--|
| (1) African-American, Black | (5) Filipino |
| (2) Latino, Hispanic, Mexican-American, Puerto Rican | (6) Caucasian |
| (3) Asian, Pacific Islander | (7) Other ethnicity; not falling into other groups |
| (4) American Indian, Eskimo | |

OCCUPATIONAL CATEGORY	(1) African-American		(2) Latino		(3) Asian		(4) American Indian		(5) Filipino		(6) Caucasian		(7) Other Ethnicities	
	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)	(M)	(F)
Carpenter														
Drywall Installer														
Electrician														
Elevator Installers														
Finishers, Concrete or Terrazzo														
Glaziers														
Helpers, Construction Trade														
Ironworkers, Structural Metal Workers														
Laborers			16								3			
Millwrights														
Masons, Bricklayers			3											
Tile setters														
Operators			2				1				11			
Painters														
Pipe fitter, Plumbers											3			
Plasterers														
Roofers														
Security, Protective Services														
Sheet Metal, Duct Installers														
Welders, Cutters														

TOTALS EACH COLUMN			21				1				17			
--------------------	--	--	----	--	--	--	---	--	--	--	----	--	--	--

GRAND TOTAL ALL EMPLOYEES	39
---------------------------	----

INDICATE BY GENDER AND ETHNICITY THE NUMBER OF ABOVE EMPLOYEES WHO ARE DISABLED:

DISABLED														
----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Appendix D

Subcontractor Documentation



BIDDING DOCUMENTS

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE (NON-PRICE) PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor. The Design-Builder shall list only one Subcontractor for each portion of the Work. The **PERCENT VALUE** of the total Bid to be performed shall be stated for all Subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder'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 Design-Builder's own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR or DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB (1)	WHERE CERTIFIED (2)	CHECK IF JOINT VENTURE PARTNERSHIP
Harris & Associates 750 B Street, Suite 1800 San Diego, CA 92101 (619) 236-1778	DESIGNER	Civil Design	2.89%	OBE		
Moraes, Pham & Associates 2132 Palomar Airport Rd, Suite 120 Carlsbad, CA 92011 (760) 431-7177	DESIGN	Electrical - Instrumentation Design	3.41%	SLBE	CITY	
Rancho Coastal Engineering 310 S. Twin Oaks Valley Suite 107-297 San Marcos, CA 92078 (760) 510-3152	DESIGN	Surveying	0.32%	ELBE	CITY	

- (1) As appropriate, Design-Builder 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 | Emerging Local Business Enterprise | ELBE |
| 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, Design-Builder shall indicate if Subcontractor is certified by:
- | | | | |
|--|------|--|--------|
| City of San Diego | CITY | State of California's Department of General Services | CADoGS |
| California Public Utilities Commission | CPUC | State of California | CA |

BIDDING DOCUMENTS

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE (NON-PRICE) PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor. The Design-Builder shall list only one Subcontractor for each portion of the Work. The **PERCENT VALUE** of the total Bid to be performed shall be stated for all Subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder'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 Design-Builder's own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR or DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE,WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB (1)	WHERE CERTIFIED (2)	CHECK IF JOINT VENTURE PARTNERSHIP
Transtar Pipeline 4094 Tambor Rd San Diego, CA 92124 (858) 565-4089	Constructor	Drain Pipelines	3.68%	ELBE	CITY	
Sapphire Electric 1948 Don Lee Place, Suite 1 Escondido, CA 92029 (760) 796-4001	Constructor	Instrumentation And SCADA	21.01%	OBE		
D. Lowen Electric 2194 Allesandro Trail Vista, CA 92084 (760) 941-8332	Constructor	Electrical	17.72%	ELBE	CITY	

- (1) As appropriate. Design-Builder 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 | Emerging Local Business Enterprise | ELBE |
| 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. Design-Builder shall indicate if Subcontractor is certified by:
- | | | | |
|--|--------|---|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | San Diego Regional Minority Subcontractor Diversity Council | SRMSDC |
| 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 Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE, and ELBE)

BIDDING DOCUMENTS

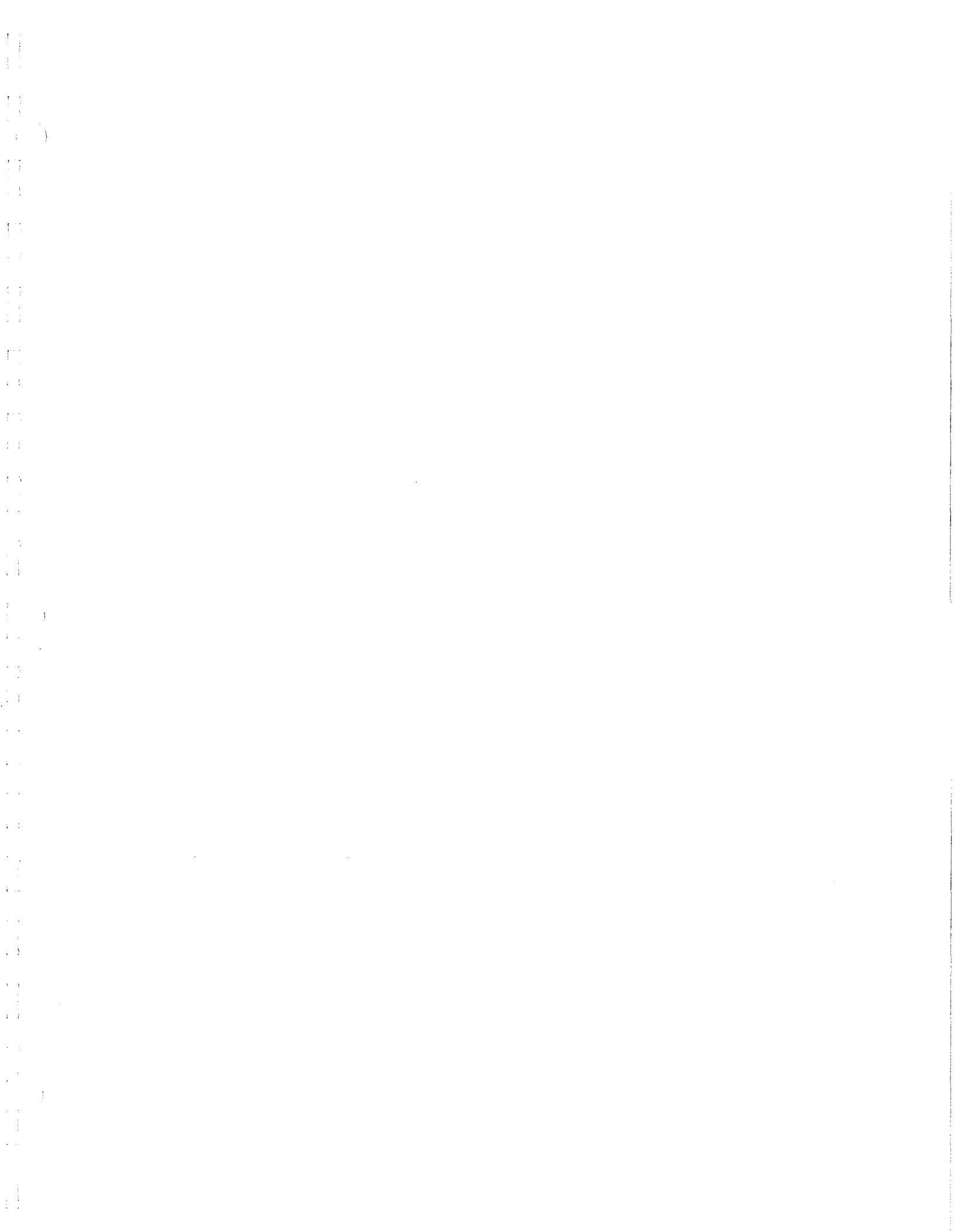
DESIGN-BUILD NAMED EQUIPMENT/MATERIAL SUPPLIER LIST TO BE INCLUDED IN THE (NON-PRICE) PROPOSAL ONLY

The Design-Builder seeking the recognition of equipment, materials, or supplies obtained from Suppliers towards achieving any mandatory, voluntary, or both subcontracting participation percentages shall submit with the Bid the Named Equipment/Material Supplier List. The Named Equipment/Material Supplier List, at a minimum, shall have the name, locations (City) and the **PERCENT VALUE** of the Suppliers. The Design-Builder will be credited up to 60% of the amount to be paid to the Suppliers for such materials/supplies unless vendor manufactures or substantially alters materials/supplies in which case 100% will be credited. The Design-Builder shall indicate (Yes/No) whether listed firm is a supplier or manufacturer. In calculating the subcontractor participation percentages, vendors/suppliers will receive 60% credit of the listed **PERCENT VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed **PERCENT VALUE** for purposes of calculating the subcontractor participation percentages, Suppliers will receive 60% credit of the listed **PERCENT VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed **PERCENT VALUE** for purposes of calculating the subcontractor participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	PERCENT VALUE OF MATERIALS OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVO SB (1)	WHERE CERTIFIED (2)
Robcar DBA Hudson Safe-T-Lite PO Box 117 El Cajon, CA 92022-0117 (619) 441-3644	Traffic Control Equipment	0.47%	YES	NO	SLBE	CITY

- (1) As appropriate. Design-Builder 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 | Emerging Local Business Enterprise | ELBE |
| Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVO SB | | |
- (2) As appropriate. Design-Builder 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 | San Diego Regional Minority Vendor/Supplier Diversity Council | SRMSDC |
| 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 Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE, and ELBE)



Appendix E

Equal Employment Opportunity Plan



Orion Construction Corporation
Equal Employment Opportunity (EEO) Plan

Orion Construction, Inc. (hereinafter "Orion") is dedicated to maintaining a working environment free of discrimination, harassment, intimidation and coercion at all sites and in all facilities at which Orion's employees are assigned to work.

A responsible official is designated to monitor all employment-related activity to ensure Orion's EEO Policy is being carried out and to submit reports to EEO provisions.

Orion disseminates and reviews it's EEO Policy with all employees at least once a year, posts the policy statement and EEO posters on all Orion bulletin boards and job sites, and documents every dissemination, review and posting with a written record to identify the time, place, employees present, subject matter, and disposition of meetings.

Orion reviews, at least annually, all supervisors' adherence to and performance under the EEO Policy and maintains written documentation of these reviews.

Orion discusses its EEO Policy Statement with subcontractors with whom it anticipates doing business, includes the EEO Policy Statement in its subcontracts, and provides such documentation to the City upon request.

Orion documents and maintains a record of all bid solicitations and outreach efforts to and from subcontractors, contractor associations and other business associations.

Orion disseminates its EEO Policy to community organizations.

Orion provides immediate written notification to the City when any union referral process had impeded Orion's efforts to maintain its EEO Policy.

Orion maintains a current list of recruitment sources, including those outreaching to people of color and women, and provides written notification of employment opportunities to these recruitment sources with a record of the organizations' responses.

Orion maintains a current file of names, addresses and phone numbers of each walk-in applicant, including people of color and women, and referrals from unions, recruitment sources, or community organizations with a description of the employment taken.

Orion encourages all present employees, including people of color and women employees to recruit others.

Orion maintains all employment selection process information with records of all tests and other selection criteria.

**Orion Construction Corporation
Equal Employment Opportunity (EEO) Plan**

Orion develops and maintains documentation for the on-the-job training opportunities and/or participates in training programs for all of its employees, including people of color and women, and establishes apprenticeship, trainee, and upgrade programs relevant to Orion's employment needs.

Orion conducts, at least annually, an inventory and evaluation of all employees for promotional opportunities and encourages all employees to seek and prepare appropriately for such opportunities.

Orion ensures the company's working environment and activities are non-segregated except for providing separate or single-user toilets and necessary changing facilities to assure privacy between the sexes.

Orion establishes and documents policies and procedures to ensure job classifications; work assignments, promotional tests, recruitment and other personnel practices do not have a discriminatory effect.

Orion is encouraged to participate in voluntary associations, which assist in the fulfilling one or more of its non-discrimination obligations. The efforts of a contractor association, contractor/community professional association, foundation or other similar group of which the Contractor is a member will be considered as being part of fulfilling these obligations, provided the Contractor actively participates. All Subcontractors agree to abide by this program as part of their subcontract agreement.

**Orion Construction Corporation
Drug Free Workplace**

Orion Construction Corporation is familiar with the requirements of San Diego City Council Policy No. 100-17 regarding Drug-Free Workplace as outline in NOTICE INVITING BIDS, "Drug Free Workplace," of the project specifications, and that we have in place a drug-free workplace program at jobsites which complies with said policy. All Subcontractors agree to abide by this program as part of their subcontract agreement.

**Orion Construction Corporation
American Disabilities Act**

Orion Construction Corporation is familiar with the requirements of San Diego City Council Policy No. 100-04 regarding the Americans with Disabilities Act Requirements as outline in NOTICE/INVITING BIDS, "Americians with Disabilities Act," of the project specifications, and that we comply with ADA by adhering to all of the provisions of the ADA which complies with said policy. All Subcontractors agree to abide by this program as part of their subcontract agreement.