Supplemental Documentation

3a CID Land Acquisition Option

3b CID Feasibility Study

3c Labor Compliance Plan Approved List

3d Example Basin Groundwater Monitoring Plan Table of Contents

3e CID Preliminary Design Plans

3f CID Preliminary Design Specifications

3g County of Fresno “Dummy” Encroachment Permit

Attachment 3a

CID Land Acquisition Option

RECORDING REQUESTED BY AND RETURN TO:

NAME CONSOLIDATED IRRIGATION DISTRICT

STREET 2255 CHANDLER STREET
P. O. BOX 209

CITY & STATE SELMA, CA 93662

OPTION AGREEMENT

(Document Title)

08/13/2014,20140089554

Fre

08/13/2014,20140089554

Fre

08/13/2014,20140089554

REC'T # 0004156058
August 13, 2014 ----- 16:16:00

FRESNO County Recorder
Paul Dictos, C.P.A.

Official #14-0089554-00

08/13/2014,20140089554

REQD BY
Free Issue

Total fee	$0.00
Amount Tendered...	$0.00
Change	$0.00

CRR:R2/1/18

20149008955400018 AUG 13, 2014

OPTION AGREEMENT

THIS OPTION AGREEMENT (the "Agreement") is made effective as of August 7, 2014 (the "Commencement Date"), by and between FRESNO LAND AND CATTLE COMPANY, LLC, a Delaware limited liability company ("Optionor"), and CONSOLIDATED IRRIGATION DISTRICT, a California water district, or Optionee's assignee ("Optionee"). Optionor and Optionee are sometimes collectively referred to herein as the "Parties" and singularly by their individual names as a "Party."

RECITALS

A. Optionor is the owner of that certain property located at the southwest corner of Adams and Academy Avenues in Fresno County, State of California, and more particularly described in Exhibit "A" attached hereto and incorporated herein by this reference (the "Property"), which Property consists of approximately 54.70 gross acres. The Property shall include all improvements and structures thereon and all appurtenant rights thereto, including, without limitation, houses, wells, pumps, permanent underground irrigation systems, if any, easements, rights-of-way for ingress and egress, minerals, oil, gas and other hydrocarbon substances, and water rights, air rights and development rights and privileges, if any, the Property may have, or that Optionor may have, specifically with respect to the Property.

B. Optionor desires to grant to Optionee, and Optionee desires to receive from Optionor, an option to purchase all or part of the Property, on the terms and subject to the conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are acknowledged, the Parties agree as follows:

1. Recitals are Part of Agreement. The above Recitals are a substantive part of this Agreement.

2. Option to Purchase. Optionor grants to Optionee an option to purchase the Property (the "Option") on the terms and conditions contained in this Agreement.

3. Initial Option Period and Initial Option Consideration. As consideration for the foregoing Option for the initial period of twelve (12) months from the Commencement Date, i.e., until August 7, 2015 (the "Initial Option Period"), Optionee shall deposit the total sum of Fifty Thousand and No/100 Dollars ($50,000.00) (the "Initial Option Consideration") into escrow number 1004-4670171 (JW) with First American Title Company (the "Escrow") as follows: The sum of Ten Thousand and No/100 Dollars ($10,000.00) in cash, by cashier's check, wire transfer or other immediately available funds acceptable to Optionor upon execution of this

Agreement; and the sum of Forty Thousand and No/100 Dollars ($40,000.00) in cash, by cashier's check, wire transfer or other immediately available funds acceptable to Optionor by November 15, 2014. After each payment of the Initial Option Consideration is deposited into escrow, each respective payment of such funds shall be made immediately available to Optionor. The Initial Option Consideration shall become non-refundable, except in the event of Optionor's default, and shall be paid to Optionor free of escrow; but shall, upon exercise of the Option and close of escrow, be a credit against the Purchase Price, as defined in Paragraph 7(a) below.

4. Extension Option Period and Extension Option Consideration. Upon deposit, on or before the expiration of the Initial Option Period, into the Escrow of the sum of Twenty-Five Thousand and No/100 Dollars ($25,000.00) (the "Extension Option Consideration") in cash, by cashier's check, wire transfer, or other immediately available funds acceptable to Optionor, Optionee shall have the right to extend the Initial Option Period for a period of six (6) months, i.e., until February 7, 2016 (the "Extension Option Period"). After the Extension Option Consideration is deposited into escrow, such funds shall be made immediately available to Optionor. The Extension Option Consideration shall become non-refundable, except in the event of Optionor's default, and shall be paid to Optionor free of escrow; but shall, upon exercise of the Option and close of escrow, be a credit against the Purchase Price, as defined in Paragraph 7(a) below.

5. Term. The term of this Agreement shall commence on the Commencement Date, and terminate on the earliest of (i) August 7, 2015, in the event Optionee fails to exercise Optionee's right to extend the Option by depositing the Extension Option Consideration into the Escrow; (ii) February 7, 2016, in the event Optionee exercises Optionee's right to extend the Option by depositing the Extension Option Consideration into the Escrow; or (iii) Optionee's purchase of all the Property (the "Option Term").

6. Exercise. This Option may be exercised by Optionee's delivery to Optionor, before the expiration of the Option Term, written notice of an election to purchase the Property (the "Exercise Notice"), which Exercise Notice shall include an original and duplicate form of the Purchase and Sale Agreement (as defined in Paragraph 7 below) executed by Optionee, with the first paragraph of the Purchase and Sale Agreement completed by insertion of the date on which the Exercise Notice is given.

7. Purchase and Sale Agreement. The terms and conditions of a definitive purchase and sale agreement for the Property or any portion thereof (the "Purchase and Sale Agreement") shall incorporate the terms and conditions of this Agreement, in addition to the following terms and conditions:

(a) Purchase Price for all the Property. The purchase price for the Property shall be Twenty-six Thousand and No/100 Dollars ($26,000.00) per gross acre, for a total purchase price of One Million Four Hundred Twenty-Two Thousand Two Hundred and No/100 Dollars ($1,422,200.00), based upon the Property consisting of

54.70 gross acres, payable all cash at close of escrow (the "Purchase Price"). The Property shall be surveyed by a licensed surveyor (at Optionor's cost) to determine the exact acreage. The Purchase Price shall be increased or decreased based upon the surveyed gross acreage; provided, however, that there shall not be any reduction in acreage by reason of any dedication or other transfers of any portion of the Property made in furtherance of Optionee's prospective use or development of the Property.

(b) Condition of the Property. Prior to Optionee paying the Purchase Price and taking title to the Property, Optionor shall remove all existing structures on the Property, including, but not limited to, the house presently located on the Property.

(c) Conveyance of Title to the Property. Optionor shall convey fee simple title to the Property to Optionee by grant deed. Optionor shall deliver the grant deed on or before the date Optionee pays the Purchase Price. The Property shall include, but not be limited to, all of Optionor's interests, if any, in the following:

(i) all buildings and structures located on the Property, although such buildings and structures shall be removed by Optionor prior to Optionee taking title to the Property;

(ii) all water rights of any kind;

(iii) all other entitlements and expectancies to, on, or of the Property;

(iv) any oil, gas, minerals, and hydrocarbons located on or under the Property;

(v) any and all other improvements to the Property and any other fixtures or items of personal property that Optionor may have any interest in that are appurtenant or affixed to the Property; and

(vi) any and all easements or rights-of-way appurtenant to the Property.

(d) Property "As-Is". Except for Optionor's representations or warranties expressly set forth in this Agreement, in the event Optionee elects to exercise the Option and close escrow, the Parties agree that Optionor would be selling, and Optionee would be acquiring, the Property "as-is", "with all faults", and in its physical condition at time of escrow closing, without any representations or warranties, express or implied, as to the nature or condition of or title to the Property, including without limitation, any representations or warranties concerning the physical condition or value of the Property, the condition of any improvements located on the Property, the suitability of the Property for Optionee's intended use, the compliance with building or zoning codes,

the presence or absence of any latent or patent condition, hazardous or otherwise, the availability of water rights for the Property or any other matters affecting the Property. Optionee acknowledges that the Purchase Price reflects and takes into account that the Property is being sold "as-is". Except as otherwise expressly set forth in this Agreement, Optionee has not relied and will not rely upon, and Optionor is not liable for or bound by, any express or implied representations, statements, agreements, warranties, guaranties, studies, plans, reports, descriptions, guidelines or other information or material furnished by Optionor or its agents or representatives, whether oral or written.

(e) Costs and Expenses. Closing costs for the Property, or any portion thereof, shall be borne by the Parties as follows:

(i) any documentary transfer taxes, sales excise taxes or use taxes shall be paid by Optionor;

(ii) recording fees shall be paid by Optionee; and

(iii) each Party shall pay its own legal, accounting, and other professionals' fees and costs incurred with respect to the purchase and sale of the Property, or any portion thereof, whether or not the closing of any purchase and sale occurs.

(f) Broker. Optionee is aware that Optionor's only broker is Lemley Land Sales, Inc. and that Optionor is solely responsible for payment to such broker. Optionee warrants and represents that it has not caused liability for payment of a broker's commission or finder's fee to be incurred with respect to any of the transactions which are the subject of the Purchase and Sale Agreement, and Optionor agrees to indemnify and hold harmless Optionee from and against any liability for such commission or fee. Furthermore, Optionor warrants and represents that Lemley Land Sales, Inc. is Optionor's only broker and that there are no other brokers involved in the transaction which is the subject of this Agreement.

8. Execution of the Purchase and Sale Agreement and Escrow Instructions. Upon receipt by Optionor of the Exercise Notice, Optionor shall, within ten (10) business days of such receipt, prepare and submit the following to Optionee:

(a) a form of Purchase and Sale Agreement including terms and conditions pursuant to and consistent with the terms and conditions of this Agreement; and

(b) escrow instructions providing for sale of the Property by Optionor, as seller of the Property, to Optionee, as buyer of the Property, pursuant to and consistent with the terms and conditions of this Agreement.

9. Time for Execution of Purchase and Sale Agreement and Close of Escrow. The Parties agree to act reasonably and in good faith to achieve the following:

(a) a fully executed Purchase and Sale Agreement within thirty (30) days of receipt of the form of Purchase and Sale Agreement by Optionee, as buyer of the Property; and

(b) close of escrow within thirty (30) days of the date of the fully executed Purchase and Sale Agreement.

10. Possession and Use of the Property. Except as otherwise provided in this Agreement, Optionor shall have the exclusive right to possess the Property and conduct any business thereon during the Option Term. Notwithstanding the foregoing, Optionor shall not execute any lease, easement, license or any other agreement affecting the condition of title to the Property or otherwise impair the condition of title to the Property without the prior written consent of Optionee, which consent shall not be unreasonably withheld. It is expressly understood and agreed that the relationship of Optionor and Optionee is not one of partnership or joint venture, and that Optionee shall have no rights to any business of Optionor conducted on or about the Property.

11. Confidentiality. Except as may be specifically required by law, the Parties, including their successors, affiliates, subsidiaries, parents, insurers, officers, directors, employees, assigns, agents, accountants, engineers, consultants and attorneys, shall keep the terms of this Agreement and any Purchase and Sale Agreement confidential and shall refrain from disclosing, publishing, broadcasting or disseminating, either orally or in writing, the terms or provisions herein.

12. Quitclaim Deed. If this Agreement is terminated, Optionee agrees, if requested by Optionor, to execute, acknowledge, and deliver a quitclaim deed to Optionor within ten (10) days after termination, and to execute, acknowledge, and deliver any other document or documents required by any title company to remove the cloud of this Option from the Property or any portion thereof.

13. Memorandum of Option. Upon the execution of this Agreement, the Parties shall execute and acknowledge a Memorandum of Option, to be recorded in the official records of Fresno County, in the form attached hereto as Exhibit "B".

14. Costs and Expenses. Except as may otherwise be provided in Paragraph 7(e) above, Optionor and Optionee shall each pay their own respective costs and expenses incurred, or to be incurred, by said Party in negotiating and preparing this Agreement, and all exhibits hereto, and in closing and carrying out the transactions contemplated by this Agreement (including, without limitation, attorneys', paralegals', and other professionals' fees and costs).

15. Attorneys' Fees. If any legal action or proceeding arising out of or relating to this Agreement is brought by either Party to this Agreement, the prevailing Party shall be entitled to receive from the other Party, in addition to any other relief that may be granted, the reasonable attorneys' fees, costs and expenses in the action or proceeding by the prevailing Party.

16. Notices. Except as otherwise expressly provided in this Agreement, all notices, requests, demands, and other communications required under this Agreement shall be in writing and shall be deemed to have been given (i) on the date of service, if served personally on the person to whom notice is to be given; (ii) on the date of receipt, if sent by telecopier to the person to whom notice is to be given at the telecopier number set forth below (provided that notices received after 5:00 p.m. shall be deemed given on the following business day); or (iii) on the third day after mailing, if mailed to the person to whom notice is to be given, by first class mail, postage prepaid, and properly addressed as follows:

To Optionor at:	Fresno Land and Cattle Company, LLC Attn: James E. Jimison Division President, Central Valley 548 West Cromwell Avenue, Suite 104 Fresno, CA 93711 Facsimile: (559) 439-4477
With a copy to:	W. Allen Bennett, Esq. Vice President and General Counsel UCP, LLC 548 West Cromwell Avenue, Suite 104 Fresno, CA 93711 Facsimile: (559) 439-4477
To Optionee at:	Consolidated Irrigation District Attn: Phil Desatoff General Manager 2255 Chandler Street Selma, CA 93662 Facsimile: (559) 896-8488
With a copy to:	Douglas B. Jensen, Esq. Baker, Manock & Jensen 5260 North Palm Avenue, Suite 421 Fresno, CA 93704 Facsimile: (559) 432-5620

Either Party or a designated recipient may change his address, for purposes of this Paragraph 16, by giving written notice of such change to the other Party or Parties and/or designated recipients, in the manner provided for in this Paragraph 16.

17. Specific Performance. The Parties hereby declare that it is impossible to measure in money the damages that will accrue to Optionee by reason of the failure of Optionor to perform the obligations set forth in this Agreement. Should any dispute arise or any action be instituted by Optionee to enforce the provisions of this Agreement, it is agreed that this Agreement shall be enforceable by an action for specific performance and that an injunction may be issued restraining any sale or transfer of the Property or any use thereof contrary to the provisions of this Agreement pending the determination of the dispute. Optionor waives any claim or defense that an adequate remedy at law exists for the performance of this Agreement. An action for specific performance, however, is cumulative and not exclusive, and shall be in addition to any other remedy which Optionee may otherwise have.

18. Entire Agreement. This Agreement and the matters addressed herein, including, but not limited to, the Purchase and Sale Agreement, contain all of the agreements of the Parties with respect to the matters contained herein, and no prior agreement or understanding pertaining to any such matter shall be effective for any purpose.

19. Amendments. No provision of this Agreement may be amended or modified in any manner whatsoever except by an agreement in writing by duly authorized representatives of both Parties.

20. Successors. The terms, covenants, and conditions of this Agreement shall be binding upon and shall inure to the benefit of the heirs, executors, administrators, and assignees of the respective Parties.

21. Assignment. Optionee may not assign this Agreement or any of its rights or duties under this Agreement, including the right to exercise the Option, without the prior written consent of the Optionor, which consent shall not be unreasonably withheld.

22. Governing Law and Venue. This Agreement and all documents provided for herein and the rights and obligations of the Parties hereto shall be governed in all respects, including validity, interpretation, and effect, by the laws of the State of California. Venue for purposes of the filing of any action regarding the enforcement or interpretation of this Agreement and any rights and duties hereunder shall be Fresno County, California.

23. Partial Invalidity. If any provision of this Agreement, or any portion thereof, is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement, including, without limitation, the portions thereof not held to be invalid, void or unenforceable, shall nevertheless continue to be in full force and effect without being impaired or invalidated in any way.

24. Headings. The subject headings of the paragraphs of this Agreement are included for purposes of convenience only and shall not affect the construction or interpretation of any of the provisions herein.

25. Construction. All words used in this Agreement shall be construed to include the plural as well as the singular and vice versa, all words used in this Agreement in the present tense shall include the future as well as the present, and all words used in this Agreement in masculine gender shall include the feminine and neuter genders, whenever the context so indicates.

26. Waiver. A waiver of any breach of this Agreement, by either Party to this Agreement, shall not constitute a continuing waiver or a waiver of any subsequent breach of the same, or a waiver of any breach of another provision of this Agreement.

27. Further Action. The Parties to this Agreement shall execute such other documents, and shall take such other actions, as may be necessary or appropriate to carry out the provisions of this Agreement.

28. Execution in Counterparts; Copies of Signatures Same as Originals. The execution of this Agreement and any document related to this Agreement may be made in counterpart such that each document, when all signatures are appended together, shall constitute a fully executed original thereof. Copies of signatures shall have the same force and effect as original signatures.

29. Time is of the Essence. Time is of the essence in this Agreement.

30. Effect of Optionee's Failure to Exercise Option. If the Option is not exercised in the manner provided in Paragraph 6 above before the expiration of the Option Term, Optionee shall have no interest in the Property, and the Option may not be revived by any subsequent payment or further action by Optionee.

[*signatures contained on the following page*]

///

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///

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IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the day and year first above written.

"Optionor"

FRESNO LAND AND CATTLE COMPANY, LLC, a Delaware limited liability company

By _____
James E. Jimison
Division President, Central Valley

"Optionee"

CONSOLIDATED IRRIGATION DISTRICT, a California water district

By _____

Title Board President

EXHIBIT "A"

THE PROPERTY

Fresno County Assessor's Parcel No. 353-030-07

Fresno County Assessor's Parcel No. 353-030-58S

Fresno County Assessor's Parcel No. 353-030-64S

Fresno County Assessor's Parcel No. 353-030-65

See attached Assessor's map.

--- NOTE ---

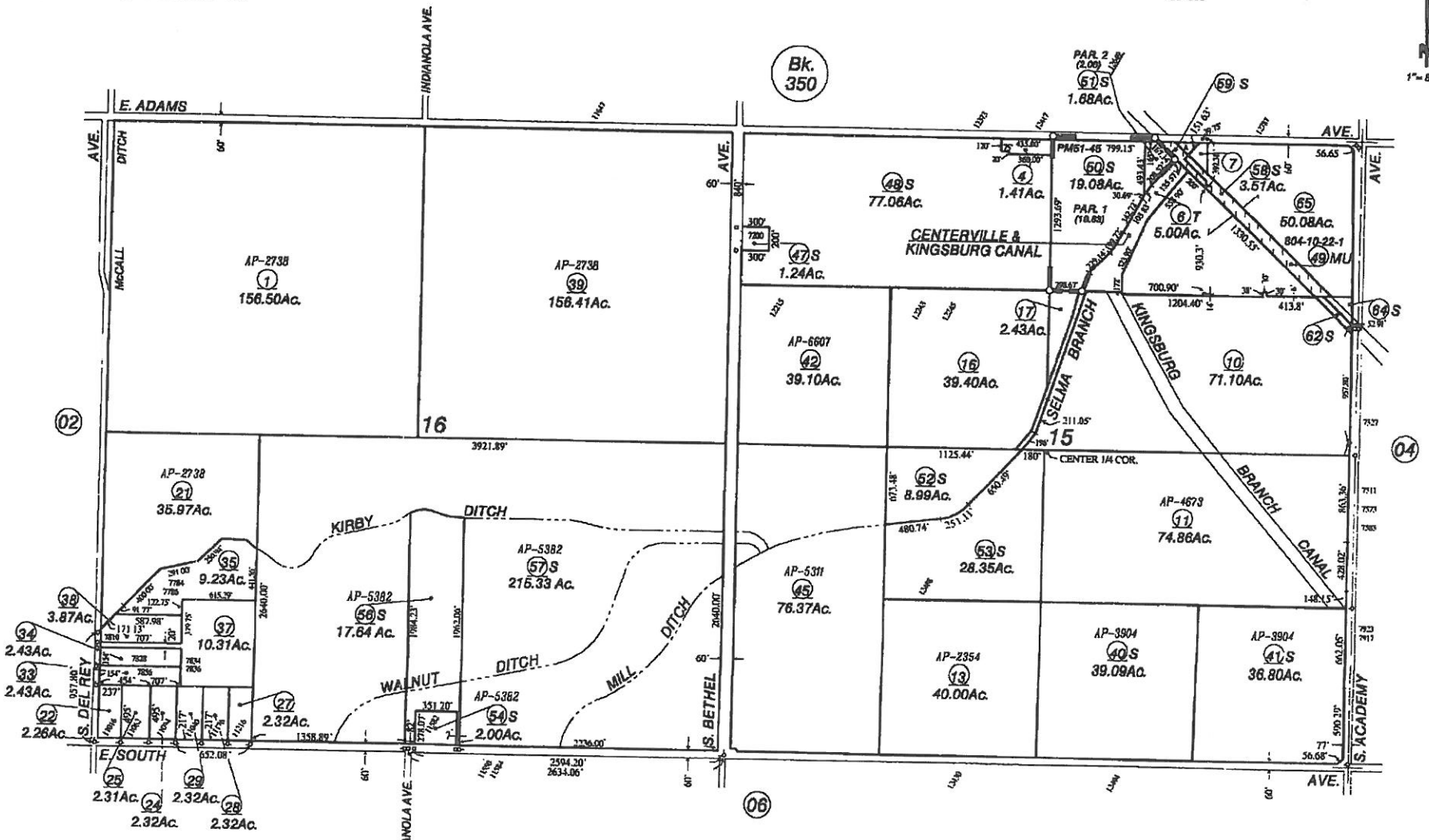
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

SEC. 15 & 16, T.15 S., R.22 E., M.D.B.& M.

Tax Rate Area
71-000
156-002
180-000

353-03

1"= 800'



Agricultural Preserve
Parcel Map No. 7402 - Bk.51, Pg.45

12/10/09

NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

Assessor's Map Bk. 353 - Pg. 03
County of Fresno, Calif.

EXHIBIT "A"

THE PROPERTY

Fresno County Assessor's Parcel No. 353-030-07

Fresno County Assessor's Parcel No. 353-030-58S

Fresno County Assessor's Parcel No. 353-030-64S

Fresno County Assessor's Parcel No. 353-030-65

See attached Assessor's map.

--- NOTE ---

This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

SEC. 15 & 16, T.15 S., R.22 E., M.D.B.& M.

Tax Rate Area
71-000
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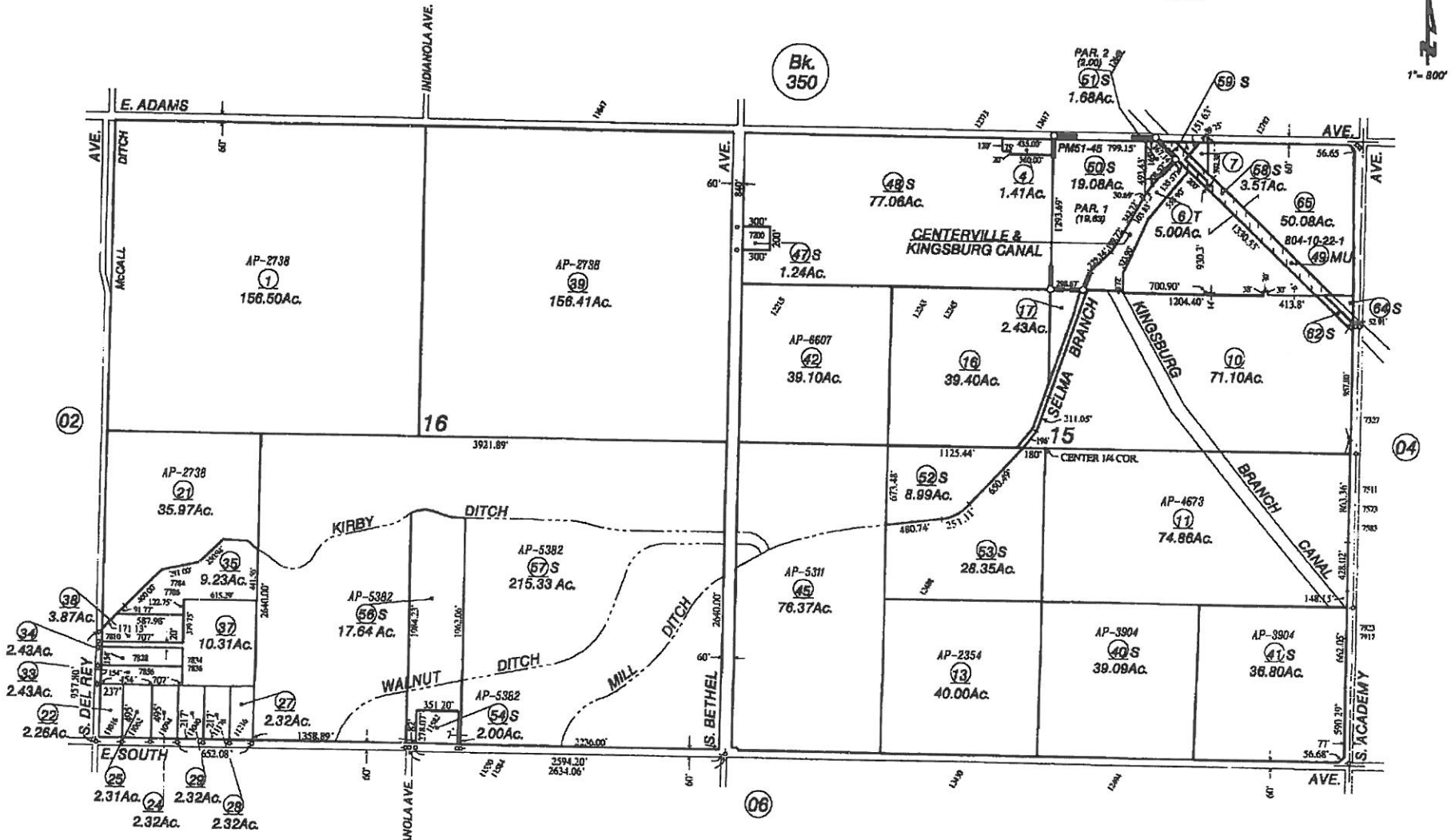
180-000

353-03

1"= 800'



Agricultural Preserve
Parcel Map No. 7402 - Bk.51, Pg.45

12/10/09

NOTE - Assessor's Block Numbers Shown In Ellipses.
Assessor's Parcel Numbers Shown In Circles.

Assessor's Map Bk. 353 - Pg. 03
County of Fresno, Calif.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Fresno

On July 22, 2014 before me, Patricia L. Gavello, Notary Public, personally appeared James E. Jimison, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person 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.

PATRICIA L. GAVELLO
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2042394
FRESNO COUNTY
My Comm. Exp. October 9, 2017

Patricia L. Gavello

Signature of Notary Public

EXHIBIT "B"

RECORDING REQUESTED BY
Consolidated Irrigation District

AND WHEN RECORDED MAIL TO:
Consolidated Irrigation District
2255 Chandler Street
Selma, CA 93662

– NO FEE—
Benefit of Consolidated Irrigation District
Pursuant to Government Code § 6103

SPACE ABOVE THIS LINE FOR RECORDER=S USE ONLY

MEMORANDUM OF OPTION

This Memorandum of Option is made effective as of August 7, 2014, by and between FRESNO LAND AND CATTLE COMPANY, LLC, a Delaware limited liability company ("Optionor") and CONSOLIDATED IRRIGATION DISTRICT, a California water district ("Optionee"), or Optionee's assignee.

Optionor and Optionee have entered into an unrecorded Option Agreement, dated and effective August 7, 2014 (the "Effective Date") and incorporated herein by this reference (the "Option Agreement"), whereby Optionor granted Optionee an option (the "Option") to purchase the real property located in the County of Fresno, California, more particularly described in Exhibit "A" attached hereto and incorporated herein by this reference (the "Property"), and Optionor hereby confirms the grant of said option to Optionee.

The Option granted to Optionee must be exercised, and escrow closed, if at all, to effect sale of the Property on or before the date which is eighteen (18) months plus seventy (70) days after the Effective Date of the Option Agreement, unless terminated earlier pursuant to the provisions of the Option Agreement.

The purpose of this Memorandum of Option is to give notice of the existence of the Option Agreement, which itself constitutes the agreement of the parties.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Option as of the date first above written.

[*signatures contained on the following page*]

"Optionor"

FRESNO LAND AND CATTLE COMPANY, LLC, a Delaware limited liability company

By _____

James E. Jimison
Division President, Central Valley

"Optionee"

CONSOLIDATED IRRIGATION DISTRICT, a California water district

By _____

Title Board President

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Fresno

On August 13, 2014 (Date) before me, Margaret Macias, Notary Public (Here Insert Name and Title of the Officer),

personally appeared Larry S. Cruff (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(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.

MARGARET MACIAS
Commission # 2030839
Notary Public - California
Fresno County
My Comm. Expires Jun 24, 2017

Signature: Margaret Macias (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

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

Description of Attached Document

Title or Type of Document: Option Agreement

Document Date: 8-7-14 Number of Pages: 17

Signer(s) Other Than Named Above: James E. Jimison

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

☐ Corporate Officer — Title(s): _____

☐ Individual

☐ Partner — ☐ Limited ☐ General

☐ Attorney in Fact

☐ Trustee

☐ Guardian or Conservator

☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: _____

☐ Corporate Officer — Title(s): _____

☐ Individual

☐ Partner — ☐ Limited ☐ General

☐ Attorney in Fact

☐ Trustee

☐ Guardian or Conservator

☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

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Item #5907

Attachment 3b

CID Feasibility Study

Adams and Academy Basin Feasibility Study

East of Fowler, CA

May 14, 2014

Prepared for:

Consolidated Irrigation District

Prepared by:

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

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Attachment 5 Geologic Cross Section B' – B'
Attachment 6 Max Potential Yield – Adams and Academy Site
Attachment 7 Estimation of Basin Site Yield

1 INTRODUCTION

1.1 Purpose/Scope

The purpose of this study is to investigate the feasibility of constructing a new basin at one of two optional sites near Adams and Academy Avenues to develop a groundwater banking facility. This feasibility study examines the potential recharge and recovery capacity of the sites, water available to CID to be recharged, and the effects the project may have on the water table and nearby wells. The two options are located in Consolidated Irrigation District on two parcels (APN 353-03-65, Option 1, and APN 353-03-11, Option 2)**.** These sites are of interests to the District because of their strategic location to both receive water to bank and recover water to supply downstream demand on the Mill Ditch and Kingsburg Branch canal systems.

This study also examines the groundwater and subsurface soil conditions in the area, estimates the capacity of recharge and recovery rates of the basins, and develops preliminary site layouts for one of the options.

1.2 Project Location

The potential project sites are located in Consolidated Irrigation District near the southwest corner of Adams and Academy northwest of the City of Parlier (**Attachment 1**). The Fresno-Clovis metropolitan area is located about 15 miles northwest of the sites. Other communities in the area include Del Rey to the northwest, about 3miles, and Selma and Fowler are along Highway 99 west and southwest from the sites, at about 5 miles and 6 miles, respectively. This location is strategically positioned within CID to allow recharged water to flow down gradient to benefit the area south and southwest. As well water recovered from the selected basin site can be diverted into either the Mill Ditch or Kingsburg Banch to augment water supplies to the services of both canal systems (**Attachment 2**).

1.3 Conveyance System Overview

The potential project sites are located near where the C-K No. 103 Canal (C-K) splits into the Mill Ditch (also known at the Selma Branch) and the Kingsburg Branch (**Attachment 2**). More specifically Option 1 is bounded on the west by the C-K with the exception of the southwest corner of the property where the C-K splits into the Mill Ditch and Kingsburg Branch. Option 2 is bounded on the northeast by the Kingsburg Branch and is within about 200 feet of Mill Ditch at the northwest corner of the property. Both potential recharge options should have the ability to be operated to recover banked water and send it into either the Mill Ditch and/or the Kingsburg Branch to make it available to both service areas. Banking facilities at either of these locations will increase the local operational flexibility of Mill Ditch and Kingsburg Branch, but also, when integrated, should promote operational flexibility in other parts of the District's distribution system. The flow capacity of the C-K is at least 600 cfs and maybe more at

Adams Avenue. This indicates that the C-K has sufficient capacity to provide water for a basin and the Mill Ditch and the Kingsburg Branch.

1.3.1 Mill Ditch and Kingsburg Banch

According to District staff both the Mill Ditch and the Kingsburg Branch have flow capacities of 300 cfs. The Mill Ditch system serves the area of the District within the vicinity of Selma. The Kirby Ditch and the Walnut Ditch split off of Mill Ditch about a half mile west of the sites (**Attachment 2**). The Kingsburg Branch serves the area of the District in the vicinity of Kingsburg

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2 GEOLOGY / HYDROGEOLOGY

2.1 Regional Geology

Consolidated Irrigation District is located in the eastern part of the San Joaquin Valley. More specifically, the Adams and Academy study sites are located on the high alluvial fan of the Kings River (Page and Leblanc, 1969). Located on the high alluvial fan of the Kings River, the study sites are ideally located for both recharge and recovery of banked water. Several geologic and hydrogeologic conditions are present at the study sites, especially Option 1, which indicate that both surface materials and subsurface materials at the sites should efficiently recharge water. Additionally, given the sites locations water recharged in this vicinity will flow down gradient and benefit down gradient groundwater users in the District. The following geologic factors are considered pertinent to recharge and are summarized from published resources for the sites below,

- Top soils – Sandy Loams to Loamy Sands.
- Groundwater Flow Direction – Southwest
- Geologic Facies E & F – between 66 percent to more than 80 percent coarse grained materials within the upper 300 feet.
- Old Alluvium and Continental Deposits – the dominant aquifer materials in the central valley
- Underlain by Cobbles – materials of high transmissivity and storage
- Depth to Saline Water – approximately 1,550 feet below ground surface
- Depth to Bedrock – approximately 2,350 feet below ground surface

Geologic materials near the sites are continental sediments from the Sierra-Nevada Mountains deposited on the alluvial fan of the Kings River. These materials are differentiated with depth into the Old Alluvium and Continental Deposits. The well known lacustrine clay layers, mainly the A clay and E clay are not present in the vicinity of basin (Croft, 1972 and Page, 1986). As mapped by Page, 1986, the sites are located just east of sand dune deposits that extend from east of Helm to between Fowler and Del Rey, and from Malaga in the south to north of Riverdale. Evidence of the sand dune deposits is shown in boring logs and published soils information consulted for this study. These deposits are ideal for recharge and large dune deposits appear to be evident in well logs used for this study and samples retrieved from borings conducted as part of the study. The dune deposits are estimated to be up to 130 feet thick, and locally are underlain by unconsolidated Sierra-Nevada sediments. Intercalated within the coarser grained deposits (both dune sand and continental alluvium) are finer grained, overbank flood deposits which are evident as finer grained silts, silty clays, and

silty sands on boring logs. Due to the lack of near surface, wide spread, lacustrine clays and a preponderance of near surface coarse grained materials, the Option 1 appears suitable for cyclic recharge and recovery of surface water from a regional perspective. Additional study will be needed to ascertain the percolation rate on Option 2, but it appears that the near surface materials on Option 2 are not as conducive to recharge as Option 1.

2.2 Local Geology

2.2.1 Top Soils

Top soils at the sites and surrounding vicinity are comprised of loamy sand and sandy loam (**Attachment 3**). Within the project boundaries, five soil types are present; Delhi Loamy Sand, Dello loamy sand, Hanford Sandy Loam, Hanford fine sandy loam, and Tujunga loamy sand. **Table 1** below shows the approximate percentages of each soil type for each option and the estimated acres for each soils type.

Table 1 - Summary Soil Type Percentages and Estimated Acres of Soil Types

NRCS Soil Name	Option 1 (percent/est. acres)	Option 2 (percent/est. acres)
Delhi Loamy Sand	34 % / 19.7 acres	9 % / 5.5 acres
Dello loamy sand	3 % / 1.7 acres	NA
Hanford Sandy Loam	8 % / 4.5 acres	16 % / 9.4 acres
Hanford fine sandy loam	28.5 % / 16.5 acres	65 % / 38.7 acres
Tujunga loamy sand	27 % / 15.6	10 % / 5.8 acres

These soils are formed on granitic alluvium deposited from the Kings River or dunes on alluvial fan remnants. Based on the literature review and onsite borings there is no indication of hardpan or clay pan at the site. All of the site's soils have moderately rapid to rapid permeability and are Hydrologic Soil Group A soils, which have high infiltration rates and low runoff potential. Brief descriptions of the five soil types present at the site are included below.

The **Delhi loamy sand** soils are deep (60 inches), somewhat excessively drained soils formed in wind modified (dune sands) alluvium weathered from granitic sources, and are found on floodplains, terraces, and fans of major rivers debauching into the San Joaquin Valley. These soils are found on slopes ranging 0 to 3%. They generally have less than 5% clay, and negligible to slow runoff, rapid permeability and high saturated hydraulic conductivity.

The **Dello loamy sand** soils are mapped in small depressions in the Delhi Series soils. Dello soils are on nearly level flood plains, slough remnants and small depressions in the San Joaquin valley and the Sacramento-San Joaquin Delta. The Dello loamy sand consists of very deep (60 inches), somewhat excessively drained soils that formed in old, wind modified, granitic alluvium on alluvial fans in the San Joaquin Valley and Sacramento-San Joaquin Delta. Dello Series soils are relatively flat with slopes of 0 to 2

percent. These soils are indicated to have about 4 percent clay and therefore exhibit slow runoff, rapid permeability, and high saturated hydraulic conductivity.

The **Hanford sandy loam and fine sandy loam** soils consists of very deep (72 inches), well drained soils that formed in deep, moderately coarse textured alluvium dominantly from granite and other quartz bearing rock of similar texture. Hanford sandy loam soils are on floodplains and alluvial fans and have slopes of 0 to 15 percent. These soils have about 12.5% clay, negligible to low runoff characteristics, high saturated hydraulic conductivity and rapid permeability.

The **Tujunga loamy sand** soils consists of deep (60 inches), somewhat excessively drained soils on flood plains and alluvial fans locally formed from predominantly granitic alluvium from the Kings River. The Tujunga loamy sands are relatively flat being on slopes of 3 percent or less. These soils have about 2.5% clay, negligible runoff characteristics, very high to high saturated hydraulic conductivity and rapid permeability.

2.2.2 Soil Borings

Detailed subsurface geologic information was collected through advancing four borings on option 2 and one boring west of but near option 1. The boring logs can be found in **Appendix A** and the boring locations are shown on **Attachment 2**. The materials encountered in the borings are consistent with the geologic provenance of the area which has variably been the active alluvial fan of the Kings River and dune sands. In general, it appears that the near surface materials, down to 15 to 20 feet are finer grained silts and silty sands deposited on the floodplain of the Kings River. These near surface material are underlain by a relatively thick sequence of clean dune sands down to about 50 feet. Beneath the dune sands the subsurface materials indicate a geologic environment that was fluctuating between deposition in the flood plain of the Kings River and the dune sands. As well cobble stones are present in the subsurface, encounter at 86.5 feet in boring B1 and are also noted on several DWR well logs both onsite and near the sites. The cobble stones, interpreted to be relic stream channel deposits, indicate deposition in the area has in the past been in the active channel of the ancient Kings River.

Option 1

Previous subsurface investigations by Central Valley Testing (CVT), 2008, included soil descriptions and percolation tests in 10 shallow borings on Option 1 (**Attachment 2**). The CVT Geotechnical Evaluation and Percolation Tests Report is included in **Appendix A** and summarized here. The borings were completed to variable depths between 17 feet to 40 feet below ground surface (bgs). The soils summary provided in the CVT report indicates that soils from 2-5 feet were loose silty sands, and below 5 feet fine to medium grained sand was encountered. The boring logs indicate that minor amounts of silty sand are also evident below 5 feet, but the majority of the materials below 5 feet are described as sand. With the exception of percolations tests results in boring 5 @ 3 feet, boring 7 @ 4 feet, and boring 9 @ 5 feet, percolation rates appeared to be greater than 0 minutes per inch, i.e., to fast to calculate a viable percolation rate.

At the depths and locations for which measureable percolations rates were obtained, discussed above, percolations rates were between 2 to 5 minutes per inch (60 to 24 feet per day). These percolation rates are considered very fast and are not be indicative of the long term percolation rate of surface soils at the site. However, percolation data in conjunction with the material descriptions indicates that the subsurface conditions for Option 1 have a high recharge potential.

One boring (BA) was advanced to groundwater in May 2014 in the canal road of the C-K Canal close to but west of Option 1 (**Attachment 2**). Borings were not conducted onsite on Option 1 due a discrepancy in ownership. Generally consistent with CVT findings subsurface materials consisted of silty sands to silts with fine sands down to about 18 feet bgs. Beneath the finer grained materials, dune sands were present down to about 52.5 feet bgs with the exception of a 3 foot lens of interbedded silty sand and silt from 38 to 41 feet bgs. From 52.5 feet bgs to the bottom of the boring at 63 feet bgs, interbedded very fine-grained silty sands and silts were encountered (Appendix X). Groundwater was stable in the boring at 61.6 feet bgs. Given that the BA boring location was visually estimated to be about 2 feet higher than the site grade, groundwater beneath the site was probably about 59 feet in May 2014. This depth to water is consistent with the depth to water from Option 2.

Option 2

Four soil borings were conducted on the site in May 2014 to collect information on subsurface materials below depths typically covered in the soils data (from 60 to 72 inches). Borings B1 through B4 were advanced on Option 2 at the locations shown on **Attachment 2**. Boring B1 was completed to 86.5 feet bgs. Borings B2 and B3 were completed to 30 feet bgs, and B4 was completed to 60 feet bgs. The western 21 acres of Option 2 were not accessible at the time of subsurface investigations. Subsurface materials encountered in the four borings were variable and consisted of fine to very fine grained silty sands and silts to depths of between 14 to about 23 feet. Beneath the fine grained materials a layer of poorly graded sand, interpreted to be sand dunes, extended down to the bottom of the borings in B2 and B3, 51 feet bgs in B1 and 48 feet in B4. Below the dune sands interbedded silts and fine grained silty sands were encountered in B1 down to about 86.5 feet. Cobbles were encountered in B1 at 86.5 feet, but were not encountered in B4 to the total depth of 60 feet. The dune sand deposits extended down with to the total depth of 60 feet in B4, with the exception of a silt layer from 48 to 52.5 feet. Below the fine grained silty sands and silts, the dune sands were encountered in B2 and B3 down to the bottom of the borings at 30 feet. There was no percolation data available for Option 2 but it appears that the prevalence of fine grained materials in the near subsurface could negatively impact long term percolation rates.

2.2.3 Subsurface Geologic Cross Sections

Subsurface geologic cross sections were developed from geologic descriptions provided on DWR well completion reports. These cross sections were prepared in order

to evaluate the geology of the area within the aquifer zone most likely to be impacted by the project. Subsurface geologic information from the borings was included as appropriate into the geologic cross sections. Geologic cross section A-A' extends generally east to west through the area, and geologic cross section B-B' trends north to south. The cross sections extend for about one mile from the sites. The cross sections indicate that relatively coarse grained materials including sands, silty sands and cobbles are prevalent beneath the sites. These materials are interpreted to be mainly dune sands and river cobbles. Finer grained materials are present in the area but appear to be more prevalent east and west of the sites. Northward and southward from the sites, there appears to be relatively less finer grained materials and the majority of the subsurface materials appear to be sands and silty sands (**Attachments 4 & 5**).

3 GROUNDWATER

3.1 Regional groundwater conditions

The sites are located in the San Joaquin Valley groundwater basin, Kings subbasin as defined by DWR Bulletin 118, 2003 update. The Kings subbasin extents from the Sierra Nevada foothills on the east to the trough of valley to the west, and from the San Joaquin River on the north to about the Fresno County line on the south. CID occupies a large portion of the east central portion of the Kings subbasin generally south and southeast of Fresno. DWR has identified the Kings subbasin as being critically overdrafted. The base of fresh water, defined by R.W. Page 1973, as 3,000 micromhos, ranges from about 1,500 feet below ground surface in the vicinity of the study area to as deep about 3,400 feet in the area near Highway 43 and the Kings River. The base of fresh water is typically considered to be the maximum depth of the useable aquifer in terms of groundwater pumping and recharge. Groundwater is predominately bicarbonate type with major cations of calcium, sodium, and magnesium (DWR Bulletin 118, 2003). Regionally, groundwater flows west to southwest but is locally affected by groundwater pumping depressions associated with the area's larger cities and agricultural lands with no surface water supplies.

3.2 Local Groundwater Conditions

Local groundwater conditions have been quantified through collection of recent groundwater level information in the 3 borings completed to groundwater (**Appendix A**), recent measurement of water levels in two CID monitoring wells near the sites, review of DWR hydrographs for the two CID monitoring wells near the sites, and Depth to Groundwater maps (**Appendix B**).

Groundwater level information was collected from two CID monitoring wells located along Adams Avenue on April 24, 2014. CID MW 18 (State Well no. 15S22E16A001M) is located about one quarter of a mile west of the north boundary of Option 1 and CID MW 19 (State Well No. 15S22E14A001M) is located about a mile and a half east of the north boundary of Option 1. Hydrographs of the two CID monitoring wells was obtained from the DWR Water Data Library and used to compare the recent depth to water data to the historical trend (**Appendix B**). The DWR hydrographs have water level data from 1946 to 2009, and therefore are useful in evaluating long term trends for the local aquifer. Depth to water was below the bottom of the well, total depth measured at 51.6 feet below ground surface, in CID MW 18 in April 2014. The long term water level data for the well indicates that prior to the April 2014 attempt at measuring water level the deepest water level recorded was in October of 1992 at 49.4 feet bgs. Water level in CID MW 18 was recorded at 11.9 feet bgs in 1946, and while variable has generally declined since.

Depth to water was 26 feet below ground surface in CID MW 19 on April 24, 2014. The long term hydrograph for the well indicates that depth to water has varied over time from a high of 18.9 feet bgs in February 1987 to a low of 57.9 feet bgs in October 1977. Since about the late 1980's water levels have remained fairly stable in the well and the recent depth to water appears to be consistent with the trend since that time. The recent water level information indicates that east of the sites groundwater levels have remained fairly stable but has fluctuated in response to climatic conditions and agricultural demands in closer proximity to the sites. As well this information indicates that there was strong east to west groundwater gradient in the vicinity of the sites at the time of this investigation.

Site specific depth to water data was collected in B1 and B4 on Option 2 during the subsurface investigation in May 2014. Depth to water in B1 stabilized at 61.2 feet bgs and stabilized at 58.6 feet bgs in B4. While boring BA was not completed on Option 1, it was close to the western edge of the site. Groundwater was stable at 61.6 feet bgs at the boring location and therefore was probably about 59 feet bgs for Option 1. Previous depth to water information on a regional scale is available from Depth to Groundwater maps prepared by Kings River Conservation District, the Fresno Area-Regional Groundwater Management Plan and the Department of Water Resources for the springs of 2005, 2009, and 2011. These maps show that depth to water was about 40 feet bgs in the vicinity of the sites in the springs of 2005 and 2009, and appears to be between 40 to 50 feet in the area in spring 2011. The groundwater maps for Spring 2009 and 2011 are included in **Appendix B**. As indicated above groundwater is currently about 60 feet bgs. Within the continuance of the draught into the 2014 growing season and the demand on the local groundwater resources to meet crop water needs, it is quite likely that groundwater levels will continue to decline in the area.

3.3 Groundwater Mounding and Aquifer Parameters

To provide adequate yield, a banking facility must demonstrate both recharge and recovery capabilities. In order to maintain sufficient long-term infiltration rates, there must also be sufficient vertical distance between the basin floor and the groundwater table, or a greater depth of unsaturated zone that can be utilized for infiltration. Infiltration into an unsaturated zone is dependent on how fast existing water in the unsaturated zone and the down gradient water is evacuating. The lack of either hydraulic conductivity or sufficient unsaturated zone may cause mounding of the groundwater table, which may promote groundwater contamination, problems with nearby sewage systems, and poor infiltration rates. To achieve sufficient extraction capabilities, sub-surface materials should promote high transmissivity, or quick refilling of the water table after pumping to counteract the effects of drawdown.

To properly operate the potential basins with respect to the area's groundwater resources, aquifer parameters including transmissivity, specific yield, and infiltration rate are needed. No pumping test or infiltration test data was available to estimate site specific aquifer parameters, therefore these are estimated from the literature. The estimated aquifer parameters were used to derive estimates of groundwater mounding

during recharge operations and the potential affect that a future recovery well may have on the area's ground water levels. Long-term monitoring of the affects of the basins during recharge and recovery operations will be accomplished through measuring of water levels in a monitoring well network and changes in groundwater chemistry will be documented by sampling of specific wells in the monitoring network. Development of a monitoring well network and derivation of site specific aquifer parameters will be completed as part of further development of the selected option. Additional pumping test data will be gathered during the construction phase of the recovery well and if feasible a pilot recharge study will be conducted. These future data will be used to generate aquifer parameters specific to the portion of the aquifer from which the recovery well is perforated allowing for analysis of recovery well pumping affects of the project wells at build out. Additionally, this data will be used to refine estimates of groundwater mounding.

3.3.1 Estimated Aquifer Parameters

Important aquifer parameters needed to estimate the effects of the potential basin include transmissivity and specific yield. Transmissivity is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic head. Specific Yield, also known as the drainable porosity, is the amount of water that will drain from the aquifer under the forces of gravity. Specific yield is used in this analysis as it is pertinent to unconfined aquifers as opposed to storativity which is pertinent to confined aquifers. As mentioned above the sites are located outside of the regional confining clay layers and water levels are fairly near shallow. Both of these indicate that the aquifer beneath the sites, especially the upper few hundred feet, is unconfined.

Regional transmissivity data is available from Davis et al., (1964), who summarizes numerous specific capacity values from Pacific Gas & Electric pump tests performed across the San Joaquin Valley. Using water level and discharge data from 83 field tests in T15S, R22E, they estimate a specific capacity of 63 gpm per foot of drawdown for the area. These values are based on early time drawdown data, and probably over estimate long-term specific capacities and transmissivity. Thomasson et al. (1960) developed an empirical relationship between specific capacity and transmissivity, which is also discussed by Driscoll (1986, Appendix 16.D). Using this method, transmissivity for T15S, R22E is about 95,000 gpd/ft based on early time drawdown data. This appears to be a valid estimate of transmissivity, but it should be noted that this estimated value is not based on actual pumping test data from the sites.

Regional specific yield data is available from Page and Leblanc, 1969. They mapped the sites materials to 300 feet as geologic facies E & F. Geologic facies E & F have a high percentage of coarse grained materials and these materials correlate to relatively high estimated values for specific yield. Average specific yields for geologic facies E & F, as estimated by Page and Leblanc, range from 16 to 18.7 percent. Specific yield values from the literature for fine sand are about 21 percent and for silts average about 18 percent. For this analysis a conservative estimate of specific yield of 17 percent is used to calculate groundwater mounding.

3.3.2 Estimated Percolation

The data needed to estimate percolation rates was not available, therefore an estimate is provided here based on estimated percolation rates from the District's South and Highland basin. Utilizing percolation data from South and Highland basin provides a reasonable estimate of percolation rate for the project sites because the sites, especially Option 1, appear to have very similar geologic materials in the near subsurface, i.e., sandy soils. The short-term percolations rate for the South and Highland basin was estimated to be 2 feet per day. However, experience has shown that long term percolation rates, even in sandy materials, will probably be about 0.5 feet per day. Based on the finer grained materials in the near subsurface material encountered in the borings on Option 2, it appears that Option 2 will have a slower long term percolation rate than Option 1. Lacking the data to provide an estimate of percolation rate, a conservative estimate of 0.3 feet per day is a reasonable estimate for a long term percolation rate for Option 2. These estimated percolation rates will be modified as percolation data becomes available.

3.3.3 Groundwater Mounding

Areas underlain by coarse-grained material of moderate to high permeability and specific yield are favorable for recharge and cyclic storage of groundwater. Highly permeable materials permit relatively rapid recharge and high specific yield ensures adequate storage capacity and recovery (Davis, et. al, 1964). In order to maintain sufficient long-term infiltration rates, there must also be sufficient vertical distance between the basin floor and the groundwater table-termed vadose zone, to allow recharged water to continually move vertically to the water table. Infiltration into an unsaturated zone is dependent on how fast existing water in the unsaturated zone is infiltrating or traveling towards the water table and the local groundwater gradient.

A spreadsheet developed by the USGS to solve the Hantush (1967) analytical equation for groundwater mounding beneath a storm basin was used to estimate groundwater mounding beneath Option 1 (Carleton, 2010). As both Option 1 and Option 2 are nearly the same size, the groundwater mounding scenario developed here is only for Option 1. The groundwater mound that develops under Option 2, if this option is selected, will likely be smaller mostly due to the slower estimated percolation rate. Option 1 is split into two cells with a combined total wetted floor area of 37.5 acres. Groundwater mounding was estimated for Option 1 based on the following assumptions and operational scenario;

- Duration of recharge = 120 days
- Recharge Rate = 0.5 feet per day
- Horizontal Hydraulic Conductivity = 95 feet per day (from South and Highland Study)
- Storativity = 0.17 (discussed above)
- Initial thickness of saturated zone = 300 feet, approximate depth of deeper wells in the area
- Basin Dimensions = 1650 feet long by 1200 feet wide

Using the assumptions above the Hantush groundwater mounding equation yields the following estimates for mounding at the selected distances from the basin (Table 1, below). It should be noted that these estimates for groundwater mounding are based on several unknowns and will need refining with actual percolation and pumping test derived aquifer parameters.

Table 2 - Estimated Groundwater Mounding with distance from center of basin

Ground-water Mounding (feet)	**Distance from center of basin (feet)**
14.1	0
10.8	1,000
6.9	2,000
4.9	3,000
3.5	4,000
2.5	5,000
1.9	6,000
Note: Distance 0 is the center of the basin	

3.3.4 Estimated Recovery Well Drawdown

In order to recover recharged water the basin will need a recovery well. It is assumed that the recovery well will have a capacity of 5.5 cfs (~2,450 gpm) and be able to recover about 11 acre feet per day of recharged water. The proposed recovery well location is located on the southwest corner of Option 1. Due to the regional nature of the aquifer parameters drawdown estimates for a recovery well located on Option 2 would be similar to the estimates proved below for a recovery well on Option 1. The recovery well will likely be perforated deeper than the local agricultural and domestic wells from about 150 feet to 500 feet bgs. In order to estimate the potential drawdown affects from recovery well pumping the two key aquifer parameters of Storativity/specific yield and transmissivity are needed. As mentioned above these parameters were not available from actual pumping test data, and therefore were estimated for the area from published sources. For this drawdown analysis a transmissivity of 95,000 gallons per day per foot and a specific yield of 0.17 are used. Below depths of about 200 feet the aquifer in the San Joaquin Valley is considered partially confined to confined, and therefore the Theis method was used to estimate drawdown from pumping the recovery well for 120 days at 5.5 cfs.

Table 3 - Estimated Drawdown after 120 days of Recovery Well Pumping

Distance from Recovery Well (feet)	Estimated Drawdown @ 120 days of pumping (feet)
100	21.3
500	11.9
1,000	7.9
2,000	4.1
3,000	2.2
4,000	1.2

The above estimates for drawdown indicate that the drawdown decreases with distance from the prosed recovery well. It should be noted that with increasing distance from the proposed recovery well it becomes increasingly difficult to determine drawdown affects from the recovery from locally induced drawdown from pumping of agricultural wells.

3.4 Groundwater quality

Groundwater in the area is of good quality for irrigation use. The natural geochemisty of the local groundwater was mapped by Page and Lebanc, 1969 to be of calcium sodium bicarbonate type. Additionally, their report has water quality information from a well about one mile north of the sites which indicates that at the time of their report the Total Dissolved Solid (TDS) in the vicinity of the sites was 70 mg/L. On May 8, 2014 a water sample was taken from a domestic well east of but close to Option 2, and analyzed for general minerals, inorganic chemicals, and EDB/DBCP (**Appendix C**). TDS from the well's water was 440 mg/L with an electrical conductivity of 600 umhos/cm. Nitrate was 75 mg/L which exceeds the maximum contaminant level of 45 mg/L. It is unclear why the well's water has a higher TDS than the historical USGS data would suggests but it may be that water percolating up gradient from the site at the Parlier waste water disposal facility has flowed down gradient into the area of the site. It is also feasible that local inputs from nearby septic systems have contributed to the elevated TDS in the well's water. Due to the time constraints of this study additional water samples were unable to be collected, therefore the extent of the higher TDS water could not be evaluated. However, as mentioned above, water quality sampling in wells in the final monitoring network will be conducted as part of the overall development of the network. Additional groundwater quality information will be collected for the recovery well and from dedicated monitoring wells. This data can be used to evaluate water quality trends in the area. It should be noted that the project will be recharging Kings River water with very low TDS usually less 20 mg/L (KRCD, 2008). The recharged Kings River water should positively impact the local groundwater quality.

4 SURFACE WATER SUPPLY AND AVAILABILITY

4.1 Water supply for project

CID currently has rights to obtain Kings River floodwater and Fisheries Agreement Schedule C flows during the fall and winter months. This water is generally not usable due to low irrigation demand during this time of year. Construction of this project would allow CID to take this otherwise unused water as well as other available surface waters off of the Kings River and divert them into the new basin through CID's C-K Canal and recharge the groundwater aquifer.

4.2 Water availability

A 50 year flow analysis was performed on the Kings River (**Attachment 6 & 7**) to look at available floodwater and fish flows that are currently not being used. Based on the analysis, approximately 2,300 acre-feet of water is available annually to divert into the project. Obviously, some years water would not be available for diversion, however, excluding zero availability years, the annual average is over 3,500 acre-feet.

4.3 Basin Site and Improvements

Two basin site alternatives are proposed in this report. Both options are envisioned to be very similar in operations and in cost so a single site layout was prepared for Option 1 only (**Attachment 8,** preliminary plans). The project would require a turnout structure to divert water from the C-K Canal, into a settlement channel that will settle out fines that could potentially plug the basin floors, into a distribution structure that would distribute water from the settlement channel and into the basins. Monitoring wells would be established to gage impacts from the project and determine if changes need to be made during operations of the project. A recovery well will provide for a way to extract water that has been stored by the project and deliver water to downstream users through CID's canals.

4.4 Recharge Potential & Operations Analysis

4.4.1 Mill Ditch and Kingsburg Branch Operations

According to CID staff, both the Mill Ditch and the Kingsburg Branch have a flow capacity of 300 cfs each near the project site. Water recovered from the project will be able to be diverted into either the Mill Ditch and/or the Kingsburg Branch.

4.4.2 Potential performance

Assuming an infiltration rate of 0.5 ft/day as discussed above, the project has the ability to recharge approximately 6,500 acre-ft of water, if water was available for recharge for the entire year.

With a 5.5 cfs well operating for 120 days (typical irrigation season), the project could extract approximately 1,320 acre-ft of water each year and still recharge about 230 acre-ft per year to the local aquifer. Over the long term, based on the analysis of the historical Kings River water availability, the bank should have an additional ~5,400 acre-ft in storage. This would be water that could be recovered and used to supplement irrigation demand on the Mill Ditch and/or the Kingsburg Branch.

4.4.3 Mill Ditch and Kingsburg Branch improvements

At this time improvements to the C-K, Mill Ditch and Kingsburg Branch are not anticipated. However, the District may want to automate the control structures which would require modifying or constructing new check structures.

5 PROJECT IMPACTS AND ISSUES

5.1 Environmental Impacts

A preliminary checklist has not been prepared as part of this study and it is anticipated that the conversion of agricultural land is likely to be the most significant issue. Similar projects have not had a negative aesthetic effect or interfere with the movement of any resident or migratory fish or wildlife species. Similar basin facilities do not have a significant effect on air quality, transportation or circulation systems, noise, light and glare, or land use. In preparation for the soil borings previously discussed, a categorical notice of exception was filed with the County of Fresno prior to the activities.

A Reconnaissance Level Biological Survey Report and a Phase 1 Environmental Site Assessment were not prepared for the project sites as part of this study. However, based on findings from similar basins in the area, it is anticipated that the project will not significantly impact the environment. Minor impacts could be addressed using common mitigation measures.

5.2 Regulations, Permits, & Licenses

The following is a list of expected federal, state and local laws, statutes, regulations and ordinances governing the proposed project, including any applicable local surface water and groundwater ordinances.

- Options for Purchase and Acquisition of Land – Acquisition of the land will be required for the project to be constructed. CID staff has secured an option to purchase.

- CEQA Requirements – The CEQA process and preparation of the required environmental documentation is required.

- County of Fresno Groundwater Ordinance – The County of Fresno Groundwater Ordinance regulates the delivery of groundwater within the County of Fresno.

- Fresno County General Plan – The county general plan does not currently include the expanded site as a groundwater banking facility and may require amendment.

- Well Drilling Permit from Fresno County (in accordance with Fresno County Well Ordinance) and filing of well log with DWR (in conformance of California Water Well Standards).

- Fresno County Grading Permit – required for construction and grading.

- NPDES Storm Water Permit for Construction – This permit is required for development of properties greater than 1 acre. However, a waiver may be obtained if certain construction criteria are met.

- Additional contractor requirements include California State licensing, OSHA standards, prevailing wage laws, non-discrimination and others.

- Notification of KRWA Member Agencies – Notification is required for exchanges and transfers, but is not subject to other member agency approvals.

- Possible challenges related to existing water rights addressing authority to groundwater storage.

5.3 Possible Project Benefits

Similar to other banking project sites constructed or under construction within CID, the project will provide the following benefits:

- Increase water supply by capturing flood and fish flow water during periods of little irrigation demand, storing it in the underground, and pumping for beneficial use when there is demand.

- Assist in establishing a fishery on the Kings River, by providing a beneficial place of use for waters diverted from storage for that purpose.

- Improve groundwater quality by recharging higher quality surface waters.

- Assume 10% of direct diversion will be left behind to recharge the local aquifer to benefit nearby Disadvantaged Communities

- Extend the agricultural irrigation season in dry years if needed.

- Generate revenue for CID. CID has not raised water rates in several years, and the largely vineyard District has been greatly affected by falling grape prices.

- Reduce water cost to project participants.

- Help to correct groundwater overdraft within CID.

- Create a large water-body that will benefit waterfowl and habitat.

- Improve water delivery and regulation for the Mill Ditch and Kingsburg Branch canal systems.

6 CONSTRUCTION COST ESTIMATE

Conceptual construction cost estimates were prepared for development of Option 1 into a banking facility. The estimate assumes that the construction activities will be contracted out. Refer to **Table 4** below for conceptual cost estimate details. This construction costs estimate is based on similar projects in the area that have recently gone out to construction.

Table 4 - Conceptual Cost Estimate

Consolidated Irrigation District
Adams and Academy Recharge Basin

(revised 5/14/14)

CONCEPTUAL

Item No.	Item Description	Estimated Quantity	Unit	Unit Price	Amount
1	Mobilization/demobilization, bonds & insurance (5%)	1	LS	$110,000	$110,000
2	Worker Protection (5%)	1	LS	$110,000	$110,000
				Sub Total:	**$220,000**
	Basin Earthwork				
3	Clearing and Grubbing	50	AC	$700	$40,000
4	Site Demolition (Buildings, Overhead Electric, etc.)	1	LS	$100,000	$100,000
5	Cell 1 Levee Earthwork (Fill)	55,000	CY	$5	$280,000
6	Cell 2 Levee Earthwork (Fill)	45,700	CY	$5	$230,000
7	Settling Channel	26,800	CY	$5	$130,000
8	Excavate and Export Surplus Earthwork	0	CY	$9	$0
				Sub Total:	**$780,000**
	Control/Diversion Structures				
9	Furnish and Install Basin Turnout Structure w/ 54" Slide Gate, Canal Lining, Standpipe Outfall	3	EA	$108,600	$330,000
10	Flow Measurement (Flow Meter and Control at Basin Turnout)	3	EA	$32,500	$100,000
11	Construct Project Diversion Check Structure and Apurtenances (Misc Metals, Stilling Well, etc.)	1	LS	$250,000	$250,000
				Sub Total:	**$680,000**
	Recovery Wells				
12	Construct Recovery Well (flow meter, well, well head, and discharge)	1	EA	$375,000	$380,000
				Sub Total:	**$380,000**
	Monitoring Wells				
13	Construct Shallow Monitoring Wells	3	EA	$12,500	$40,000
				Sub Total:	**$40,000**
	Other Site Improvements				

Consolidated Irrigation District
Adams and Academy Recharge Basin

(revised 5/14/14)

CONCEPTUAL

Item No.	Item Description	Estimated Quantity	Unit	Unit Price	Amount
14	Furnish and Install Perimeter Wire Fence and Gates	5,750	LF	$10	$60,000
15	Furnish and Install 3/4" Crushed Gravel for Levees (16' Wide, 12,600 LF, 3" Thick, 105 lb/cf)	2,700	TON	$40	$110,000
16	Construct Overhead Electric Lines for Recovery Well	2,000	LF	$25	$50,000
17	Misc Site Electrical	1	LS	$80,000	$80,000
				Sub Total:	**$300,000**
	Subtotal				$2,400,000
	Contingency			15%	$360,000
			PRELIMINARY COST ESTIMATE:		**$2,760,000**

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The preliminary geologic findings developed in this report indicate that Option 1 should have a higher percolation rate than Option 2. Further study and onsite borings on Option 1 would need to be conducted to evaluate the veracity of the this finding, but the borings and data from the 2008 Central Valley Testing study indicate the site should readily percolate water. However, if the Option 1 site is not available, Option 2 appears to be a viable location for a banking site.

Based on estimates of CID water supply availability and the anticipated performance of the project's percolation and extraction capabilities, the project has the potential to bank up to approximately 6,500 acre-feet and extract up to approximately 1,320 acre-feet on average each year. In addition, an average annual carryover (or end-of-year bank balance) of up to approximately 5,400 acre-feet is anticipated to facilitate the recovery of banked water through most dry years with the use of the recovery well. A larger amount of the annual carryover could be utilized if additional recovery wells are constructed, but would also result in a greater drawdown to the area's groundwater table. A groundwater monitoring network need to be established to monitor groundwater mounding levels to assist in determining an appropriate annual carryover or max annual banking limit once the banking project is in operation.

7.2 Recommendations

With consideration of the construction cost estimate for the development of Option 1, it is recommended that the project be fully built out to maximize the water banking benefits for the money invested. Cost and funding aside, there is generally no advantage in considering a phased approach to the construction. The onsite buildings and structures should be removed to allow more area for recharge (assumed in the conceptual site layout). Onsite wells should be located and evaluated for later use in the monitoring well network.

8 BIBLIOGRAPHY

Geology of the Fresh Ground-Water Basin of the Central Valley, California, with Texture Maps and Sections, USGS Water Supply Paper 1401-C, R.W. Page, 1986

Geology, Hydrology, and Water Quality in the Fresno Area, U.S.G.S. Open File Report, Page and LeBlanc 1969

Kings River Fisheries Management Program Water Quality Monitoring Report 2006-2007, Final Draft. Kings River Conservation District and others, May 2008,

Kings River Fisheries Management Program Framework Agreement, Exhibit "C" (1999)

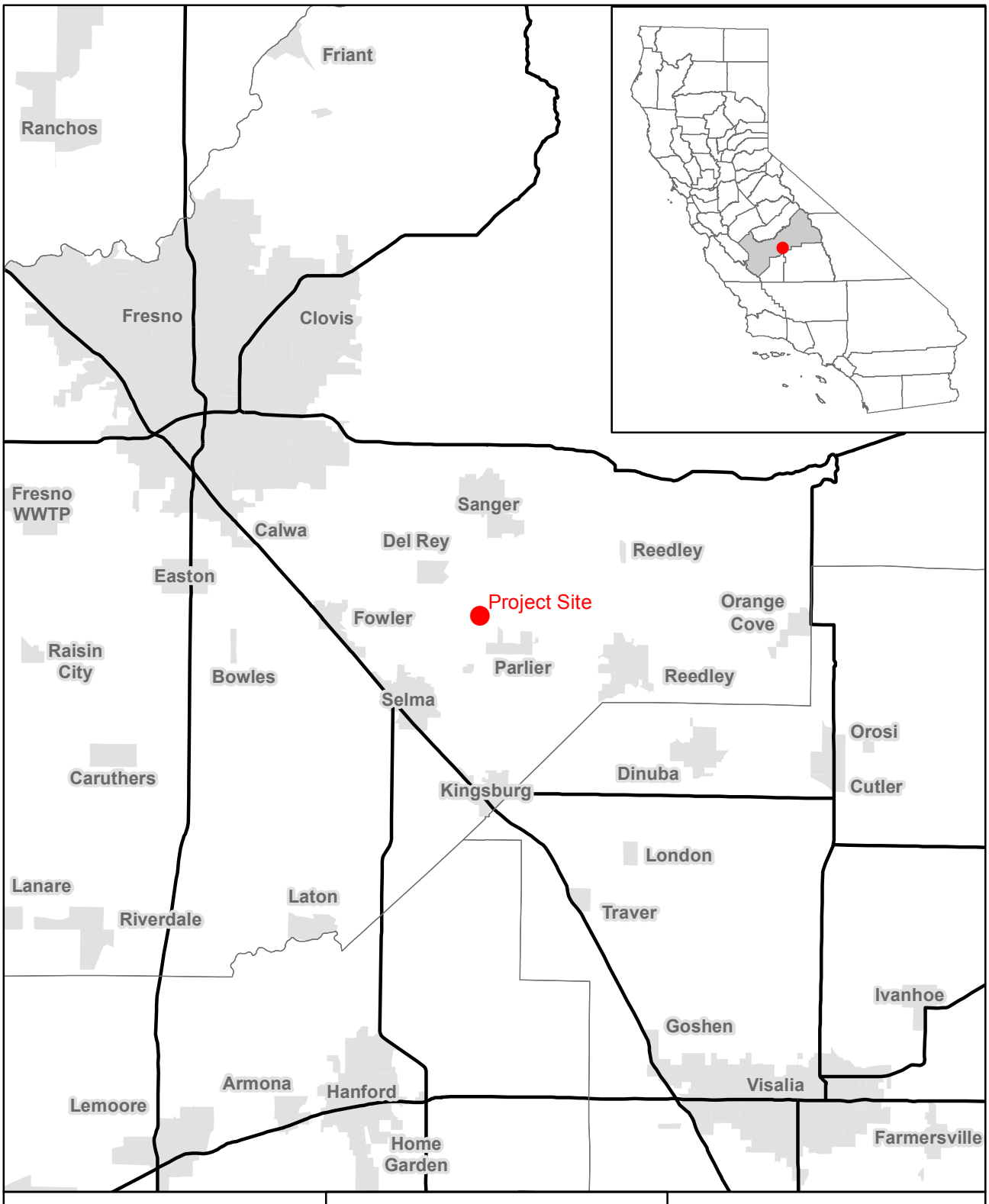
Kings River Fisheries Management Program Water Quality Monitoring Report 2006-2007, Final Draft, Kings River Conservation District and others, May 2008.

Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins., USGS-Scientific Investigations Report No. 2010-5102, Carleton, Glen, B., 2010.

Subsurface Geology of the Late Tertiary and Quarternary Water-Bearing Deposits of the Southern Part of the San Joaquin Valley, California, U.S.G.S. Water Supply Paper 1999-H, M.G. Croft, 1972

Soil Survey Eastern Fresno Area (October 1971) U.S. Department of Agriculture Soil Conservation Service

Attachments



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City/Town

EST. 1968
PROVOST& PRITCHARD CONSULTING GROUP
An Employee Owned Company
286 W. Cromwell Ave.
Fresno, CA 93711-6162
(559) 449-2700

CONSOLIDATED IRRIGATION DISTRICT

Consolidated ID
Adams and Academy
Banking Sites
Vicinity Map
Attachment 1

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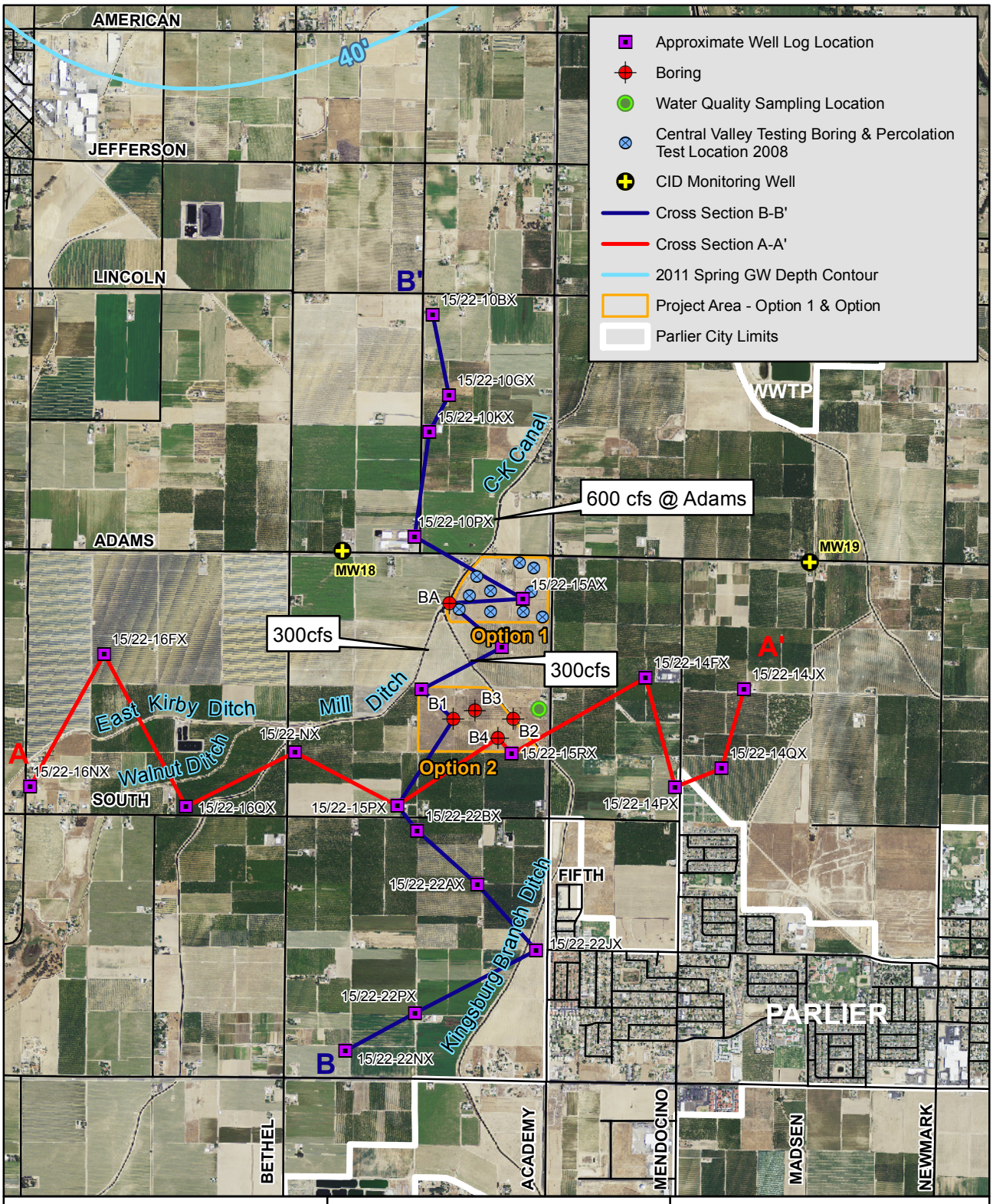
Aerial Imagery: USDA NAIP 2012



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(559) 449-2700

CONSOLIDATED IRRIGATION DISTRICT

Consolidated ID Adams and Academy Banking Sites

Project Investigation Map

Attachment 2

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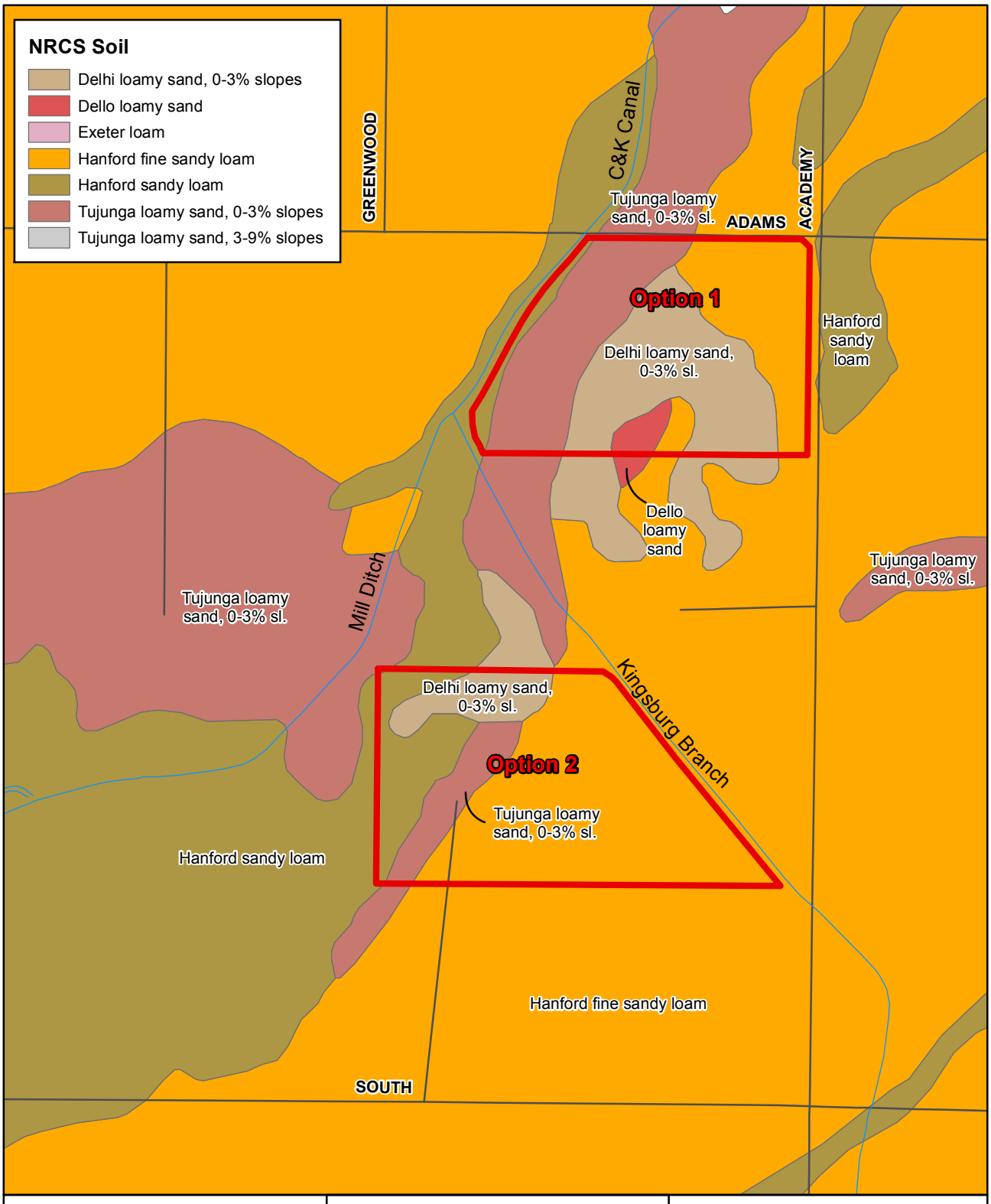
Aerial Imagery: USDA NAIP 2012



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CONSOLIDATED IRRIGATION DISTRICT

Consolidated ID
Adams and Academy Banking Sites
Soil Map
Attachment 3

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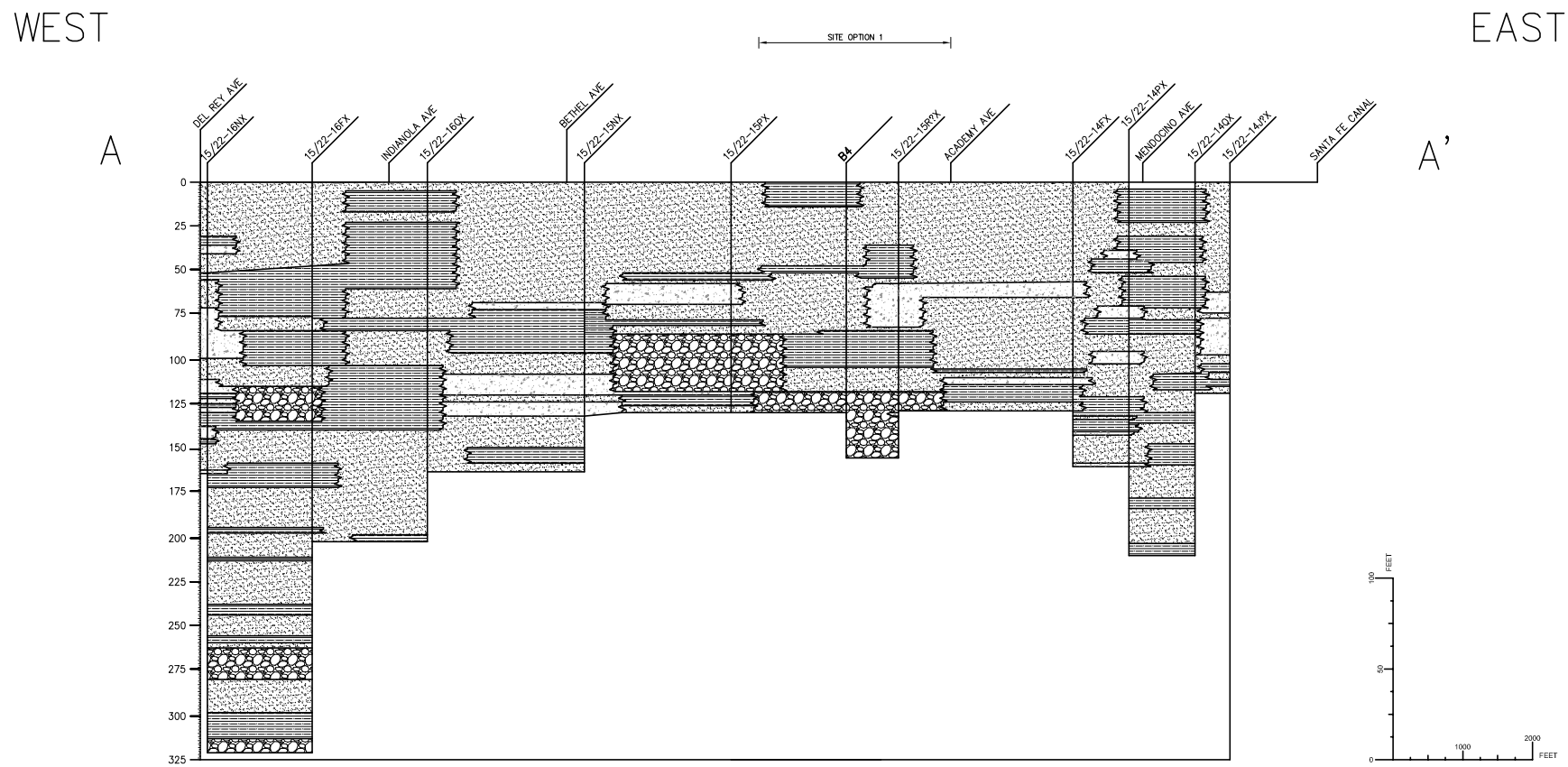
Aerial Imagery: USDA NAIP 2012



FINE GRAIN–
SILTS, SLAYS, AND VERY
FINE GRAIN SILTY SAND

COURSE GRAIN–
SANDS AND SILTY SANDS

COBBLE OR SAND &
COBBLE

INTERBEDDED SAND, SILT,
CLAY, AND SAND, SILT,
AND CLAY MIXTURES

NOTE

STATE WELL NAMES ARE APPROXIMATED FROM LOCATION INFORMATION PROVIDED IN DWR WELL COMPLETION REPORTS.

ADAMS AND ACADEMY
BASIN INVESTIGATION
CONSOLIDATED IRRIGATION DISTRICT
FRESNO COUNTY

GEOLOGIC CROSS SECTION A'–A'

DESIGN ENGINEER:

LICENSE NO:

DRAFTED BY:	CHECKED BY:
TLS	SWO

DATE: 5/13/2014

JOB NO: 20041101

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ORIGINAL SCALE SHOWN IS IN INCHES. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

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ATTACHMENT 4

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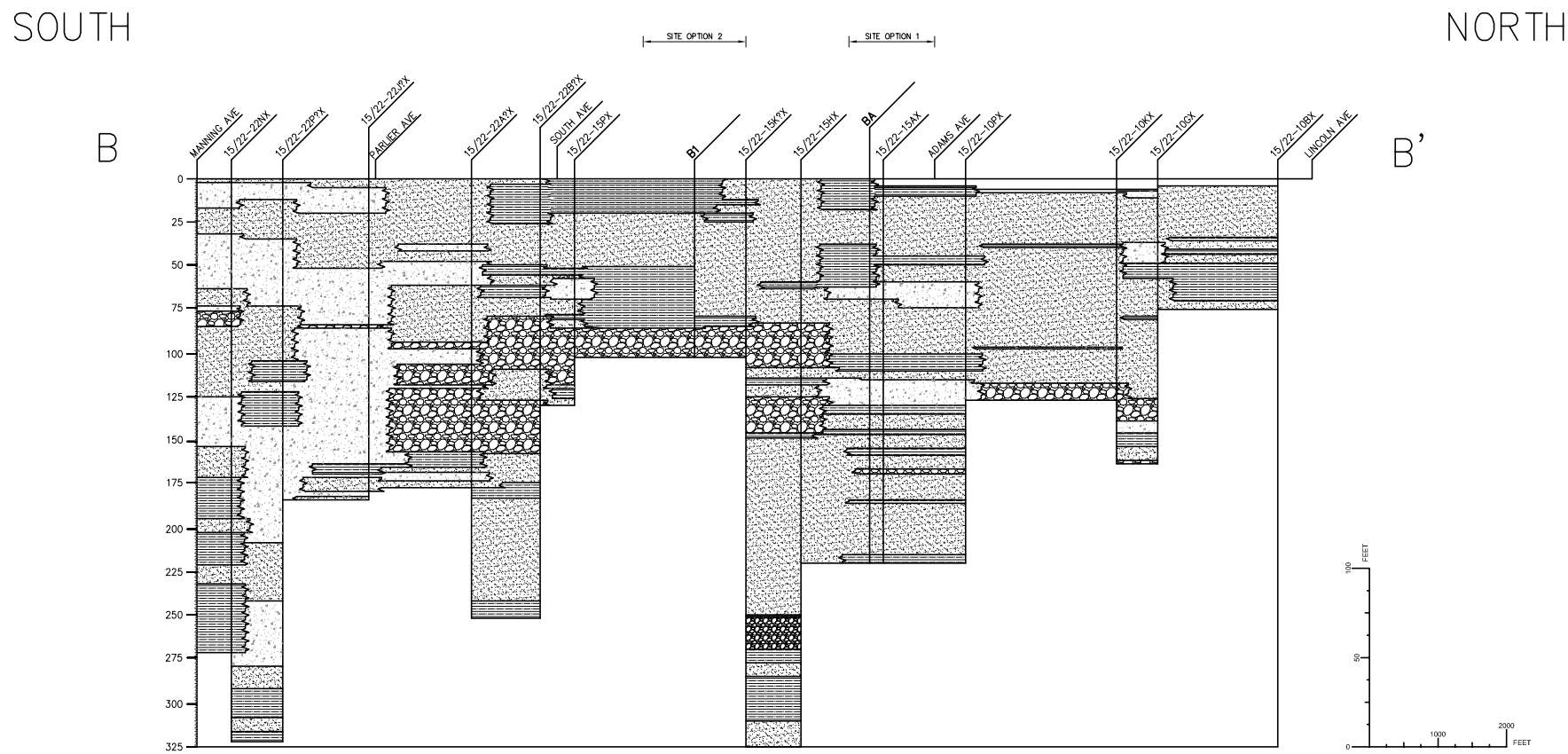
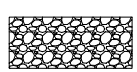


FINE GRAIN–
SILTS, SLAYS, AND VERY
FINE GRAIN SILTY SAND

COURSE GRAIN–
SANDS AND SILTY SANDS



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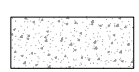

INTERBEDDED SAND, SILT,
CLAY, AND SAND, SILT,
AND CLAY MIXTURES

NOTE

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ADAMS AND ACADEMY
BASIN INVESTIGATION
CONSOLIDATED IRRIGATION DISTRICT
FRESNO COUNTY

GEOLOGIC CROSS SECTION B'–B'

DESIGN ENGINEER:

LICENSE NO:

DRAFTED BY:	CHECKED BY:
TLS	SWO

DATE: 5/13/2014

JOB NO: 20041101

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ORIGINAL SCALE SHOWN IS IN INCHES. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

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Consolidated Irrigation District
Max Potential Yield - Adams and Academy Site
(Includes Kings River Floodwater and Fish Flows)

MAXIMUM PROJECT DIVERSION =	40	CFS
TOTAL DIVERSION =	40	CFS
BASIN CAPACITY =	113	AF
BASIN INFILTRATION RATE =	0.5	FT/DAY
BASIN ACREAGE =	37.5	ACRES
BASIN WATER DEPTH =	3.0	FT
DAILY RECHARGE VOLUME =	18.75	AF/DAY
EXTRACTION CAPACITY =	11	AF/DAY

MONTHLY MAXIMUM DIVERSIONS IN ACRE-FEET (BASED ON FLOWRATE ABOVE)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Days	31	30	31	31	28	31	30	31	30	31	31	30	365
Project Diversion Vol.	2460	2381	2460	2460	2222	2460	2381	2460	2381	2460	2460	2381	28,966
Infiltration	581	563	581	581	525	581	563	581	563	581	581	563	6,844
Storage + Infiltration	694	675	694	694	638	694	675	694	675	694	694	675	8,194

	% KR Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Totals
1953-1954	78%	581	563	581	581	525	0	0	0	0	0	0	0	2,831
55	66%	0	0	0	0	0	0	0	0	0	0	0	0	0
56	153%	694	563	581	581	525	581	0	0	0	0	0	0	3,525
57	74%	0	0	0	0	0	0	0	0	0	0	0	0	0
58	149%	694	563	581	581	525	581	563	581	563	581	0	0	5,813
59	48%	0	0	0	0	0	0	0	0	0	0	0	0	0
60	42%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
61	34%	0	0	0	0	0	0	0	0	0	0	0	0	0
62	110%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
63	112%	0	0	0	0	0	0	0	0	0	0	0	0	0
64	52%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
65	117%	0	0	0	0	0	0	0	0	0	0	0	0	0
66	72%	694	563	0	694	525	0	0	0	0	0	0	0	2,475
67	196%	0	0	694	0	0	0	675	581	563	581	0	0	3,094
68	50%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
69	258%	0	0	0	694	525	581	563	581	563	581	581	0	4,669
70	78%	694	563	581	581	525	581	0	0	0	0	0	0	3,525
71	69%	0	0	0	0	0	0	0	0	0	0	0	0	0
72	50%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
73	125%	0	0	0	0	0	0	0	0	139	0	0	0	139
74	123%	694	563	581	581	525	0	675	581	563	0	0	0	4,763
75	93%	0	0	0	0	0	0	0	0	0	0	0	0	0
76	32%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
77	23%	0	0	0	0	0	0	0	0	0	0	0	0	0
78	203%	694	563	581	581	525	581	563	581	563	176	0	0	5,407
79	102%	0	0	0	0	397	218	563	581	563	337	0	0	2,658
80	179%	694	563	581	581	525	581	563	581	563	581	0	0	5,813
81	61%	0	0	0	0	0	0	0	0	0	0	0	0	0
82	183%	694	0	0	694	525	0	675	581	563	581	8	0	4,321
83	263%	0	675	581	581	525	581	563	581	563	581	581	563	6,375
84	116%	581	563	581	581	525	581	200	0	0	0	0	0	3,613
85	74%	0	0	0	0	0	0	0	0	0	0	0	0	0
86	192%	694	563	581	581	525	581	563	581	563	0	0	0	5,231
87	46%	0	0	0	0	0	0	0	0	0	0	0	0	0
88	49%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
89	53%	0	0	0	0	0	0	0	0	0	0	0	0	0
90	40%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
91	63%	0	0	0	0	0	0	0	0	0	0	0	0	0
92	41%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
93	150%	0	0	0	0	0	0	0	0	0	0	0	0	0
94	51%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
95	203%	0	0	0	0	0	694	563	581	563	581	581	0	3,563
96	123%	694	563	581	581	525	581	0	694	464	0	0	0	4,683
97	156%	0	0	694	581	525	581	0	0	0	0	0	0	2,381
98	182%	694	0	0	694	525	581	563	581	563	581	0	0	4,781
99	74%	0	675	581	0	0	0	0	0	0	0	0	0	1,256
00	90%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
01	59%	0	0	0	0	0	0	0	0	0	0	0	0	0
02	67%	694	563	581	581	525	0	0	0	0	0	0	0	2,944
03	84%	0	0	0	0	0	0	0	0	0	0	0	0	0
04	62%	0	0	0	0	0	0	0	0	0	0	0	0	0
05	149%	0	0	0	0	0	0	0	694	563	0	0	0	1,256
06	173%	45	45	45	45	45	45	675	581	563	45	45	45	2,224
07	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
08	72%	31	30	31	31	28	31	30	31	30	31	31	30	365
Total		17,195	14,363	15,414	16,801	15,170	7,963	7,993	8,975	8,508	5,239	1,828	638	120,084
Min		0	0	0	0	0	0	0	0	0	0	0	0	0
Max		694	675	694	694	525	694	675	694	563	581	581	563	6,375
Avg		313	261	280	305	276	145	145	163	155	95	33	12	2,183
***Avg**		324	258	280	293	266	128	130	147	139	77	13	1	2,005

*** Excludes 1969, 1983, 1998**

Losses	10%
Estimated Yield	1965
Estimated Yield*	1804

Estimation of Basin Site Yield
CID Adams and Academy Basin Site

Extraction Capacity =	11.0	AF/DAY
Days of Groundwater Extraction =	120	DAYS
Maximum Available in Storage, assumed to be 90% of maximum annual diversion capacity =	7,374	AF

	Same As	CVP % Water Year	Supply Available (1)	Delivery to Basin (2)	Direct Recharge (3)	Available for Extraction (4)	Storage at Start of Year (5)	Project Extraction (6)	Storage at End of Year (7)
1	55	66%	0	0	0	0	0	0	0
2	56	153%	139,502	3,525	353	3,173	3,173	0	3,173
3	57	74%	0	0	0	0	3,173	1,320	1,853
4	58	149%	206,415	5,813	581	5,231	7,084	1,320	5,764
5	59	48%	0	0	0	0	5,764	1,320	4,444
6	60	42%	0	2,944	294	2,649	7,093	1,320	5,773
7	61	34%	0	0	0	0	5,773	1,320	4,453
8	62	110%	0	2,944	294	2,649	7,103	1,320	5,783
9	63	112%	0	0	0	0	5,783	1,320	4,463
10	64	52%	0	2,944	294	2,649	7,112	1,320	5,792
11	65	117%	0	0	0	0	5,792	1,320	4,472
12	66	72%	0	2,475	248	2,228	6,699	1,320	5,379
13	67	196%	312,903	3,094	309	2,784	7,374	1,320	6,054
14	68	50%	0	2,944	294	2,649	7,374	1,320	6,054
15	69	258%	723,180	4,669	467	4,202	7,374	1,320	6,054
16	70	78%	95,091	3,525	353	3,173	7,374	1,320	6,054
17	71	69%	0	0	0	0	6,054	1,320	4,734
18	72	50%	0	2,944	294	2,649	7,374	1,320	6,054
19	73	125%	213	139	14	125	6,179	1,320	4,859
20	74	123%	124,621	4,763	476	4,286	7,374	1,320	6,054
21	75	93%	0	0	0	0	6,054	1,320	4,734
22	76	32%	0	2,944	294	2,649	7,374	1,320	6,054
23	77	23%	0	0	0	0	6,054	1,320	4,734
24	78	203%	435,352	5,407	541	4,867	7,374	1,320	6,054
25	79	102%	17,975	2,658	266	2,392	7,374	1,320	6,054
26	80	179%	626,812	5,813	581	5,231	7,374	1,320	6,054
27	81	61%	0	0	0	0	6,054	1,320	4,734
28	82	183%	316,636	4,321	432	3,888	7,374	1,320	6,054
29	83	263%	1,296,577	6,375	638	5,738	7,374	1,320	6,054
30	84	116%	559,373	3,613	361	3,251	7,374	1,320	6,054
31	85	74%	0	0	0	0	6,054	1,320	4,734
32	86	192%	497,057	5,231	523	4,708	7,374	1,320	6,054
33	87	46%	0	0	0	0	6,054	1,320	4,734
34	88	49%	0	2,944	294	2,649	7,374	1,320	6,054
35	89	53%	0	0	0	0	6,054	1,320	4,734
36	90	40%	0	2,944	294	2,649	7,374	1,320	6,054
37	91	63%	0	0	0	0	6,054	1,320	4,734
38	92	41%	0	2,944	294	2,649	7,374	1,320	6,054
39	93	150%	0	0	0	0	6,054	1,320	4,734
40	94	51%	0	2,944	294	2,649	7,374	1,320	6,054
41	95	203%	427,245	3,563	356	3,206	7,374	1,320	6,054
42	96	123%	103,527	4,683	468	4,214	7,374	1,320	6,054
43	97	156%	326,636	2,381	238	2,143	7,374	1,320	6,054
44	98	182%	593,379	4,781	478	4,303	7,374	1,320	6,054
45	99	74%	30,657	1,256	126	1,131	7,185	1,320	5,865
46	00	90%	0	2,944	294	2,649	7,374	1,320	6,054
47	01	59%	0	0	0	0	6,054	1,320	4,734
48	02	67%	0	2,944	294	2,649	7,374	1,320	6,054
49	03	84%	0	0	0	0	6,054	1,320	4,734
50	04	62%	0	0	0	0	4,734	1,320	3,414
Avg			136,663	2,268	227	2,041	6,525	1,267	5,257
Avg (8)				3,544	354	3,190	6,658	1,320	5,365
Total				113,408	11,341	102,067		63,360	

Notes:
1) Supply Available is the water supply for the project from MaxPotDiv1000Base-10PCT (10% of available flows).
2) Delivery to Basin is the amount of water diverted to the basin. Amount is limited by the available supply and is set not to exceed the Maximum Available in Storage minus the Storage at Year End.
3) Direct Recharge is the total annual amount of water that will be recharged in the project that will be left behind and not extracted. 10% of delivered.
4) Available for Extraction is the amount of water delivered to the basin minus the amount left behind for recharge.
5) Storage at Start of Year is the sum of the Storage at the End of the previous year and the Available for Extraction for the current year.
6) Project Extraction is the amount of water extracted based on the extraction capacity multiplied by the number of days considered for extraction.
7) Storage at Start of Year is the Available for Extraction at the start of the year minus the Project Extraction for that year.
8) Average of years when water is actually delivered to or extracted from basin.

Total "Project Extraction" for the 50-year period may be less than the total "Available for Extraction" if the sum of the annual "Storage at End of Year" and "Available for Extraction" exceeds the assumed "Maximum Available in Storage" amount.

Attachment 3c

Labor Compliance Plan Approved List

Fax: 559 327 9129
Approved: 1/27/2004

LCP ID: 2011.01084
Coachella Valley Unified School District
Elias Esqueda - Director of Facilities
83-733 Avenue 55
Thermal, CA 92274
Phone: N/A
Fax: N/A
Approved: 9/1/2011
LCP uses a Contract Administrator.

LCP ID: 2011.01098
Coalition for Urban/Rural Environmental Stewardship (CURES)
Parry Klassen - Executive Director
531-D North Alta Ave
Dinuba, CA 93618
Phone: 559-646-2225
Fax: 559-288-8125
Approved: 9/19/2012
LCP uses a Contract Administrator.

LCP ID: 2011.00824
COAST Community College District
Andrew Dunn - Vice Chancellor, Admin. Serv.
1370 Adams Ave
Costa Mesa, CA 92626
Phone: 714-438-4612
Fax: N/A
Approved: 9/1/2011
LCP uses a Contract Administrator.

LCP ID: 2013.01154
Coastal San Luis Resource Conservation District
Nicole Smith - Conservation Programs Manager
645 Main St STE F
Morro Bay, CA 93442
Phone: 805-772-4391
Fax: N/A
Approved: 4/4/2013
LCP uses a Contract Administrator.

LCP ID: 2010.00655
College of the Canyons (COC) The Santa Clarita Community College District
Jim Schrage - VP, Facilities Plannin
26455 Rockwell Canyon Rd
Snata Clarita, CA 91355
Phone: N/A
Fax: N/A
Approved: 10/12/2010
LCP uses a Contract Administrator.

LCP ID: 2011.00943
Colton Joint Unified School District
Owen Chang
851 South Mt. Vernon
Colton, CA 92324
Phone: 909-580-6643
Fax: N/A
Approved: 9/1/2011
LCP uses a Contract Administrator.

LCP ID: 2011.01092
Consolidated Irrigation District
Phillip Desatoff - General Manager
PO Box 209
Selma, CA 93662
Phone: (559) 896-1600
Fax: N/A
Approved: 9/1/2011

LCP ID: 2011.00765
Contra Costa County / East Contra Costa County Habitat Conservancy
Abigail Fateman - Department of Conservation & Dvlpmt.
651 Pine Street – North Wing, 4th Floor
Martinez, CA 94553
Phone: (925) 335-1272
Fax: N/A
Approved: 9/1/2011
LCP uses a Contract Administrator.

LCP ID: 2011.01013
Copper Mountain Community College
Dr. Joseph B. Olsen - VP Finance and Administration Scvs

Attachment 3d

Example Basin Groundwater Monitoring Plan Table of Contents

CONSOLIDATED IRRIGATION DISTRICT

SOUTH AND HIGHLAND BASIN PROJECT
GROUNDWATER MONITORING PLAN
(DWR Agreement No. 460-0009-713)

September 2013

Prepared by:
PROVOST & PRITCHARD CONSULTING GROUP
CLOVIS, CA

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CONSULTING GROUP
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1.1 Background 1
1.2 Overview 1
1.3 Monitoring Plan Goals and Objectives 2
1.4 Monitoring Plan Outline 2
2 Description of Monitoring Plan 4
2.1 Surface Water Measurements, Observations and Sampling 4
2.2 Groundwater Monitoring Plan 8
2.3 Reporting 12

APPENDIX A – Quality Assurance Project Plan

Part 1 Groundwater Sampling Procedures
Part 2 Water Level and Well Depth Measurements Procedures
Part 3 Basin Water Sampling Procedures
Part 4 Project Forms

APPENDIX B – Baseline Data

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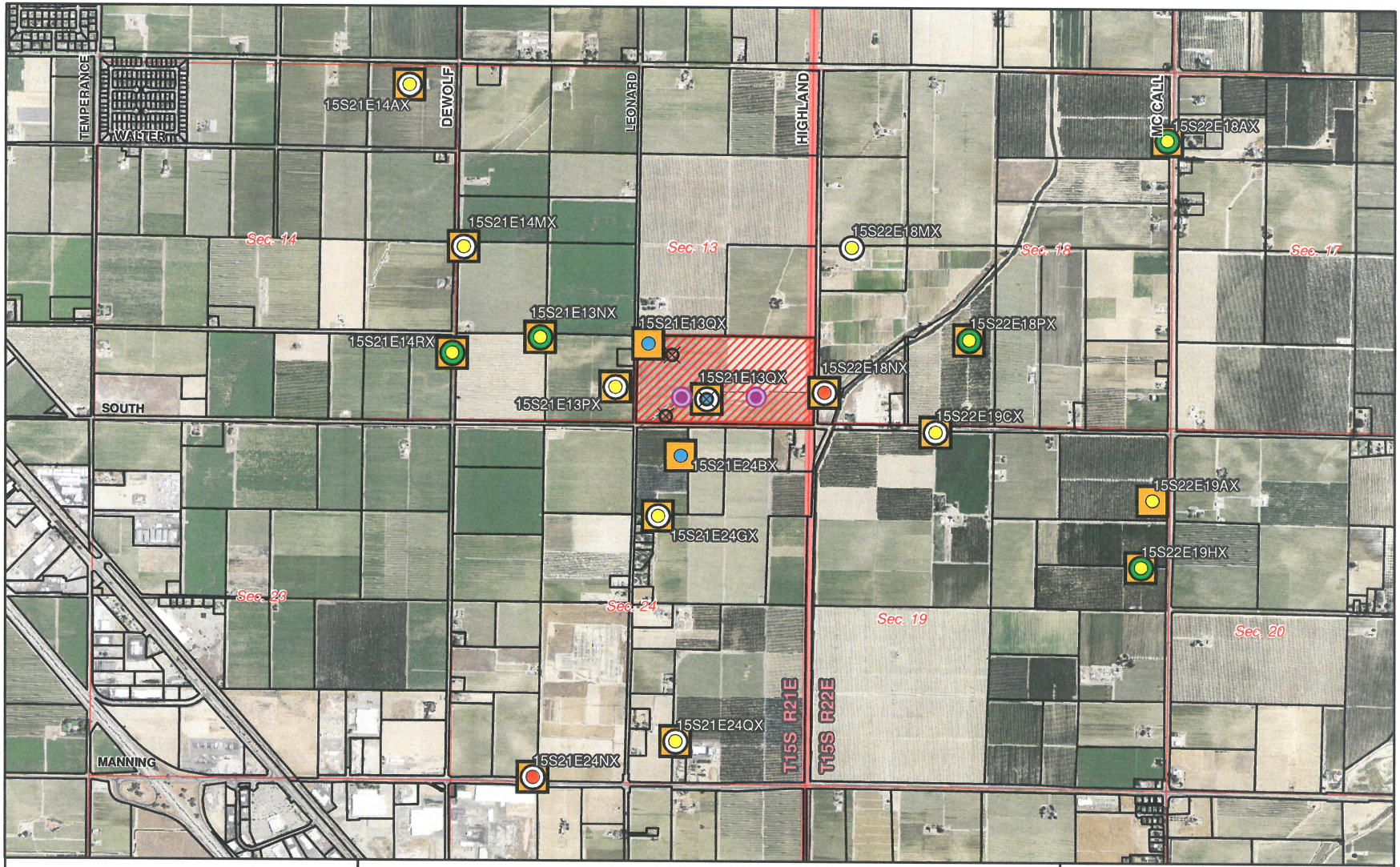
DRAFT



0 1,000 2,000 Feet

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Fresno, CA 93711-6162
(559) 449-2700

Legend

Proposed Basin
Fresno Co Parcel August 2012

Well Canvass
Existing Well Type
AG
DOMESTIC
EXISTING CID MONITOR

Proposed Sampling Type
Water Level
Water Level Unknown
Water Quality

Proposed New Well
Future Well Type
Monitoring
Recovery

Consolidated ID

SOUTH AND HIGHLAND BASIN PROJECT

Plate 2-1

Monitoring Well Network

9/13/2013 : G:\Clients\Consolidated ID-2004\20041002-South and Highland Basin\GIS\Map\Monitoring_Well_Network_8x11.mxd

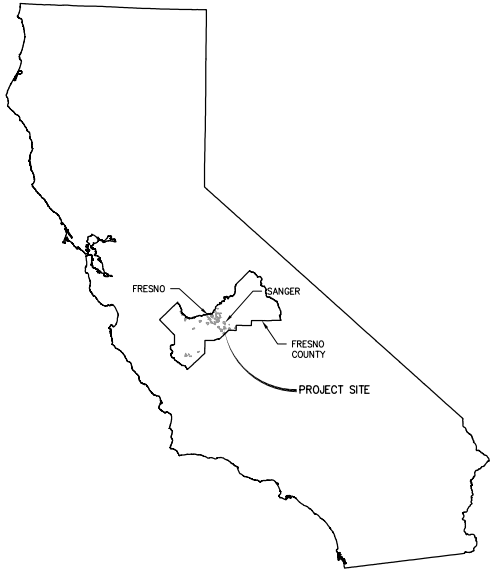
Attachment 3e

CID Preliminary Design Plans

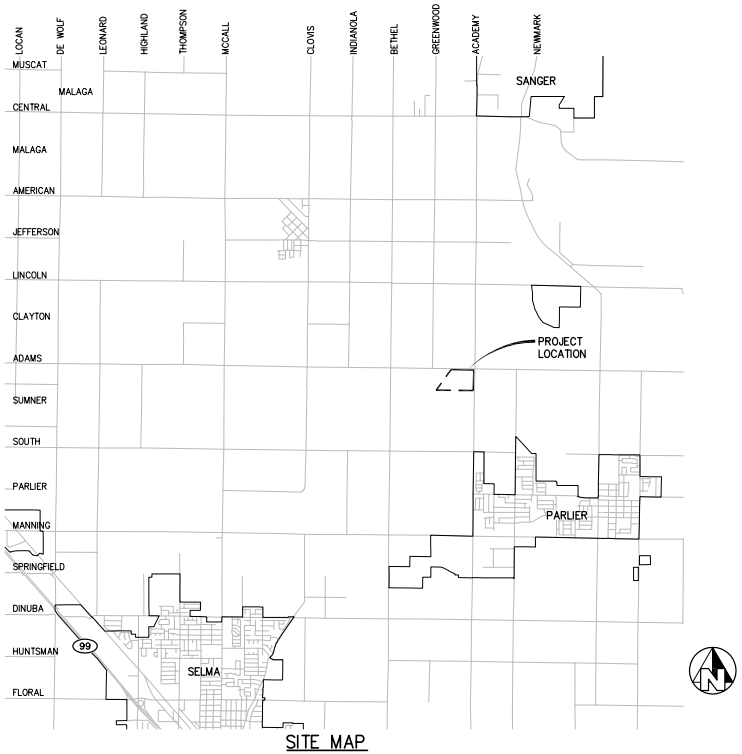
CONSOLIDATED IRRIGATION DISTRICT

FRESNO COUNTY, CA

ADAMS & ACADEMY BASIN PROJECT
EARTHWORK & STRUCTURES



VICINITY MAP



SITE MAP

GENERAL NOTES

1. CONSOLIDATED IRRIGATION DISTRICT (559-896-1660) SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK ON OR NEAR EXISTING DISTRICT FACILITIES.
2. USED MATERIAL, REJECTS, MISFITS, OR SECONDS, ETC. ARE NOT ACCEPTABLE FOR USE ON CONSOLIDATED IRRIGATION DISTRICT FACILITIES.
3. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THESE PLANS, AND THE PROJECT SPECIFICATIONS.
4. CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING FACILITIES PRIOR TO COMMENCING WORK. CALL UNDERGROUND SERVICE ALERT (USA) AT 8-1-1. CONTRACTOR SHALL MAKE ENGINEER AWARE OF ANY DISCREPANCIES.
5. ALL CAST-IN-PLACE CONCRETE STRUCTURES SHALL BE FORMED INSIDE AND OUT AND CONCRETE VIBRATED SUFFICIENTLY TO PROVIDE FOR SMOOTH SURFACED WALLS/FLOORS WITHOUT VOIDS AND HONEYCOMBS.
6. CONSOLIDATED IRRIGATION DISTRICT SHALL INSPECT ALL WORK PHASES ON IRRIGATION FACILITIES FOR CONFORMANCE TO PROJECT SPECIFICATIONS. REINFORCING SHALL NOT BE ENCASED IN CONCRETE WITHOUT PRIOR CONSOLIDATED IRRIGATION DISTRICT INSPECTIONS. LIKEWISE, CONCRETE SHALL NOT BE COVERED WITH EARTH PRIOR TO CONSOLIDATED IRRIGATION DISTRICT INSPECTION.
7. CONCRETE DESIGN MIX SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
8. ALL STEEL PIPE AND FITTINGS SHALL BE FURNISHED WITH A SHOP APPLIED HIGH SOLIDS EPOXY COATING ON THE INTERIOR AND EXTERIOR, UNLESS OTHERWISE INDICATED. ALL OTHER EXPOSED STEEL SHALL BE PAINTED WITH A PRE-TREATMENT PRIMER, AN UNDERCOAT AND A FINAL COAT OF PAINT IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
9. ALL NUTS, BOLTS, AND WASHERS USED TO SECURE UNDERGROUND FITTINGS SHALL BE STAINLESS STEEL. AFTER INSTALLATION, ALL STEEL HARDWARE SHALL BE COATED WITH A RUST PREVENTATIVE, WRAPPED WITH 4 MIL POLYETHYLENE SHEETING, AND SECURE WITH PVC TAPE.
10. THRUST RESTRAINTS TO BE PROVIDED AT ALL PIPELINE BENDS, WHETHER OR NOT SHOWN ON THE PLANS.
11. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY LAWS OF THE STATE OF CALIFORNIA AND CAL/OSHA STANDARDS.
12. TRENCH BACKFILL AND RESERVOIR EMBANKMENTS SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL REPORT CONTAINED IN THE SPECIFICATIONS.
13. CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OF ALL PIPELINE CRACKS, WHICH DEVELOP DURING CONSTRUCTION OF IMPROVEMENTS AFFECTING EXISTING FACILITIES.
14. CONCRETE BOX CULVERTS OR TURNOUT BOXES MAY BE PURCHASED FROM A PRE-APPROVED PRECAST MANUFACTURER. AT THE CONTRACTOR'S DISCRETION, THE CONTRACTOR MAY CONSTRUCT THESE STRUCTURES USING THE CAST-IN-PLACE METHOD IF SIGNED AND STAMPED DRAWINGS AND STRUCTURAL CALCULATIONS ARE SUBMITTED BY THE CONTRACTOR AND ARE APPROVED BY THE ENGINEER.
15. ALL EXCESS MATERIAL AND/OR DEBRIS SHALL BE REMOVED UPON COMPLETION OF INSTALLATION
16. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE DUST CONTROL AT ALL TIMES.

FRESNO COUNTY NOTES

1. AN ENCROACHMENT PERMIT IS REQUIRED FOR ANY WORK TO BE PERFORMED IN THE COUNTY OF FRESNO ROAD RIGHT-OF-WAY. CONTACT THE COUNTY PERMIT ENGINEER AT (559) 600-4247 TO OBTAIN PERMIT. IF AN ENCROACHMENT PERMIT HAS NOT BEEN OBTAINED WITHIN 12 MONTHS OF THE APPROVAL DATE OF THESE PLANS, ADDITIONAL REVIEW AND REVISIONS TO THE PLANS MAY BE REQUIRED BEFORE THE PERMIT IS ISSUED.
2. ALL CONTRACTORS ARE REQUIRED TO HAVE A PERFORMANCE BOND ON FILE WITH THE COUNTY OF FRESNO MAINTENANCE & OPERATIONS DIVISION PRIOR TO OBTAINING AN ENCROACHMENT PERMIT.

TOPOGRAPHY NOTE

TOPOGRAPHY SHOWN IS BASED ON FIELD SURVEYS PERFORMED BY PROVOST & PRITCHARD.

BOUNDARY NOTE

THE BOUNDARY/RIGHT-OF-WAY INFORMATION SHOWN ON THESE PLANS IS BASED UPON RECORD INFORMATION TIED TO PHYSICAL MONUMENTS.

PROJECT BENCHMARK

ALL ELEVATIONS SHOWN ARE BASED ON BENCHMARK "101" WITH A NAVD 88 ELEVATION.

SPECIAL NOTE

WHERE UNDERGROUND AND SURFACE STRUCTURES ARE SHOWN ON THE PLANS, THE LOCATIONS, DEPTH AND DIMENSIONS OF STRUCTURES ARE BELIEVED TO BE REASONABLY CORRECT, BUT ARE NOT GUARANTEED. SUCH STRUCTURES ARE SHOWN FOR THE INFORMATION OF THE CONTRACTOR, BUT INFORMATION SO GIVEN IS NOT TO BE CONSTRUED AS A REPRESENTATION THAT SUCH STRUCTURES WILL, IN ALL CASES, BE FOUND WHERE SHOWN, OR THAT THEY REPRESENT ALL OF THE STRUCTURES WHICH MAY BE ENCOUNTERED.CONSTRUCTION ARE ALSO THE SOLE AND EXCLUSIVE RESPONSIBILITIES OF THE CONTRACTOR ALONE.

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POWER LINES OVERHEAD

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CONSOLIDATED IRRIGATION DISTRICT
FRESNO COUNTY, CA

COVER SHEET

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A California Limited Partnership
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559/ 636-1166 FAX 559/ 636-1177
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JOB NO: 20041101	

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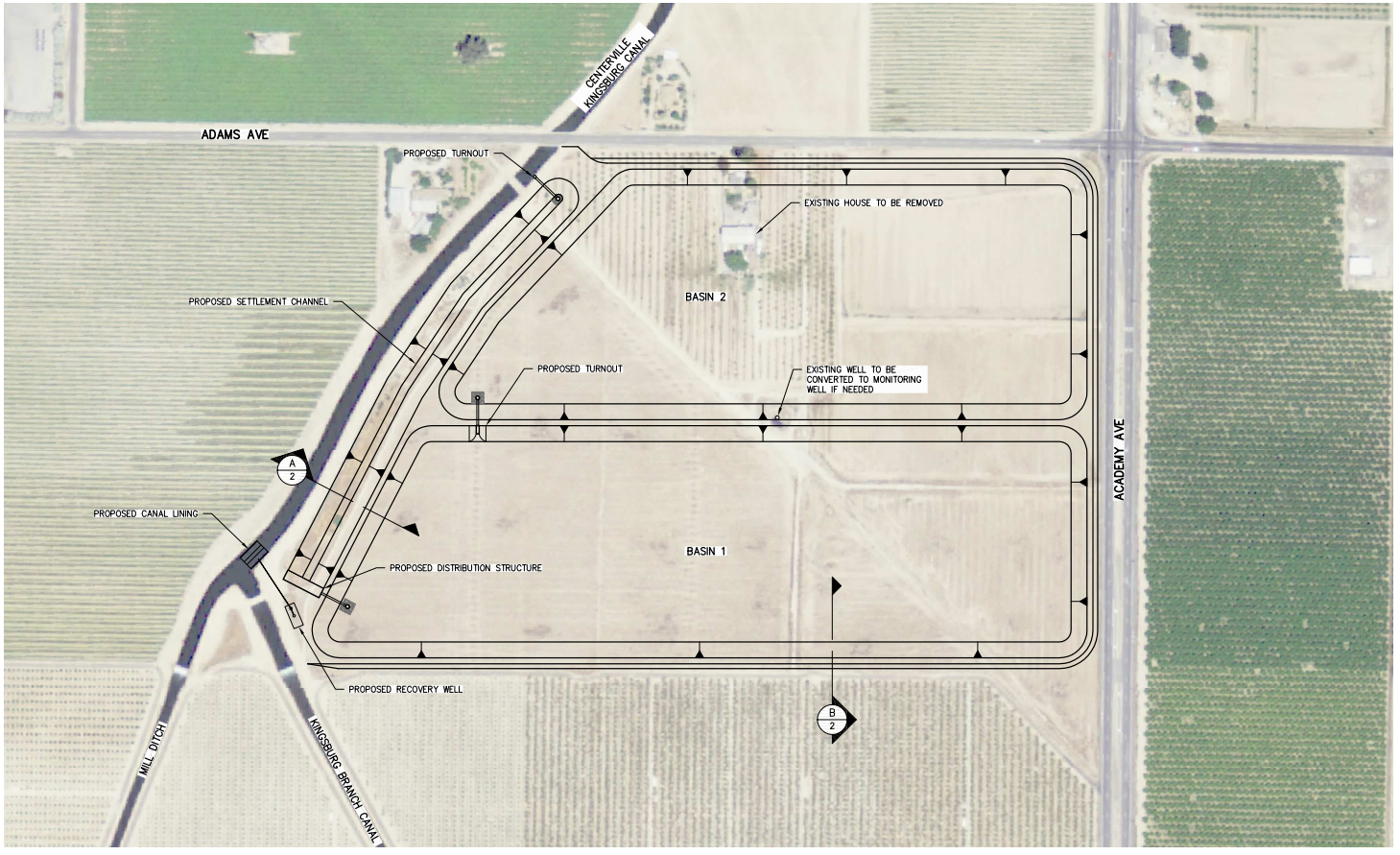

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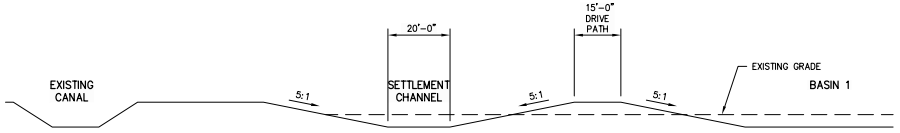

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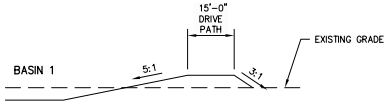

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FRESNO COUNTY, CA

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Professional Land Surveyors
Professional Planners
A California Corporation
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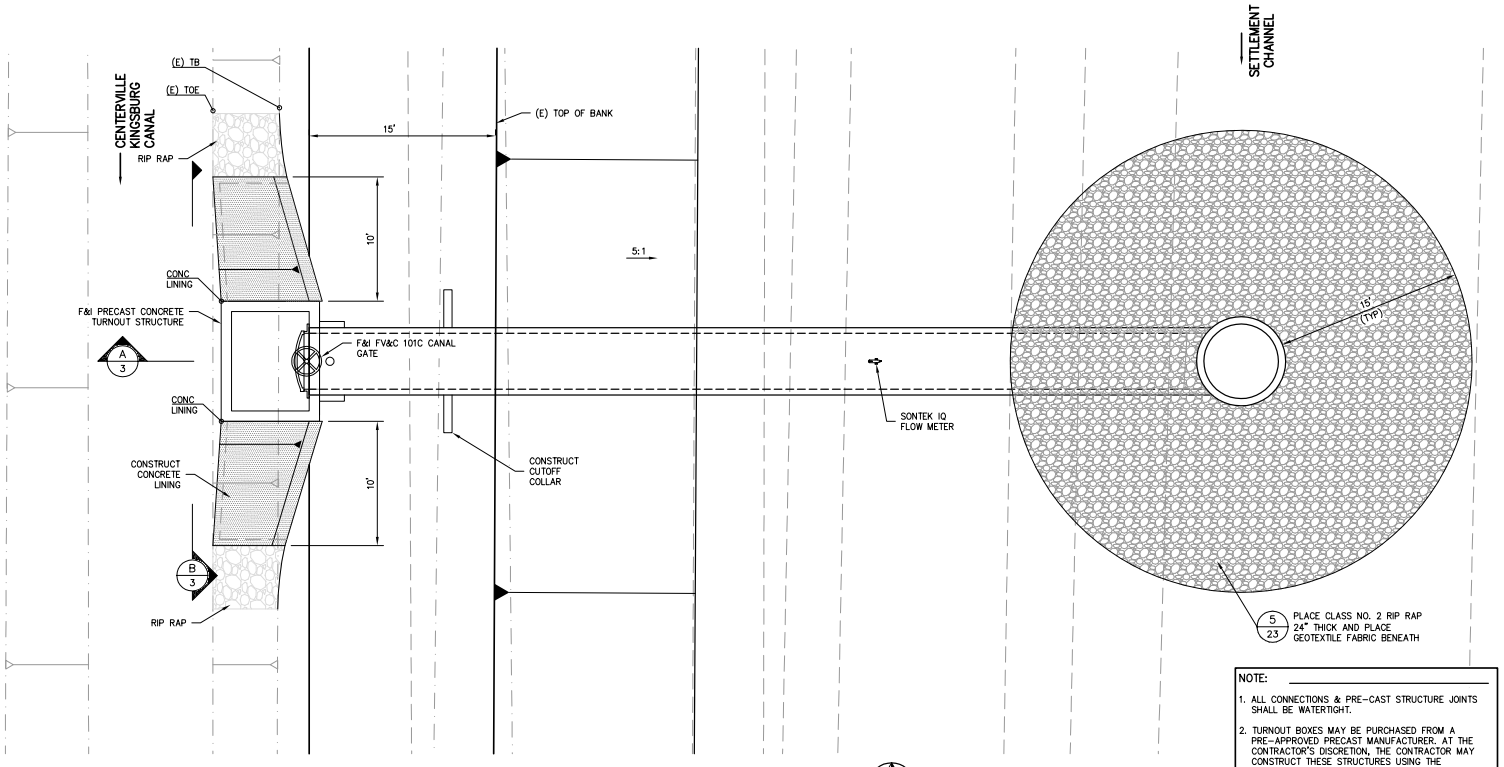

CANAL TURNOUT

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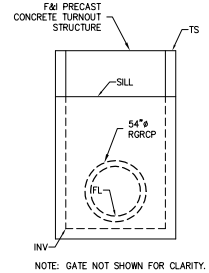
NOTE:

1. ALL CONNECTIONS & PRE-CAST STRUCTURE JOINTS SHALL BE WATERTIGHT.
2. TURNOUT BOXES MAY BE PURCHASED FROM A PRE-APPROVED PRECAST MANUFACTURER. AT THE CONTRACTOR'S DISCRETION, THE CONTRACTOR MAY CONSTRUCT THESE STRUCTURES USING THE CAST-IN-PLACE METHOD IF SIGNED AND STAMPED DRAWINGS AND STRUCTURAL CALCULATIONS ARE SUBMITTED BY THE CONTRACTOR AND ARE APPROVED BY THE ENGINEER.



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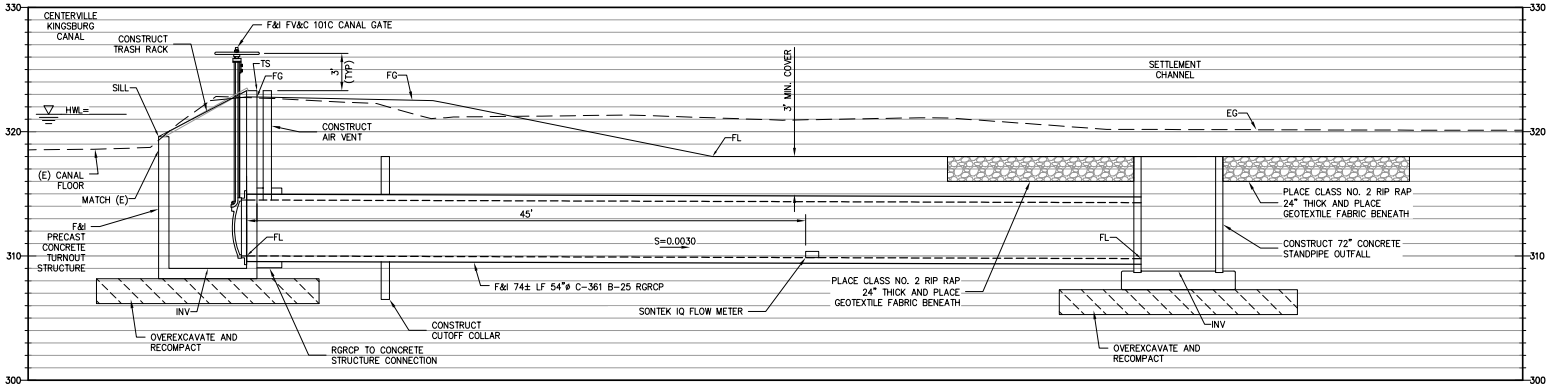

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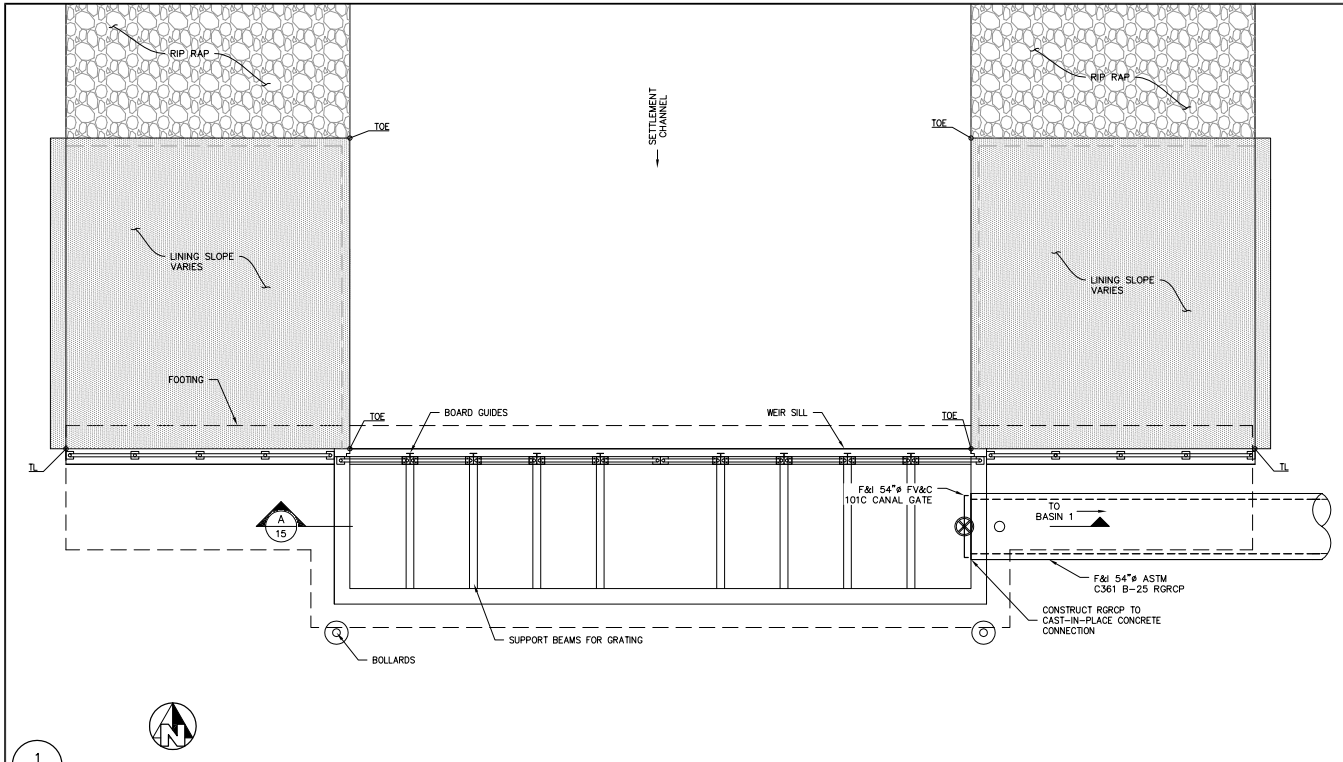

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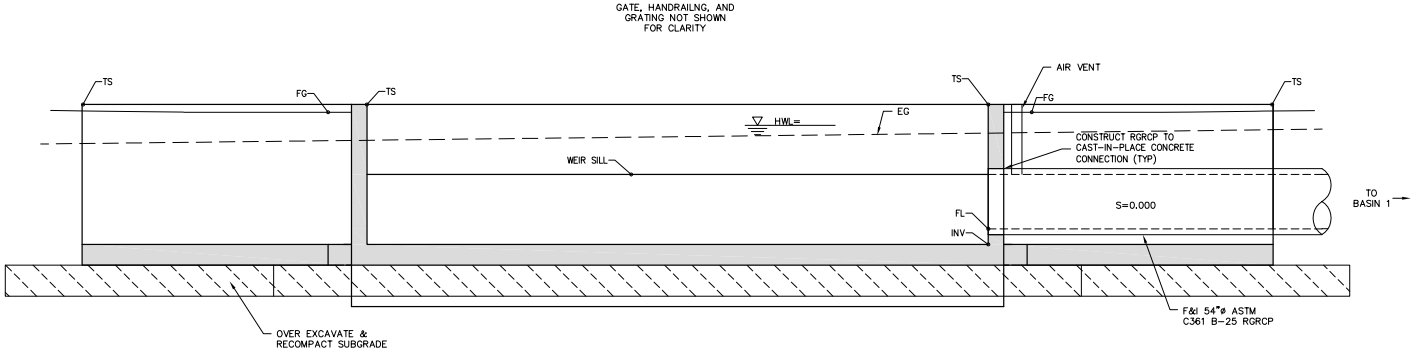

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DATE: 05-20-2014
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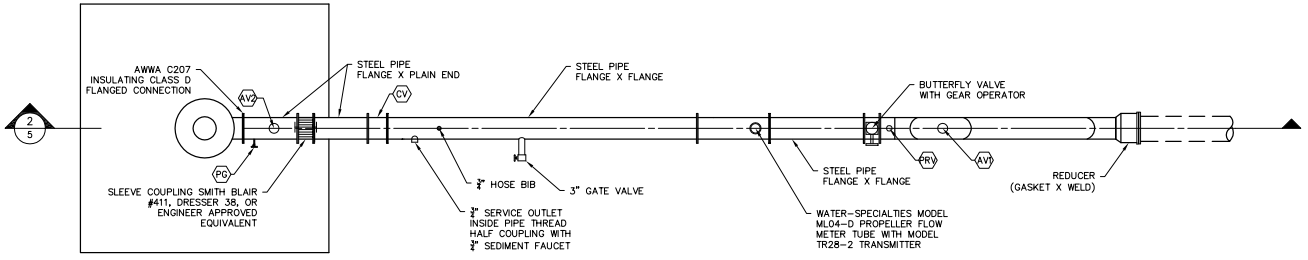

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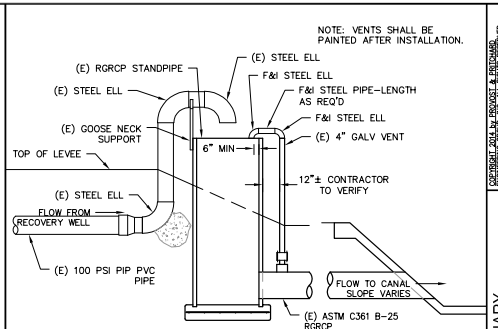
WELL HEAD IMPROVEMENTS



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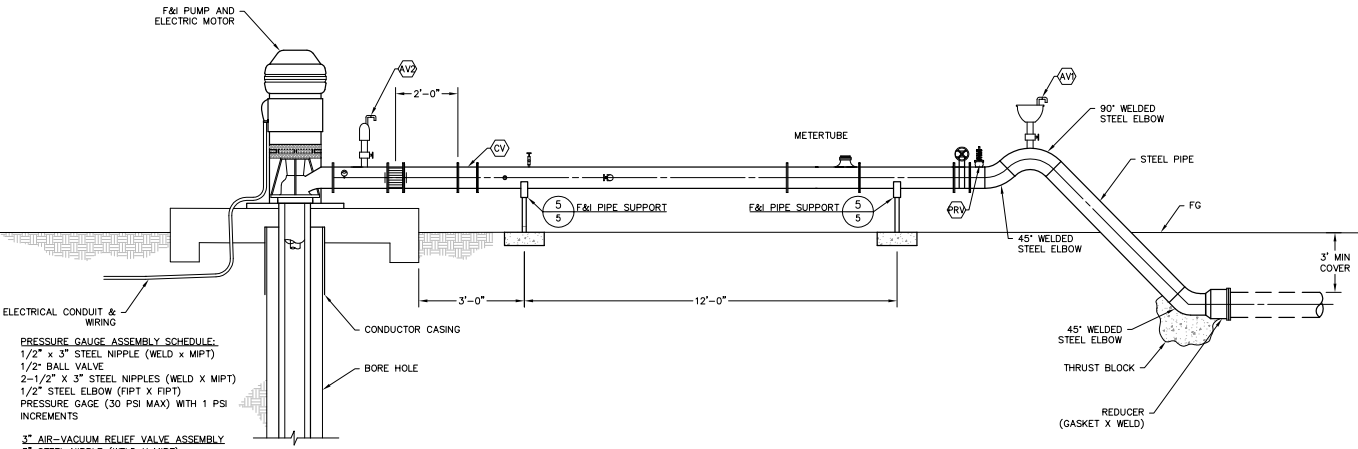

PG PRESSURE GAUGE ASSEMBLY SCHEDULE:
1/2" x 3" STEEL NIPPLE (WELD x MIPT)
1/2" BALL VALVE
2-1/2" X 3" STEEL NIPPLES (WELD X MIPT)
1/2" STEEL ELBOW (FIPT X FIPT)
PRESSURE GAGE (30 PSI MAX) WITH 1 PSI INCREMENTS

AV1 3" AIR-VACUUM RELIEF VALVE ASSEMBLY
3" STEEL NIPPLE (WELD X MIPT)
3" BRASS GATE VALVE (FRESNO VALVE MODEL 6210 OR ENGINEER APPROVED EQUAL)
3" X 6" STEEL NIPPLE (MIPT X MIPT)
3" APCO COMBINATION AIR VALVE
MODEL 147C (150 PSI) WITH 2-90° STREET ELBOWS

AV2 2" AIR-VACUUM RELIEF VALVE ASSEMBLY
2" STEEL NIPPLE (WELD X MIPT)
2" BRASS GATE VALVE (FRESNO VALVE MODEL 6210 OR ENGINEER APPROVED EQUAL)
2" X 6" STEEL NIPPLE (MIPT X MIPT)
2" APCO AIR RELEASE VALVE
MODEL 200A.2 (150 PSI) WITH 2-90° STREET ELBOWS

CV SPLIT DISC CHECK VALVE.
APCO SERIES 9000, CRANE DUO-CHECK II OR APPROVED EQUIVALENT

PRV FRESNO VALVES & CASTINGS
PR-600 4" PRESSURE RELIEF VALVE

NOT TO SCALE

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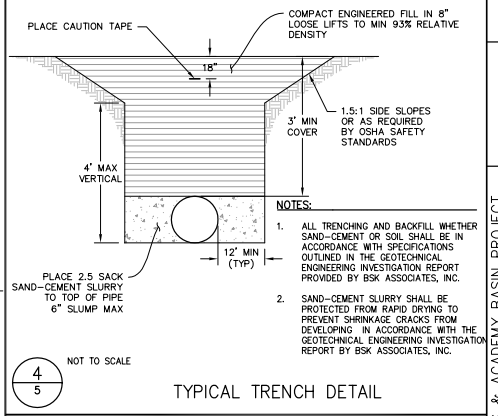
WELL HEAD SECTION

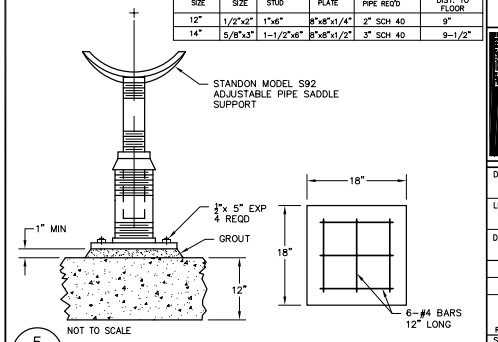


4/5

NOT TO SCALE

TYPICAL TRENCH DETAIL

DIMENSIONS (INCHES)					
PIPE SIZE	STRAP SIZE	THREAD STUD	BASE PLATE	EXTENSION PIPE REQ'D	MINIMUM DIST. TO FLOOR
12"	1/2"x2"	1"x6"	8"x8"x1/4"	2" SCH 40	9"
14"	5/8"x3"	1-1/2"x6"	8"x8"x1/2"	3" SCH 40	9-1/2"



5/5

NOT TO SCALE

PIPE SUPPORT

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PRELIMINARY
05-20-2014

No.	REVISION	BY	DATE

ADAMS & ACADEMY BASIN PROJECT
EARTHWORK & STRUCTURES
CONSOLIDATED IRRIGATION DISTRICT
FRESNO COUNTY, CA

WELLHEAD IMPROVEMENTS

PROVOST & PRITCHARD
Professional Civil Engineers
Professional Land Surveyors
Professional Planners
A California Limited Partnership
286 WEST CROMWELL AVENUE
FRESNO, CALIFORNIA 93711-6162
559/ 636-1166 FAX 559/ 636-1176
www.ppeng.com

DESIGN ENGINEER: ACC
LICENSE NO: 78242
DRAFTED BY: PPI
CHECKED BY:
DATE: 05-20-2014
JOB NO: 20041101
0 1"
ORIGINAL SCALE SHOWN IS IN INCHES. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET 5 OF 5

5/20/2014 8:36 AM G:\Clients\Consolidated ID-20041\20041101-New Rankins Site Investigation\DWG\SHEET\5 WELLHEAD IMPROVEMENTS.dwg -- David Sorrick

Attachment 3f

CID Preliminary Design Specifications

CONSOLIDATED IRRIGATION DISTRICT

CONTRACT DOCUMENTS

AND

SPECIFICATIONS

FOR THE

ADAMS & ACADEMY BASIN PROJECT
STRUCTURES & EARTHWORK CONTRACT

[DATE]

Prepared for:

Prepared by:

2505 ALLUVIAL AVENUE
CLOVIS, CALIFORNIA 93611-9166
559/326-1100 FAX 559/326-1090

Paste PE Stamp Here

SECTION 00005
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00101 Request for Bids
00305 Bidder's Checklist
00310 Bidder's Proposal
00313 List of Subcontractors
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00315 Preliminary Construction Schedule
00316 Non-Collusion Affidavit
00317 Public Contract Code Section 10162 Questionnaire on Disqualification
00318 Public Contract Code Section 10232 Statement on Contempt
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00329 Labor and Other Code Requirements Certificate
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00503 Guaranty
00505 Insurance Requirements
00600 Bond Requirements
00601 Bid Bond
00603 Performance Bond
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00675 Notice of Award
00680 Notice to Proceed
00700 General Conditions
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01018 Contractor's Responsibilities
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01026 Waiver and Release Submittals
01040 Coordination of Work
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NOT USED

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NOT USED

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NOT USED

DIVISION 9 - FINISHES

09900 Painting

DIVISION 10 - SPECIALTIES

NOT USED

DIVISION 11 - EQUIPMENT

11000 General Equipment Stipulations
11287 Water Control Gates

DIVISION 12 - FURNISHINGS

NOT USED

DIVISION 13 - SPECIAL CONSTRUCTION

NOT USED

DIVISION 14 - CONVEYING SYSTEMS

NOT USED

DIVISION 15 - MECHANICAL

NOT USED

DIVISION 16 – ELECTRICAL

NOT USED

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Continued

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A – Forms
B – Geotechnical Report
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SECTION 00100

INSTRUCTIONS TO BIDDERS

1. The Contract Documents include the Contract Agreement, the Request For Bids, the Instructions to Bidders, Bidding and Contract Documents - Division 0, General Requirements - Division 1, Technical Specifications - Division 2 through 16, the Bidder's Proposal as accepted (including the Bid Schedule), the Indemnity Agreement, the Non-collusion Affidavit, the required Bonds, Wage Scale (prevailing wages) the Plans, Profiles and Drawings, and any Addenda or Change Orders. Bidders must examine each of the Contract Documents, must visit the location of the Work and inform themselves of the conditions and make their own estimates of the facilities and difficulties attending the execution of the Work.

2. All Bids must be presented under sealed cover on the blank proposal form attached hereto. Bids shall be submitted in a sealed envelope with the name of the bidder, the name of the project and the statement **"Do Not Open Until The Time of Bid Opening."** Bids are required for the entire work described herein. Bids will be compared on the basis of the total of all Base Bid items in the Bid Schedule. Award, if made, will be based upon the lowest responsible bid submitted.

3. The party to whom the Contract is awarded must, at the time the Contract is awarded, possess a Class A Contractor's license valid in the State of California.

4. The Bidder shall include all of the items listed in Section 00305 – Bidder's Checklist in the Bid.

5. Each Bid must be accompanied by a Bid Security payable to the Owner for ten percent (10%) of the total amount of the base Bid. Bidders may provide the Bid Security in one of the following forms: A Bid Bond from an admitted California Surety, a cashier's check made payable to the Owner, a certified check made payable to the Owner, or cash. In no event will security submitted by unsuccessful Bidders be held by the Owner for more than 60 days from the time of award of the Contract. The Bid Security of the successful Bidder will be retained until the Performance Bond and the Payment Bond have been executed and approved, after which the Bid Security will be returned.

6. A Performance Bond and a Payment Bond in the amount of One Hundred percent (100%) each of the Contract Price, with a Corporate Surety approved by the Owner and the Engineer, will be required for the faithful performance of the Contract. The Bidder shall state in the proposal the name and address of the Surety or Sureties, with Certificate Numbers, who will sign the Bonds in case the Contract is awarded to him.

7. The party to whom the Contract is awarded will be required to execute the Contract Agreement, Performance Bond, and Payment Bond within ten (10) calendar days from the date when the written notice of the award of the Contract is mailed to the Bidder at the address given by him. In case of failure to do so, the Owner may at its option, consider that the Bidder has abandoned the Contract, in which case, the Bid Security accompanying the proposal shall become the property of the Owner and award may be made to another party. Corporations must furnish a certificate attesting to corporate existence and authority of officers to sign contracts and other documents.

8. **The Contractor shall begin Work within ten (10) calendar days** after receiving the Notice to Proceed by the Owner. The Contractor shall **complete all Work by December 31, 2013.** Time is of the essence and time of completion as specified will be enforced.

9. The Contractor's attention is called to Section 01013, addressing Liquidated Damages. It is agreed that the Contractor shall be liable for and shall pay to the Owner, as liquidated damages and not as a penalty, the listed sum per day for each calendar day of delay in completion of the Work from the date of completion as specified herein or in any written extension of time granted by the Owner. Liquidated damages will be deducted from final payments.

10. Before the award of the Contract, any Bidder may be required to furnish evidence satisfactory to the Owner and to the Engineer of the necessary facilities, ability, and pecuniary resources to fulfill the conditions of the Contract.

11. Prior to signing the Contract, the successful Bidder shall submit, on a form acceptable to the Owner and Engineer, an overall construction schedule for the project. This schedule shall start with the proposed date of signing the Contract, and the completion date shall be no later than the date specified in the Contract.

12. Bidders must satisfy themselves by personal examination of the location of the proposed work, and by examination of the Plans and Specifications as to the requirements of the Work and the accuracy of the estimate of the quantities of the work to be done, and shall not at any time after the submission of the Bid dispute or complain of such estimate nor assert that there was any misunderstanding in regard to the nature or amount of work to be done.

13. The Contract and the Specifications contain the provisions required for the construction of the project. No information obtained from any officer, agent, consultant, or employee of the Owner on any such matters shall in any way affect the risk or obligation assumed by the successful Bidder or relieve him from fulfilling any of the conditions of the Contract.

14. Proposals which are incomplete, unbalanced, conditional or obscure or which contain additions not called for, erasures, alterations or irregularities of any kind or which do not comply with the Notice to Bidders and Instruction to Bidders may be rejected at the option of the Owner.

15. A Bidder may withdraw any proposal he has submitted at any time prior to the hour set for the closing of the Bids provided the request for withdrawal is signed in a manner identical with the proposal being withdrawn. No withdrawal or modification will be permitted after the hour designated for closing the Bids. The Bidder's Proposal shall then hold firm for thirty (30) days to enable the Owner to complete pre-construction arrangements prior to issuing any Notice of Award.

16. Computation of quantities that will be the basis for payment estimates, both monthly and final, will be made by the Engineer.

17. If any person contemplating submitting a Bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans and Specifications or other Contract Documents, or finds discrepancies in, or omissions from the Plans and Specifications, he may submit to the Owner a written Request For Interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the Contract Documents will be made only by Addendum duly issued and a copy of such

Addendum will be mailed or delivered to each Bidder receiving a set of such Contract Documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents. No oral interpretations of any provision in the Contract Documents will be made to any Bidder.

18. No substitution of subcontractors by the Bidder will be allowed or permitted except in accordance with the provisions of Public Contract Code Sections 4107 and 4107.5.

19. The award of the contract, if made, will be within **thirty (30) calendar days** after the opening of bids, and satisfactory submittal of materials required prior to the formal award.

20. The Owner reserves the right to accept or reject any or all bids, to evaluate the bids submitted, and to award the Contract according to the proposal which best serves the interests of the Owner.

SECTION 00101

REQUEST FOR BIDS

In general, the Work consists of constructing Adams & Academy Basin groundwater banking facility. The work shall include excavation and construction of new reservoir embankments, construction of new concrete structures, conveyance canal, fencing, pipelines, and incidentals to complete the work described in the plans and specifications. The Work is part of the Owner's Adams & Academy Basin Project.

1. Sealed bids will be received by the Consolidated Irrigation District at the office of Provost & Pritchard Consulting Group prior to 2:00:00 p.m. (local time) on [DAY], [DATE], at 2505 Alluvial Ave., Clovis, CA 93611 (N/W corner of Temperance and Alluvial Avenues) and following said deadline all bids will be publicly opened and read. Bids shall be submitted in a sealed envelope with the name of the bidder, the name of the project and the statement **"Do Not Open Until the Time of Bid Opening."** Bids received after said deadline will be returned unopened to the bidder.

2. A **non-mandatory pre-bid meeting and project site tour** will be held on **[DAY], [DATE], at 10:00 AM** beginning at the northeast corner of Leonard and South Avenues. Contractors shall personally examine the project site prior to bidding.

3. A full set of Bidding Documents is available for examination at the office of Provost & Pritchard Consulting Group, 2505 Alluvial Ave. Clovis, CA 93611 (N/W corner of Temperance and Alluvial Avenues). Charges for documents will be as follows:

Complete base set of full-size Bidding Documents (specifications and full-size drawings)	$ 45.00
Mailing, if required	$ 15.00
PDF copy of Bidding Documents for download (Specifications and full-size drawings)	$ 15.00

Charges are not refundable, whether the documents are returned or not.

Bidding Documents may also be examined at 2255 Chandler Street, Selma, CA 93662.

4. Prevailing Wage Rates: Pursuant to Section 1770, California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of California Department of Industrial Relations. A copy of such prevailing rate is on file at the offices of the County of Fresno, which will be made available for examination during business hours to any party on request, or information is available on the Internet website for the California Department of Industrial Relations for the appropriate prevailing wage rates. The website address is: www.dir.ca.gov/DLSR/PWD.

5. Bidders shall furnish a Bid Security with their Bidder's Proposal in the amount of 10% of the base bid amount.

6. OWNER reserves the right after opening Bids to reject any or all Bids, to waive any informality or non-responsiveness in a Bid, or to make award to the lowest responsive, responsible Bidder and reject all other Bids, as it may best serve the interest of the OWNER.

7. Contractor's License Classification: In accordance with the provisions of California Public Contract Code, Section 3300, Consolidated Irrigation District has determined that CONTRACTOR shall possess a valid **Class A Contractor's License** at the time of Bid opening and for the duration of the contract. Failure to possess the specified license shall render the Bid as non-responsive and shall act as a bar to award of the contract to any Bidder not possessing said license at the time of Bid opening.

8. The Contractors' State License Board may be contacted at 9821 Business Park, Sacramento, CA 95827; PO Box 26000, Sacramento, CA 95826; (800) 321-2752.

THE CONSOLIDATED IRRIGATION DISTRICT

_____ _____

Phillip Desatoff, General Manager Date

SECTION 00305

BIDDER'S CHECKLIST

SUBMIT THIS BIDDER'S CHECKLIST WITH YOUR BID DOCUMENTS.

Bidders shall complete and submit all of the following documents for bids to be considered responsive.

REQUIRED

1. Section 00310 - Bidder's Proposal
2. Section 00313 - List of Subcontractors
3. Section 00314 - Material Suppliers Information
4. Section 00315 - Preliminary Construction Schedule
5. Section 00316 - Non-Collusion Affidavit
6. Section 00317 - Public Contract Code Section 10162 Questionnaire on Disqualification
7. Section 00318 - Public Contract Code 10232 Statement on Contempt
8. Section 00324 – Workers Compensation Certificate
9. Section 00329 – Labor and Other Code Requirements Certificate
10. Section 00340 - Pre-Qualification Statement
11. All issued Addenda
12. Bid Security attached to front of Proposal in the form of (check one):

☐ Certified Check ☐ Bidder's Bond (Section 00601)
☐ Cashier's Check ☐ Cash

SUBMITTED BY:

Name of Company _____
Contact Name _____
Address _____
City _____ State _____ Zip _____
Phone No. _____ Fax No. _____
Contractor's License No. _____ Class: _____

Documents required on the checklist but not included with your bid may render your bid non-responsive and ineligible for award. Bids received by the scheduled bid opening time will be opened and publicly read but are subject to verification that all required documents have been submitted.

END OF SECTION

SECTION 00310

BIDDER'S PROPOSAL

Consolidated Irrigation District, hereinafter called the Owner**.**

The work to be done and referred herein is in the Consolidated Irrigation District and in Fresno County, State of California.

The work is to be constructed in accordance with the Specifications and contract annexed hereto and also in accordance with the Standard Plans and Standard Specifications, 2006 Edition, of the State of California, Business and Transportation Agency, Department of Transportation.

The work to be done is shown on a set of Plans, entitled: "ADAMS & ACADEMY BASIN PROJECT EARTHWORK & STRUCTURES CONTRACT".

The undersigned, as bidder, declares that the only persons, or parties interested in this proposal as principals are those named herein, that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, in the annexed proposed form of contract, and the Plans therein referred to; and he proposes and agrees if this proposal is accepted, that he will contract with the Owner to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following unit prices, to-wit:

In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	**Addendum Date**
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and became familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

CONSOLIDATED IRRIGATION DISTRICT
ADAMS & ACADEMY BASIN PROJECT
EARTHWORK & STRUCTURES CONTRACT

BID SCHEDULE

Item	Description	Quantity	Unit	Unit Price	Total
BASE BID					
1.	Mobilization/Demobilization, Bonds, Insurance, and Permits	LUMP SUM			$_____
2.	Worker Protection	LUMP SUM			$_____
3.	Miscellaneous Facilities and Operations	LUMP SUM			$_____
4.	SWPPP BMP Installation and Maintenance	LUMP SUM			$_____
5.	Clearing and Grubbing	69	AC	$_____	$_____
6.	Abandon and Destroy Existing On-Site Well	LUMP SUM			$_____
7.	Construct Levee Keyways (F)	79,800	CY	$_____	$_____
8.	Construct Reservoir Levees (F)	55,100	CY	$_____	$_____
9.	Construct Kirby Ditch Turnout Structure	1	LS	$_____	$_____
10.	Construct Project Distribution Structure	1	LS	$_____	$_____
11.	Construct Basin Staff Gauge	3	EA	$_____	$_____
12.	Construct Stilling Well	1	EA	$_____	$_____
13.	Construct Well Discharge Standpipes and Pipelines	LUMP SUM			$_____
14.	Construct Concrete Canal Lining at Well Discharges	3,140	SF	$_____	$_____
15.	Construct Box Culvert Canal Crossing	LUMP SUM			$_____
16.	Furnish and Install Perimeter Wire Fence	7,448	LF	$_____	$_____
17.	Furnish and Install Single 16’ Drive Gates	3	EA	$_____	$_____

Item	Description	Quantity	Unit	Unit Price	Total
18.	Furnish and Install Double 16' Drive Gates	3	EA	$_____	$_____
19.	Furnish & Install Class II Aggregate Base 3" Driveway Surface (F)	211	TN	$_____	$_____
				TOTAL BASE BID	$_____

ADDITIVE BID ITEMS					
20.	Furnish & Install Class II Aggregate Base 3" Levee Road Surface (F)	4,480	TN	$_____	$_____
21.	Construct Perimeter Irrigation Ditches	8,700	CY	$_____	$_____
22.	Construct Perimeter Irrigation Ditch Turnouts & Pipe Culverts	1	LS	$_____	$_____
				TOTAL ADDITIVE BID	$_____

Indicate the percentage of the dollar amount of the Work that the Bidder proposes to perform with its own forces: _____%. Less than 50% shall render the bid nonresponsive.

ABBREVIATIONS USED IN ENGINEER'S ESTIMATE AND PROPOSAL SHEETS

CF	-	Cubic Foot (Feet)	SACK(S)	-	Sack(s)
CY	-	Cubic Yard(s)	STAYD	-	Station Yard(s)
EA	-	Each	SF	-	Square Foot (Feet)
LB(s)	-	Pound(s)	SY	-	Square Yard(s)
LF	-	Linear Foot (Feet)	TN	-	Ton(s)
LS	-	Lump Sum	MGAL	-	Million Gallon(s)
(F)	-	Final Pay Quantity*	(S)	-	Specialty Item
(S-F)	-	Specialty Item and Final Pay Quantity*	(F&I)	-	Furnish and Install

Bids are required for the entire work. Bids will be compared on the basis indicated in the Notice to Bidders. The project will be awarded to the lowest responsible bidder.

The bidder shall set forth for each item of work, in clearly legible figures, total for the item in the respective spaces provided for this purpose. The "Total" column shall be the sum of all unit prices bid. If the total cost of any item, or the total bid, is inconsistent with the Unit Cost, or the sum of the Unit Costs, the Unit Costs shall prevail.

If this proposal shall be accepted and the undersigned shall fail to contract, as aforesaid, and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the Owner, within ten (10) days not including Sundays and legal holidays, after the bidder has received notice of award of the contract, the Owner, at its option, may determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of the Owner.

Accompanying this proposal is security * in amount equal to at least ten percent (10%) of the total amount of the base bid.

BIDDER: _____

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

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, 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 name in full.

_____

_____

_____

Licensed in accordance with an act providing for the registration of Contractors,
Class _____ License No._____

By_____ _____
Signature of Bidder Dated

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the seal and signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS:_____

MAILING ADDRESS:_____

BUSINESS PHONE:_____

CONTACT NAME: _____

CONTACT EMAIL: _____

END OF SECTION

SECTION 00313

LIST OF SUBCONTRACTORS

The bidder shall hereby designate the names and business addresses of each subcontractor who will perform work or labor on the Project. Please fill out as completely as possible when submitting your bid. Use subcontractor's business name as registered with the License Board.

1. State the name and place of business of each subcontractor licensed by the State who will (i) perform work or labor or render service to the Bidder for the Project contemplated in the Plans and Specifications or (ii) specially fabricate and install a portion of the work or improvement according to the detailed Drawings contained in the Plans and Specifications, in an amount in excess of one-half of one percent of the Bidder's total Bid.

2. State the portion of the Work that will be done by each subcontractor. List only one subcontractor for each portion as defined by the Bid.

3. Work not listed as subcontracted shall be performed by Bidder.

4. Subcontractors may not be substituted without cause. Subcontractor substitution procedure will be in accordance with State Contracts Code Section 4100, et seq.

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SECTION 00314

MATERIAL SUPPLIERS INFORMATION

The Bidder shall indicate opposite each item of equipment or material listed below the name of the manufacturer or supplier of the equipment or material proposed to be furnished under the Bid.

	Equipment/Material	Manufacturer/Supplier
1.	ASTM C-361 RGRCP	
2.	Precast Turnout Box (54" Ø)	
3.	Precast Turnout Boxes (12" Ø)	
4.	Precast Box Culvert	
5.	Canal Gate (54" Ø)	
6.	Canal Gates (42" Ø)	
7.	Canal Gates (12" Ø)	
8.	Drive Gates	
9.		
10.		
11.		
12.		
13.		
14.		

Awarding of a contract under this bid will not imply approval by the Owner of the manufacturers of suppliers listed by the Bidder. No substitution will be permitted after award of contract unless equipment of material of the listed manufacturer of supplier cannot meet the specifications.

SECTION 00315

PRELIMINARY CONSTRUCTION SCHEDULE

The Contractor shall submit with his Bid a preliminary construction schedule for the Owner's review, including important milestones, assuming the Notice to Proceed is issued on September 27, 2013. The Preliminary Construction Schedule shall be in sufficient detail to show the chronological relationship of all activities of the project, including, but not limited to, estimated starting and completion dates of various activities, procurement of materials and scheduling of equipment. The Preliminary Construction Schedule shall reflect completion of all work under the contract within the specified time and in accordance with the Specifications. The Preliminary Construction Schedule will be used by the Owner in helping determine award of the contract.

DATE(S)	WORK ITEM
September 27, 2013	**Notice to Proceed**

SECTION 00316

NON-COLLUSION AFFIDAVIT

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

PROJECT: CONSOLIDATED IRRIGATION DISTRICT

ADAMS & ACADEMY BASIN PROJECT, EARTHWORK & STRUCTURES CONTRACT

TO: The Board of Directors, Consolidated Irrigation District

_____
(Name)

being first duly sworn, deposes and says that he or she is

_____
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

of _____ .
(Bidding Entity)

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.

(Title 23 United States Code Section 112)

(Calif. Public Contract Code Section 7106; Stats. 1988, c. 1548, Section 1.)

Signed: _____

_____ _____
Name Date

SECTION 00317

PUBLIC CONTRACT CODE SECTION 10162
QUESTIONNAIRE ON DISQUALIFICATION

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is Yes, explain the circumstances in the space below:

_____

_____

_____

NOTE: The above Questionnaire is part of the Proposal.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

By_____ _____
Signature of Bidder Date

SECTION 00318

PUBLIC CONTRACT SECTION 10232
STATEMENT ON CONTEMPT

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

In accordance with Public Contract Code Section 10232, the Contractor, hereby states, under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

By_____ _____
Signature of Bidder Date

SECTION 00324

WORKER'S COMPENSATION CERTIFICATION

STATE OF CALIFORNIA)
(SS
COUNTY OF FRESNO)

The undersigned is aware of the provisions of Section 3700 of the Labor Code of the State of California which require every employer to be insured against liability of worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and the undersigned will comply with such provisions, and will require all subcontractors to comply with such provisions, before commencing the performance of the work of this Contract.

_____
Date:

_____
Contractor Signature

END OF SECTION

SECTION 00329

LABOR AND OTHER CODE REQUIREMENTS CERTIFICATE

In accordance with California Labor Code 1771.5, this project includes a Labor Compliance Program (LCP) that authorizes the establishment of an LCP to enforce prevailing wage requirements on public works construction projects. For questions or assistance concerning the Program, contact the District's Labor Compliance Officer, Richard Perez, Labor Consultants of California, P. O. Box 1875 Hanford, CA. 93232; telephone number: (559) 584-7499 or by email at laborc@cnetech.com. A copy of the approved LCP is included in the Appendix. The project is located in Fresno County.

1 - STATE WAGE RATE CLAUSES

Pursuant to Sections 1720 et seq., and 1770 et seq., of the California Labor Code, the successful bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Prevailing wage schedules for Fresno County are available from the Department of Industrial Relations - Division of Labor Statistics and Research via the Internet at www.dir.ca.gov. A prevailing wage scale is also on file in the office of the Consolidated Irrigation District and copies may be obtained upon request.

The successful bidder intending to use a craft or classification not shown on the prevailing rate determinations may be required to pay the rate of the craft or classification most closely related to it.

Pursuant to the provisions of California Labor Code, section 1773, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate of holiday and overtime work in the locality in which the Work is to be performed for each craft, classification or type of worker needed to execute the Work. Copies of the prevailing rate of per diem wages are on file at the Owner's principal office and shall be made available to any interested party on request. The Contractor shall cause a copy of the Director's determination of the prevailing rate of per diem wages to be posted at a prominent place at the site of the Work. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid and will not under any circumstances be considered as the basis of claim against the Owner. The Contractor shall comply with Labor Code section 1774 and 1775. In accordance with Labor Code section 1775, the Contractor shall forfeit as a penalty to the Owner not more than $50 for each Day or portion thereof for each worker paid less than the prevailing rates as determined by the director for the Work or craft in which the worker is employed for any Work or by any subcontractor under the Contractor. The amount of this penalty shall be determined by the Director based on the factors set forth in section 1775. In addition to such penalty, the difference between such prevailing wage rates and the amount paid to each workman for each Day or portion thereof for each workman was paid less than the prevailing wage rate shall be paid to each worker by the Contractor.

2 - LABOR CODE SECTION 1776 COMPLETE PAYROLL RECORDS; CERTIFIED AND AVAILABLE

(A) Each contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked

each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct.

(2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

(B) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public may not be given access to the records at the principal office of the contractor.

(C) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.

(D) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

(E) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address, and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (29 U.S.C. Sec. 175a) shall be marked or obliterated

only to prevent disclosure of an individual's name and social security number. A joint labor management committee may maintain an action in a court of competent jurisdiction against an employer who fails to comply with Section 1774. The court may award restitution to an employee for unpaid wages and may award the joint labor management committee reasonable attorney's fees and costs incurred in maintaining the action. An action under this subdivision may not be based on the employer's misclassification of the craft of a worker on its certified payroll records. Nothing in this subdivision limits any other available remedies for a violation of this chapter.

(F) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city, and county, and shall, within five working days, provide a notice of a change of location and address.

(G) The contractor or subcontractor has 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

(H) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section.

(I) The director shall adopt rules consistent with the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code) and the Information Practices Act of 1977 (Title 1.8 (commencing with Section 1798) of Part 4 of Division 3 of the Civil Code) governing the release of these records, including the establishment of reasonable fees to be charged for reproducing copies of records required by this section.

3 - LABOR CODE SECTION 1777.5
EMPLOYMENT OF PROPERLY REGISTERED APPRENTICES

(A) Nothing in this chapter shall prevent the employment of properly registered apprentices upon public works.

(B) Every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered.

(C) Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public

works. The employment and training of each apprentice shall be in accordance with either of the following:

(1) The apprenticeship standards and apprentice agreements under which he or she is training.

(2) The rules and regulations of the California Apprenticeship Council.

(D) When the contractor to whom the contract is awarded by the state or any political subdivision, in performing any of the work under the contract, employs workers in any apprenticeable craft or trade, the contractor shall employ apprentices in at least the ratio set forth in this section and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the contractor, shall arrange for the dispatch of apprentices to the contractor. A contractor covered by an apprenticeship program's standards shall not be required to submit any additional application in order to include additional public works contracts under that program. "Apprenticeable craft or trade," as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the California Apprenticeship Council. As used in this section, "contractor" includes any subcontractor under a contractor who performs any public works not excluded by subdivision (o).

(E) Prior to commencing work on a contract for public works, every contractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the public work. The information submitted shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the awarding body if requested by the awarding body. Within 60 days after concluding work on the contract, each contractor and subcontractor shall submit to the awarding body, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the contract. The information under this subdivision shall be public. The apprenticeship programs shall retain this information for 12 months.

(F) The apprenticeship program that can supply apprentices to the area of the site of the public work shall ensure equal employment and affirmative action in apprenticeship for women and minorities.

(G) The ratio of work performed by apprentices to journeymen employed in a particular craft or trade on the public work may be no higher than the ratio stipulated in the apprenticeship standards under which the apprenticeship program operates where the contractor agrees to be bound by those standards, but, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentice work for every five hours of journeyman work.

(H) This ratio of apprentice work to journeyman work shall apply during any day or portion of a day when any journeyman is employed at the jobsite and shall be computed on the basis of the hours worked during the day by journeymen so employed. Any work performed by a journeyman in excess of eight hours per day or 40 hours per week shall not be used to calculate the ratio. The contractor shall employ apprentices for the number of hours computed as above before the end of the contract or, in the case of a subcontractor, before the end of the subcontract. However, the contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the jobsite. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Chief of the Division of Apprenticeship Standards, upon application of an apprenticeship program, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification.

(I) A contractor covered by this section that has agreed to be covered by an apprenticeship program's standards upon the issuance of the approval certificate, or that has been previously approved for an apprenticeship program in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the applicable apprenticeship standards, but in no event less than the 1-to-5 ratio required by subdivision (g).

(J) Upon proper showing by a contractor that he or she employs apprentices in a particular craft or trade in the state on all of his or her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by journeymen, the Chief of the Division of Apprenticeship Standards may grant a certificate exempting the contractor from the 1-to-5 hourly ratio, as set forth in this section for that craft or trade.

(K) An apprenticeship program has the discretion to grant to a participating contractor or contractor association a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:

(1) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.

(2) The number of apprentices in training in the area exceeds a ratio of 1 to 5.

(3) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis.

(4) Assignment of an apprentice to any work performed under a public works contract would create a condition that would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large, or the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.

(L) When an exemption is granted pursuant to subdivision (k) to an organization that represents contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member

contractors shall not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.

(M)(1) A contractor to whom a contract is awarded, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the public works site. A contractor may take as a credit for payments to the council any amounts paid by the contractor to an approved apprenticeship program that can supply apprentices to the site of the public works project. The contractor may add the amount of the contributions in computing his or her bid for the contract.

(2) At the conclusion of the 2002-03 fiscal year and each fiscal year thereafter, the California Apprenticeship Council shall distribute training contributions received by the council under this subdivision, less the expenses of the Division of Apprenticeship Standards for administering this subdivision, by making grants to approved apprenticeship programs for the purpose of training apprentices. The funds shall be distributed as follows:

(a) If there is an approved multiemployer apprenticeship program serving the same craft or trade and geographic area for which the training contributions were made to the council, a grant to that program shall be made.

(b) If there are two or more approved multiemployer apprenticeship programs serving the same craft or trade and geographic area for which the training contributions were made to the council, the grant shall be divided among those programs based on the number of apprentices registered in each program.

(c) All training contributions not distributed under subparagraphs (A) and (B) shall be used to defray the future expenses of the Division of Apprenticeship Standards.

4 - LABOR CODE SECTION 1810
DEFINITION: A LEGAL DAY'S WORK

Eight hours labor constitutes a legal day's work in all cases where the same is performed under the authority of any law of this State, or under the direction, or control, or by the authority of any officer of this State acting in his official capacity, or under the direction, or control or by the authority of any municipal corporation, or of any officer thereof. A stipulation to that effect shall be made a part of all contracts to which the State or any municipal corporation therein is a party.

5 - LABOR CODE SECTION 1813
PENALTY FOR OVERTIME ON ANY PUBLIC WORK CONTRACT

The contractor or subcontractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of this article. In awarding any contract for public work, the awarding body shall cause to be inserted in

the contract a stipulation to this effect. The awarding body shall take cognizance of all violations of this article committed in the course of the execution of the contract, and shall report them to the Division of Labor Standards Enforcement.

6 - LABOR CODE SECTION 1815
MINIMUM OVERTIME PAY

Notwithstanding the provisions of Sections 1810 to 1814, inclusive, of the Labor code, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 1/2 times the basic rate of pay.

7 - LABOR CODE SECTION 1860
CONTRACT PROVISION

The awarding body shall cause to be inserted in every public works contract a clause providing that, in accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees.

8 - LABOR CODE SECTION 1861
CONTRACTOR CERTIFICATION TO LABOR CODE SECTION 3700

Each contractor to whom a public works contract is awarded shall sign and file with the awarding body the following certification prior to performing the work of the contract: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

9 - LABOR CODE SECTION 6500 AND 6705
TRENCH EXCAVATION SAFETY PLANS

1. The Contractor’s attention is directed to the provisions of Labor Code section 6705 concerning trench excavation safety plans. Labor code section 6705 provides in relevant part:

a. No contract for public works involving an estimated expenditure in excess of twenty-five thousand dollars ($25,000), for the excavation of any trench or trenches five feet or more in depth, shall be awarded unless it contains a clause requiring submission by the contractor and acceptance by the awarding body or by a registered civil or structural engineer, employed by the awarding body, to whom authority to accept has been delegated, in advance of excavation, of a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.

b. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders.

2. Before execution of the contract by the Owner, the Contractor shall submit to the Owner a copy of his permit for the project issued by Cal-OSHA.

If there is any non-compliance with said detailed plans, the Contractor shall stop forthwith all affected work until there is compliance in the opinion of the State Division of Industrial Safety. The Owner, Engineer, officers, employees, consultants, and agents of the aforementioned, shall not be liable for costs incurred by the Contractor due to work stoppage, and the Contractor will not be given nor is entitled to an extension of time to complete the Work within the time set forth in this contract due to the work stoppage.

10 - NONDISCRIMINATION CLAUSE

1. During the performance of the Contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Contractors and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900, set forth in Chapter 5 of Division 4 of Title 2 or the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractor shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

2. Contractor's attention is also directed to Section 1735 of the Labor Code, which provides: "A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter."

3. Contractor's attention is further directed to Section 1777.6 of the Labor Code, which provides:
An employer or a labor union shall not refuse to accept otherwise qualified employees as registered apprentices on any public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as provided in Section 3077 of this code and Section 12940 of the Government Code.

4. This contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Contract.

11 - DRUG-FREE WORKPLACE CERTIFICATION CONTRACTOR:

The contractor named below hereby certifies compliance with The Drug-Free Workplace Act of 1990 (Government Code 8350 et seq.) in matters relating to providing a drug-free workplace. The below named contractor or applicant will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).

2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:

(a) The dangers of drug abuse in the workplace,

(b) The person's or organization's policy of maintaining a drug-free workplace,

(c) Any available counseling, rehabilitation and employee assistance programs, and

(d) Penalties that may be imposed upon employees for drug abuse violations.

3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract:

(a) Will receive a copy of the company's drug-free policy statement, and

(b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract.

12- DEBARRED SUBCONTRACTOR PROHIBITION

(A) A public entity, as defined in Section 1100, may not permit a contractor or subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code to bid on, be awarded, or perform work as a subcontractor on, a public works project. Every public works project shall contain a provision prohibiting a contractor from performing work on a public works project with a subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

(B) Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract, and any public money that may have been paid to a debarred subcontractor by a contractor on the project shall be returned to the awarding body. The contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

THE UNDERSIGNED CERTIFIES THAT, IN PERFORMANCE OF THE CONTRACT, THE CONTRACTOR WILL COMPLY WITH THE ABOVE REQUIREMENTS IN ADDITION TO OTHER LEGAL REQUIREMENTS.

CONTRACTOR OR
SUBCONTRACTOR NAME: _____

CERTIFIED BY:

NAME:_____ TITLE:_____

SIGNATURE:_____ DATE:_____

END OF SECTION

SECTION 00340

PRE-QUALIFICATION STATEMENT

PROJECT: CONSOLIDATED IRRIGATION DISTRICT
ADAMS & ACADEMY BASIN PROJECT
EARTHWORK & STRUCTURES CONTRACT

TO: The Board of Directors, CONSOLIDATED IRRIGATION DISTRICT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

_____
(Name of Organization)

_____
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

_____
(Address and Telephone Number)

1) EXPERIENCE AND REFERENCES

List three (3) or more past or current projects of similar size and scope to this project by completing the table below:

Past or current project name and location	Project description	Owner	Contract amount ($) and completion date	Reference contact person name and phone number

2) CONTRACTOR FINANCIAL INFORMATION

a) List name, address, and phone number of bonding company used by your organization.

b) List name, address, and phone number of a banking institution familiar with your organization.

c) State whether your organization has been subject of bankruptcy, failed business, or failed to complete a contract.

Signed: _____

_____ _____

Name Date

SECTION 00501

CONTRACT

THIS CONTRACT is made at **Consolidated Irrigation District** in Fresno County, California, by and between_____ hereinafter called the "Contractor," and the **Consolidated Irrigation District**, a California Irrigation District, hereinafter called the "Owner".

Contractor and the Owner, for the consideration hereinafter named, agree as follows:

ARTICLE I. SCOPE OF WORK. The Work to be constructed is a project entitled South & Highland Basin Project – Earthwork & Structures Contract, located in Fresno County, State of California.

The Contractor shall furnish all labor and materials, including tools, implements, and appliances required to construct the Work and shall perform and construct all Work in a good and workmanlike manner, free from any and all liens and claims including those of mechanics, materialmen, sub-contractors, artisans, machinists, teamsters, draymen and laborers required for the construction of the Work.

Contractor shall comply with and construct the Work in strict conformity with the Contract Documents, including that set of Plans, entitled: "South & Highland Basin Project – Earthwork & Structures Contract," all other Plans, Drawings, Specifications; and the provisions of this Contract.

ARTICLE II. CONTRACT DOCUMENTS. The Contract Documents shall consist of the following documents, each of which is on file in the office of the Owner and all of which are incorporated herein and made a part hereof by reference thereto: this Contract and Specifications, including, Division 00 – Bidding and Contract Requirements, Division 01 - General Requirements, Division 02 through Division 16 - Technical Specifications, any Standard Specifications referenced, Plans, Profiles and Drawings, Addenda or Change Orders (if any), and Appendices. In the event of conflict between portions of the Contract Documents, refer to Section 01005 – Specifications to resolve priority.

ARTICLE III. PAYMENT. In the manner, at the time and upon the conditions stated in the Contract Documents, Owner agrees to pay the Contractor in current funds for the performance of the Contract the sum of:

_____

(Figures in Words)

_____

(Figures in Numbers)

It is understood that said price is based upon the estimated quantities of materials to be used as set forth in the Bidder's Proposal, except where provisions are made in the Contract Documents whereby the estimated quantities shall constitute the final quantity.

Contractor is responsible for payment of prevailing wages in accordance with the provisions of Section 1770, et seq. of the Labor Code. Prevailing wage schedules for Fresno County are

available from the Department of Industrial Relations-Division of Labor Statistics & Research via the Internet at www.dir.ca.gov. A prevailing wage scale is also on file in the office of the Consolidated Irrigation District, 2255 Chandler Street, Selma, CA 93662, and copies may be obtained upon request.

ARTICLE IV. TERMINATION. If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his sub-contractors should violate any of the provisions, including, but not limited to, failure to meet the time of commencement and time of completion requirements in Section 01011, of the Contract Documents, or if he should refuse or fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to sub-contractors or for material or labor, or disregard laws, ordinances or the instructions of the Engineer, then the Owner may serve written notice upon the Contractor and his surety of material breach and its intention to terminate the Contract, such notice to contain the reasons for such intention to terminate the contract, and unless, within seven (7) days after the serving of such notice, Contractor performs as required by the Contract Documents or makes valid objection to termination, the contract shall, upon the expiration of said seven days, cease and terminate. If Contractor does not perform or make valid objection in response to such notice, then it waives all rights to perform the contract, to submit a claim for costs caused by the Owner's performance of the contract, or to object to the Owner withholding its costs in performing the contract.

In the event of any such termination, the Owner may immediately take over performance of the contract and prosecute the work to completion as provided below, if immediate action is required because exigent circumstances are reasonably determined to exist by the Owner, or serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety within seven (7) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within the seven (7) days stated above from the date of the serving of such notice, the Owner may take over the work and prosecute the same to completion by force account, either with its own forces or with a contractor of its choice, or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for doing so, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the Work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the Work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If the expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided and damage incurred through the Contractor's default, shall be certified by the Engineer.

When the contract has been terminated as provided above or elsewhere in the Contract Documents, such termination shall not affect any rights of the Owner against the Contractor then existing or which may thereafter accrue.

ARTICLE V. WORKERS' COMPENSATION. Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the

State of California and during the performance of the Work will so to comply with the said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in triplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-Insure should be provided the Owner.

ARTICLE VI. JOB SITE CONDITIONS. Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project Work, including safety of all persons and property; and that this requirement shall apply continuously and not be limited to normal working hours.

ARTICLE VII. CHANGES IN THE WORK. New and unforeseen work will be classed as extra work when determined by the Owner that such work is not covered by any of the various items or combination of such items for which there is a bid price. In the event that portions of such work are determined by the Owner to be covered by some of the various items or combinations of such items for which there is a bid price, the remaining portion of such work will be classified as extra work. Extra work also includes work specifically designated as extra work in the Plans and Specifications. Refer to Section 01022 – Changes to the Work.

ARTICLE VIII. COMPLETION. Upon receipt of written notice that the Work is ready for final review, the Engineer and Owner will promptly make such review, and when the Owner finds the Work satisfactory under the Contract and the Contract fully performed, the Owner will promptly issue a Notice of Completion stating that the Work required by this Contract has been completed. Within 10 days of acceptance, the Owner shall cause the Notice of Completion to be recorded. Final payment shall become due thirty-five (35) days after the date of the recording of the Notice of Completion.

Before issuance of final payment, the Contractor shall submit Conditional Releases as specified in Section 01026 – Waiver and Release Submittals, except that, in the case of disputed indebtedness or liens, the Contractor may submit, in lieu of evidence of payment, a Surety Bond satisfactory to the Owner guaranteeing payment of all such disputed amounts when adjudicated.

ARTICLE IX. TIME OF PERFORMANCE. The Notice to Proceed is specified in Section 00680 – Notice to Proceed. Beginning of Work and Time of Completion are specified in Section 01011 – Description of Work and Schedule Constraints. Liquidated Damages are those specified in Section 01013 – Liquidated Damages. All time limits stated in the Contract Documents are of the essence.

ARTICLE X. INDEMNITY AND INSURANCE. Before commencing Work, the Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, the insurance described in Section 00502 - Indemnity Agreement. The Contractor shall furnish evidence of the required insurance coverages to the Owner prior to execution of the Contract Documents.

ARTICLE XI. ASSIGNMENT OF CLAYTON ACT AND CARTWRIGHT ACT RIGHTS.
Per Government Code Section 4552, in submitting its Bid and entering into the Contract or a subcontract to supply goods, services, or materials pursuant to the Contract, the Contractor or subcontractor offers and agrees to assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under

the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or any subcontract. This assignment shall be made and become effective at the time the Owner tenders final payment to the Contractor, without further acknowledgment by the parties.

ARTICLE XII. ASSIGNMENT AND TRANSFER OF CONTRACT. The Contractor shall not assign or transfer this Contract or any part thereof or any interest therein without consent in writing of the Owner and the Contractor's Surety, and any such assignment or transfer without such written consent shall be null and void.

ARTICLE XIII. CLAIMS AND DISPUTE RESOLUTION. To the extent required by applicable law, claims arising between the Contractor and the Owner under or in connection with this Contract shall be resolved in accordance with the provisions of Public Contract Code Section 20104, incorporated herein by this reference.

ARTICLE XIV. HEADINGS AND INTERPRETATION. The headings in the Contract Documents are solely for the convenience of the parties, and are not intended to and shall not be construed to in any way limit Contractor's duties with respect to the performance of the Work as provided in the Contract Documents. Any uncertainty or ambiguity in the language of this Contract or the Contract Documents shall not be construed against the party drafting the same, but shall be construed as if both parties prepared the same and any provision to the contrary in Civil Code § 1654 is waived by the parties.

ARTICLE XV. REMEDIES . The remedies given to Owner in the Contract Documents shall not be exclusive, but shall be cumulative and in addition to all remedies now or hereafter allowed by law.

If any provision of the Contract Documents is void or unenforceable, the same shall in no way affect the validity or enforceability of any other provision of the Contract Documents or the validity or enforceability of this Contract as a whole.

This Contract shall be binding upon and shall inure to the benefit of the parties hereto, as well as their respective heirs, successors and assigns.

IN WITNESS WHEREOF, they had executed this Contract this _____ day of _____, 2013.

_____	Consolidated Irrigation District
Contractor	Owner
By _____	By _____
	Phillip Desatoff, General Manager
ATTEST: _____	By _____

END OF SECTION

SECTION 00502

INDEMNITY AGREEMENT

The undersigned Contractor (or supplier) by reason of contracts or purchase orders (and addenda and riders thereto) which have or may be entered into with the designated certificate holder, agrees the following conditions shall apply with respect to any and all work performed for or materials or equipment supplied to designated certificate holder.

The Contractor agrees to indemnify and save harmless, the Consolidated Irrigation District, the State of California, Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants from and against all loss or expense, (including costs and attorney fees) on account of injury or death of persons employed by the Contractor, or his sub-contractors, his or their agents or employees; injury to or death of any person; or injury to, damage or destruction of property, real or personal, including loss of use thereof. Upon demand, the Contractor shall defend any suits or actions covered by the terms of this Agreement.

The Contractor will indemnify and save harmless the Owner, the County of Fresno, the Consolidated Irrigation District, all other participating public agencies who have jurisdiction within the areas in which the work is to be performed (whether or not said agencies are named herein), Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants, from and against any and all claims, demands, causes of action, damages (including damages to County property or property of the participating agencies), costs or liabilities (including costs or liabilities of the County or the participating agencies with respect to its employees), in law or in equity of every kind and nature whatsoever, directly or proximately resulting from or caused by performance of the contract, whether such performance by the Contractor, his subcontractor or anyone directly or indirectly employed by him; and the Contractor shall, at his sole risk and expense, defend any and all suits, actions or other legal proceeding which may be brought or instituted by third persons against the County, the Owner, the participating agencies, their officers and employees on any such claim, demand or cause of action, and the Contractor shall pay and satisfy any judgment or decree which may be rendered against the County, the Owner, the participating agencies, their officers and employees in any such suit, action, or other legal proceedings.

Pursuant to Civil Code 2782 (A), Contractor shall have no obligation to indemnify or save harmless Indemnitees against loss or expense due to the sole negligence or willful misconduct of Owner, Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants, ,nor due to defects in design furnished by those persons.

Pursuant to Civil Code 2782 (B), Contractor shall have no obligation to indemnify or save harmless Indemnitees against loss or expense due to the active negligence of Owner.

Before commencing work, Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, insurance coverages as set forth in Section 00505, Insurance Requirements.

DATE: _____ ACCEPTED:_____
Owner, Partner or Officer

Witness-If Corp., Attest & Seal COMPANY: _____

_____

END OF SECTION

SECTION 00503

GUARANTY

The Contractor shall remain responsible for all defects in the Work, for a period of one (1) year following completion and acceptance of the Work by the Owner. Should any of the materials or equipment prove defective or should the Work as a whole prove defective, due to faulty techniques, material furnished or methods of installation, or should the Work or any part thereof fail to operate properly as originally intended and in accordance with the Plans and Specifications, the undersigned agrees to, upon demand by the Owner, replace any such materials and repair said work completely and without cost to the Owner, so that said work will function successfully as originally contemplated, or, upon demand, reimburse the Owner for its expenses incurred in restoring said Work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after receipt of demand from the Owner. If the undersigned shall fail or refuse to comply with his obligations under this guaranty, the Owner shall be entitled to all costs and expenses, including attorney's fees, reasonably incurred by reason of the said failure or refusal.

Prior to Owner exercising the option to have such repair or replacement performed by others, Owner shall notify undersigned of Owner's intent. Undersigned shall have 10 days to inspect the defective Work, materials and/or equipment and ascertain its condition.

Full compensation for furnishing the guaranty will be considered as included in the contract price or prices paid for the items of work involved and no additional compensation will be allowed therefore.

Date: _____ _____

Contractor

END OF SECTION

SECTION 00505

INSURANCE REQUIREMENTS

Before commencing work, Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, the following insurance coverages issued by a company or companies acceptable to the Owner. All insurance, excepting Workers' Compensation and Occupational Disease Insurance, shall include as additional insured: the Owner, the County of Fresno, the State of California, Provost & Pritchard Consulting Group, and their officers, directors, agents, employees and consultants.

1) Worker's Compensation and Occupational Disease Insurance meeting the statutory requirements of the State of California; and Employer's Liability Insurance in an amount of at least $1,000,000.00.

2) Comprehensive Liability Insurance with limits of:

   Bodily Injury, Property Damage and Personal Injury - $1,000,000.00 each occurrence, $1,000,000.00 aggregate.

   This insurance shall be on an occurrence basis and shall protect the Contractor against liability arising from: his operations, operations by sub-contractors, elevators, products, completed operations and contractual liability assumed under the indemnity provisions above insurance.

3) Automobile Liability on occurrence basis covering all owned, non-owned, and hired automobiles for limits of liability of:

   Bodily Injury and Property Damage - $1,000,000.00 each occurrence.

4) Builder's Risk Insurance is not required.

Contractor’s Property Damage Liability insurance shall include coverage for property damage caused by blasting, collapse, structural injuries or damage to underground utilities. The policy shall not contain the so-called “x,” “c,” or “u” exclusions.

The certificate of insurance shall further provide that ten days notice of cancellation or reduction in coverage shall be given the Owner.

An Additional Insured Endorsement to Contractor’s Liability insurance policy naming the County, the Owner, the State of California, and other participating public agencies (if applicable) and all officers and employees of the above, shall also be furnished.

Provided however, that the limits of such insurance shall not limit the extent of such assumed responsibility and liability.

END OF SECTION

SECTION 00600

BOND REQUIREMENTS

PART 1 GENERAL

1.1 GENERAL

A. All bonds required, whether Bid bonds, Performance, Payment, or other bonds, shall be issued by an admitted surety insurer. The payment and performance bonds required by these specifications will neither be accepted nor approved by the Owner unless the bonds are underwritten by an admitted surety and the requirements of California Code of Civil Procedure Section 995.630 are met. The Owner further reserves the right to satisfy itself as to the acceptability of the surety and the form of bond**. Upon request of the Owner, the bidder shall submit the following documents**:

1. The original, or a certified copy, of the unrevoked appointment, power of attorney, bylaws, or other instrument authorizing the person who executed the bond to do so.

2. A certified copy of the certificate of authority of the insurer issued by the California Insurance Commissioner.

3. A certificate from the county clerk that the certificate of authority has not been surrendered, revoked, canceled, annulled, or suspended, or in the event that it has, that renewed authority has been granted.

4. A certified copy of the certificate of the listing status from the United States Department of the Treasury circular 570, as amended.

5. A financial statement of the assets and liabilities of the insurer to the end of the quarter calendar year prior to 30 days next preceding the date of the execution of the bond, in the form of an officers' certificate as defined in Corporations Code □ 173.

B. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a SURETY on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of surety companies accepted on Federal Bonds, CONTRACTOR shall within twenty (20) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other SURETY or SURETIES as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payment shall be

deemed due nor shall be made until the new SURETY or SURETIES shall have furnished an acceptable BOND to the OWNER.

END OF SECTION

SECTION 00601

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

_____

as Principal, and _____ as Surety, are hereby held and firmly bound unto Consolidated Irrigation District, as OWNER, in the penal sum of

_____

_____Dollars ($_____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20___.

The Condition of the above obligation is such that whereas the Principal has submitted to a certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for the SOUTH & HIGHLAND BASIN PROJECT – EARTHWORK & STRUCTURES CONTRACT;

NOW, THEREFORE,

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said bid) and shall furnish bonds for his faithful performance of said contract and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extension of the time within which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ (L.S.)
Principal

_____
Surety

_____
California Surety Number

IMPORTANT – Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state of California.

END OF SECTION

SECTION 00603

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal, and
Corporation, Partnership, or Individual)

_____
(Name of Surety)

an admitted California Surety, California Certificate No.:_____

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto Consolidated Irrigation District, hereinafter called Owner, in the penal sum of _____
_____Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20__, a copy of which is hereto attached and made a part hereof for the construction of:

Adams & Academy Basin Project – Earthwork & Structures Contract

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder of the Specifications accompanying the same shall release

or otherwise affect its obligation on this Bond, and it does hereby notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the _____day of_____, 20__.

_____
Principal

By _____ (s)

_____
Address

ATTEST:

_____
(Principal) Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

_____
Surety

By _____(s)
Attorney-in-Fact

_____
Address

ATTEST:

_____
(Surety) Secretary

(SEAL)

_____
Witness as to Surety

_____
Address

NOTES: Date of bond must not be prior to date of Contract.
If Contractor is a partnership, all partners must execute Bond.

END OF SECTION

SECTION 00604

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____
(Name of Surety)

an admitted California Surety, California Certificate No.:,_____

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto Consolidated Irrigation District, hereinafter called Owner, in the penal sum of _____ _____ Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20__, a copy of which is hereto attached and made a part hereof for the construction of:

Adams & Academy Basin Project – Earthwork & Structures Contract

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor performed in such work, whether by subcontractor or otherwise, then this obligation shall be void, otherwise, to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time alternation or addition to the terms of the Contract or to work to be performed thereunder of the Specifications accompanying the same shall release or otherwise affect its obligation on this Bond, and it does hereby waive notice of any such

change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the _____day of_____, 20__.

_____
Principal

By _____ (s)

_____
Address

ATTEST:

_____
(Principal) Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

_____
Surety

By _____(s)
Attorney-in-Fact

_____
Address

ATTEST:

_____
(Surety) Secretary

(SEAL)

_____
Witness as to Surety

_____
Address

NOTES: Date of bond must not be prior to date of Contract.
If Contractor is a partnership, all partners must execute Bond.

END OF SECTION

SECTION 00675

NOTICE OF AWARD

TO: _____

_____

_____

PROJECT: Consolidated Irrigation District

Adams & Academy Basin Project – Earthwork & Structures Contract

The Owner has considered the bid submitted by you for the above described Work in response to its Notice Inviting Bids dated _____, and the Instructions to Bidders.

You are hereby notified that your bid has been accepted, and the sum of the items amounts to $_____.

You are required by the Instructions to Bidders to execute the Contract and provide the necessary bonds and insurance certificates within ten (10) calendar days from the date of this Notice.

If you fail to execute said Contract within ten (10) days from the date of this Notice, Owner will be entitled to consider all your rights arising out of Owner's acceptance of your bid as abandoned. Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to Owner.

Dated this _____day of _____, 20__.

Agency
OWNER

By: _____
Agency Representative

Title: _____
Representative Title

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice of Award is hereby acknowledged

By: _____

this the _____ Day of _____, 20__

By: _____

Title _____

END OF SECTION

SECTION 00675

NOTICE OF AWARD

TO: _____

_____

_____

PROJECT: Consolidated Irrigation District

Adams & Academy Basin Project – Earthwork & Structures Contract

The Owner has considered the bid submitted by you for the above described Work in response to its Notice Inviting Bids dated _____ and the Instructions to Bidders.

You are hereby notified that your bid has been accepted, and the sum of the items amounts to $_____

You are required by the Instructions to Bidders to execute the Contract and provide the necessary bonds and insurance certificates within ten (10) calendar days from the date of this Notice.

If you fail to execute said Contract within ten (10) days from the date of this Notice, Owner will be entitled to consider all your rights arising out of Owner's acceptance of your bid as abandoned. Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to Owner.

Dated this ___day of _____

Agency
OWNER

By: Phil Desatoff
Agency Representative

Title: General Manager
Representative Title

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice of Award is hereby acknowledged

By: _____

this the _____ Day of _____, 20__

By: _____

Title _____

END OF SECTION

SECTION 00680

NOTICE TO PROCEED

TO: Clark Bros. Inc.
19772 S. Elgin
Dos Palos, CA, 93620

PROJECT: Consolidated Irrigation District
South & Highland Basin Project – Earthwork & Structures Contract

DATE:

You are hereby notified to commence work in accordance with the Contract dated _____ _____on or before _____. You are to complete the WORK by December 31, 2013.

OWNER – Consolidated Irrigation District

By: _____
Phillip Desatoff, General Manager

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____ this _____ day of_____, 2013.

By: _____

Title: _____

END OF SECTION

SECTION 00700

GENERAL CONDITIONS

SECTION 00700

GENERAL CONDITIONS

PART 1 GENERAL

1.1 The General Conditions for this Project shall be Chapters 1 through 9, inclusive, of the Standard Specifications dated May 2006 of the California Department of Transportation insofar as the same may apply and in accordance with Divisions 0 and 1 of these Specifications.

1.2 In case of conflict between the General Conditions and these Specifications, the order of precedence set forth in paragraph 1.1 D of Section 01005, Specifications, of these Specifications.

END OF SECTION

SECTION 00900

CULTURAL RESOURCES

PART 1 GENERAL

1.1 CULTURAL RESOURCES

A. The California Public Resources Code Chapter 1.7, Section 5097.5 makes it a misdemeanor for anyone to knowingly disturb an archaeological historical feature. California Public Resources Code Sections 5097.98 and 5097.99 require protection of Native American remains which may be found and outlines procedures for handling any burials found.

B. The California Administrative Code, Title 14, Section 4308, requires that no person disfigure any object of historical interest or value. The California Penal Code, Title 14, Part 1, Section 622-1/2 makes it a misdemeanor to destroy anything of historical value within any public place.

C. Should human skeletal material or archaeological remains be found during construction activities, all work must be halted within thirty (30) meters of the find. The Contractor shall notify the Engineer immediately. Construction activities within thirty (30) meters of the find shall remain halted until the Contractor has been notified that construction in the vicinity of the find may resume. If, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with due to investigations made of the archaeological find, the District will compensate the Contractor for such delays to the extent provided in Section 8-1..09, "Right of Way Delays," of the State Standard Specifications.

END OF SECTION

SECTION 00910

TREATENED AND ENDANGERED SPECIES

PART 1 GENERAL

1.1 GENERAL

A. The Owner has retained a biological consultant to develop guidelines and precautions for the Contractor to follow during the Work to avoid negative impacts to threatened and endangered species.

1. A biological consultant reviewed the project site in June 2010, and found no evidence of threatened or endangered species on the project site (Provost & Pritchard Engineering Group, Reconnaissance Level Biological Survey Report, June 2010).

2. However, four different threatened or endangered plant or animal species are known to reside in the general area surrounding the project site. If any evidence of threatened and endangered species are observed during the course of construction, the Contractor shall notify the Engineer, and the Engineer shall coordinate with a biological consultant as needed for compliance.

B. If any threatened or endangered species are observed, the Owner shall notify the Contractor of the specific guidelines or precautions issued by the Owner's biologist. The Contractor shall promptly submit a written request to the Owner if such guidelines or precautions are anticipated to cause any change to the Contractor's Work Schedule or Contract as a result of the Contractor's responsibility for compliance with the biological consultants' guidelines and precautions. If, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with, the District will compensate the Contractor for such delays to the extent provided in Section 8-1.09, "Right of Way Delays," of the State Standard Specifications.

END OF SECTION

SECTION 01005

SPECIFICATIONS

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall keep on the job a copy of the Plans and Specifications and shall at all times give the Owner and Engineer access thereto.

B. Anything mentioned in the Specifications and not shown on the Plans or shown on the Plans and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.

C. The Contractor shall not take advantage of any errors, discrepancies or omissions which may exist in the Plans and Specifications but shall immediately call them to the attention of the Engineer whose interpretation or correction thereof shall be conclusive.

D. In case of conflict between portions of the Contract Documents, the order of precedence of Contract Documents shall be:

First:	Permits from other agencies as may be required by law.
Second:	Addenda
Third:	Bid Documents, Division 0
Fourth:	Technical Specifications, Division 2 through Division16
Fifth:	Plans
Sixth:	General Requirements, Division 1
Seventh:	State Standard Specifications
Eighth:	Reference Documents

E. Change Orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over documents listed above. Detailed Plans shall have precedence over general Plans.

F. Whenever any conflict appears in any portions of the Contract Documents, it shall be resolved by application of the order of precedence.

1.2 GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS

A. For definitions of the Specifications categorized as General Requirements (Division 1) and Technical Specifications (Division 2 through Division 16) refer to Section 01090 – Definitions and Abbreviations.

1.3 REFERENCE DOCUMENTS

A. For a definition of Reference Documents and State Standard Specifications refer to Section 01090 – Definitions and Abbreviations.

B. Throughout the following Specification sections, references are made to various widely published, standard and commercial specifications, manuals, or codes of technical societies, organizations, or associations. These specifications are intended to amplify the descriptions of materials, equipment, and construction systems. The Contractor shall caution each of his Subcontractors to become familiar with the contents of the pertinent portions of these Reference Documents. The following Reference Documents are the most widely used, and are cited or referred to in each of the following sections of these Specifications:

1. American Society of Testing Materials (ASTM)

2. American National Standards Institute (ANSI)

3. American Standards Associations (ASA)

4. American Concrete Institute (ACI)

5. Federal Specifications, as applicable.

6. California Building Code

7. California Plumbing Code

8. National Electric Code

9. Construction Safety Orders of the Division of Industrial Relations latest edition.

C. Each citation of a Reference Document shall be construed to refer to the latest published revision of such specification as of the date of the invitation for bids and to such portions of it that relate and apply directly to the material or installation called for on this job. The Engineer will give no consideration to any claimed ignorance as to what a cited Reference Document contains, since such Subcontractor on a project of this scope is deemed to be experienced and familiar with his own trade and to be experienced and familiar with his own trade's generally accepted, published standards of quality.

D. Whenever references are made to any of the above-mentioned Reference Documents or testing methods in the governing Building Codes, the requirements of those Reference Documents shall govern, insofar as they are not in contravention with maxima or minima prescribed by documents designated in the Building Code.

1.4 LIST OF DRAWINGS

A. The Work shall conform to the following Drawings:

TITLE	SHEET NUMBERS
Cover Sheet	1
Notes and Legend	2
Site Plan	3
Grading Plan – Cell 1	4
Grading Plan – Cells 2 & 3	5
Grading Plan – Well Pads	6
Typical Levee Sections	7
Levee Sections	8
Fence Site Plan	9
Northern Driveways	10
Southern Driveways	11
Project Turnout	12
Project Distribution Structure	13
Project Distribution Structure Profiles	14
Distribution Structure Sections	15
Canal Culvert Crossing	16
Instrumentation Diagram	17
Concrete Details	18
Wire Fence Details	19
Metal Grating	20
Metal Details	21
Structural Notes	22
Construction Details	23
Construction Details	24
Construction Details	25

1.5 STATE STANDARD SPECIFICATIONS

A. For the purpose of this contract, the following terms or pronouns in place of them, used throughout the State Standard Specifications and defined in Section 1, Definition of Terms, of the State Standard Specifications, shall be as follows:

TERMS	INTERPRETATION
State	Consolidated Irrigation District
Department	Consolidated Irrigation District
Director	District Manager

Engineer	District Manager, Consolidated Irrigation District, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted them.
Department of Transportation	Consolidated Irrigation District
Contractor	The person or persons, co-partnership or corporation, private or municipal, who have entered into a contract with the Consolidated Irrigation District as party or parties of the second part, or his or her legal representative.

1.6 OCCUPATIONAL SAFETY AND HEALTH ACT

A. The applicable standards of the American National Standards Institute and the National Fire Protection Association that have been adopted are hereby made a part of these Specifications as a whole and as mentioned in the various sections.

B. Any errors, ambiguities, or inconsistencies of these standards with either the local codes, the Specifications, or the Drawings shall be brought to the attention of the Engineer.

1.7 COMPLIANCE WITH ALL LAWS AND CODES

A. Contractor shall conform to and abide by all local city, county, state and federal laws, rules, regulations, including industrial safety laws. Such laws shall be considered as essential parts of these Specifications and, in the absence of definite requirements herein, the provisions of such rules and regulations shall be observed by the Contractor. If the Drawings and/or Specifications are at variance therewith, Contractor shall so notify Engineer promptly. Should the Contractor perform any work contrary to such laws, ordinances, rules and regulations he shall bear all costs arising therefrom.

B. Where these Specifications, however, call for or describe materials workmanship or construction of a better quality, higher standard, or larger size than is required by said rules and regulations, the provisions of these Specifications shall take precedence over said rules and regulations. Contractor shall furnish, without any extra charge, all additional labor or materials, or both, when required for compliance with these rules and regulations.

END OF SECTION

SECTION 01011

DESCRIPTION OF WORK AND SCHEDULE CONSTRAINTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The Work consists of furnishing all labor, materials and equipment necessary to construct recharge basins, construct a project canal turnout structure, construct a project distribution structure and pipelines, construct a canal crossing, construct concrete canal lining, and construct well discharge pipelines, in accordance with the Plans and the Specifications.

B. Incidental items necessary to complete the work including mobilization, project closeout, temporary facilities, quality control and similar construction activities; bonds, insurance, permits, licenses and fees required to complete the project.

C. The project site is located in Fresno County near Fowler, California.

D. The primary components are generally described as follows:

1. Construct three new recharge basins including using on-site fill material, export unsuitable material, excavation, backfill, and compaction as needed and prepare levee sub-grade for structures and concrete canal lining.

2. Construct new Settling Channel including using on-site fill material, export excess and unsuitable material, excavation, backfill, and compaction as needed and prepare sub-grade for structures and concrete canal lining.

3. Construct new canal turnout including concrete canal lining, concrete box structure, concrete pipeline, and concrete outfall structure with rip rap from the Kirby Ditch to the new Settling Channel, furnish and install canal gate.

4. Construct reinforced concrete distribution box structure and basin pipelines, and appurtenances including catwalk, handrails, concrete pipe, basin outfalls with rip rap, concrete canal lining, and furnish and install canal gates.

5. Furnish and install well discharge pipelines and associated concrete stand pipes and concrete canal lining.

6. Remove the existing Kirby Ditch canal crossing and construct new box culvert crossing.

7. Furnish and install wire fencing and gates as shown on the Plans.

1.2 BEGINNING OF WORK

A. The Contractor shall begin work within ten (10) calendar days after receipt of official Notice to Proceed from the Owner.

1.3 TIME OF COMPLETION

A. The Contractor shall complete all work by the completion date indicated on the Notice to Proceed, unless the period for completion is extended otherwise by the Contract Documents. The Contractor shall diligently prosecute the work to completion on or before the completion date indicated on the Notice to Proceed.

1.4 TIME CONSTRAINTS

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

END OF SECTION

SECTION 01013

LIQUIDATED DAMAGES

PART 1 GENERAL

1.1 LIQUIDATED DAMAGES

A. The Contractor shall pay to the Owner the sum of

ONE THOUSAND DOLLARS ($ 1,000.00)

per day for each and every calendar day's delay in finishing the work beyond the completion date specified in the Notice to Proceed.

B. It is agreed by the parties to the contract that in case all the work called for under the contract in all parts and requirements is not finished or completed by the date specified as set forth above, damage will be sustained by the Consolidated Irrigation District, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Consolidated Irrigation District will sustain in the event of and by reason of the delay; and it is therefore agreed that the Contractor will pay to the Consolidated Irrigation District the sum set forth above per day for each and every calendar day's delay in finishing the work beyond the completion date specified; and the Contractor agrees to pay the liquidated damages herein provided for, and further agrees that the Consolidated Irrigation District may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

C. It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements by the date specified, the Engineer shall have the right to extend the specified completion date, as the Engineer may deem best to serve the interest of the Consolidated Irrigation District and if the Engineer decides to specified completion date, the Engineer shall further have the right to charge to the Contractor, or the Contractor's heirs, assigns or sureties and to deduct from the final payment for the work all or any part, as the Engineer may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the contract, and which accrue during the period of the extension, except that cost of final surveys and preparation of final estimate shall not be included in the charges.

D. The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering and inspection for any portion of the delay in completion of the work beyond the time named above for the completion of the work caused by acts of God or of the public enemy, fire, floods, tsunamis, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, shortage of materials and freight embargoes, provided that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of that

delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

E. No extension of time will be granted for a delay caused by a shortage of materials unless the Contractor furnishes to the Engineer documentary proof that the Contractor has made every effort to obtain the materials from all known sources within reasonable reach of the work in a diligent and timely manner, and further proof in the form of supplementary progress schedules that the inability to obtain the materials when originally planned did in fact cause a delay in final completion of the entire work which could not be compensated for by revising the sequence of the Contractor's operations. The term "shortage of materials," as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and are to be incorporated in the work. The term "shortage of materials," shall not apply to materials, parts, articles or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the contract. Only physical shortage of material will be considered as a cause for extension of time. Delays in obtaining materials due to priority in filling orders will not constitute a shortage of materials.

F. If the Contractor is delayed in completion of the work by reason of changes made by Consolidated Irrigation District or by failure of the Consolidated Irrigation District to acquire or clear right of way, or by any act of the Engineer or of the Consolidated Irrigation District not contemplated by the contract, an extension of time commensurate with the delay in completion of the work thus caused will be granted, and the Contractor shall be relieved from any claim for liquidated damages, or engineering and inspection charges or other penalties for the period covered by that extension of time; provided that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of the delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

END OF SECTION

SECTION 01017

MATERIALS AND SUBSTITUTIONS

PART 1 GENERAL

1.1 GENERAL

A. The materials furnished and used shall be new, except as may be provided elsewhere in these Specifications, or on the Plans.

B. All materials required to complete the work under this contract shall be furnished by the Contractor, unless otherwise stated.

C. It shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instruction before proceeding with the Work. The Engineer may, by appropriate instructions, correct said apparent errors and omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

1.2 DEFINITIONS

A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor.

B. Revisions: Changes to Contract Documents requested by Owner or Engineer.

C. Options: Specified options of products and construction methods included in Contract Documents.

1.3 TRADE NAMES AND ALTERNATIVES

A. Wherever an article, or any class of materials, is specified by the trade name or by the name of any particular patentee, manufacturer or dealer, or by reference to the catalog of any such manufacturer or dealer, it shall be taken as intending to mean and specify the article or material described or any other equal thereto in quality, finish and durability, and equally as serviceable for the purpose for which it is or they are intended. The intent of the Plans and Specifications is to specify highest grade standard equipment, and it is not the intent of these Plans and Specifications to exclude or omit the products of any responsible manufacturer, if such products are equal in every practical respect to those mentioned herein, as determined by the Engineer.

1.4 SAMPLES

A. At the option of the Engineer, the source of supply of materials for the Work shall be subject to tests and inspection before the delivery is started and before such materials are used in the Work. Samples representative of the character and

quality of materials shall be submitted by the Contractor. Samples shall be of sufficient quantities or amounts for testing or examination.

B. All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national technical organizations, and such special methods and tests as are prescribed in the Contract Documents.

C. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. Samples and test specimens prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer, or his designated representative, in the presence and with the assistance of the Contractor.

1.5 SUBMITTALS

A. Material Submittals shall be made in accordance with Section 001300 – Submittals.

1.6 INSPECTION OF MATERIALS BY THE CONTRACTOR

A. Contractor shall make a close inspection of all materials as delivered, and shall promptly return all defective materials without waiting for their rejection by the Engineer.

1.7 CERTIFICATES OF COMPLIANCE

A. A Certificate of Compliance may be required for certain materials and equipment that become final products of the completed Work. Certificates of Compliance shall be furnished prior to the use of any materials for which these Specifications require that such a certificate be furnished. In addition, when so authorized in these Specifications, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.

B. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.

C. A Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the certificate.

D. All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis 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 Plans and Specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

E. The Consolidated Irrigation District reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

1. The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

1.8 MANUFACTURER TESTING

A. At the option of the Engineer, materials and equipment to be supplied under this Contract will be tested and inspected either at their place of origin or at the site of the Work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials and equipment to be tested and inspected at point of origin.

1. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or re-inspection at the site of the Work.

2. Materials and equipment which will require testing and inspection at the place of origin shall not be shipped prior to such testing and inspection.

1.9 MANUFACTURERS' RECOMMENDATIONS

A. All equipment specified and used in the project shall be installed in accordance with the approved manufacturer's current written recommendations.

B. All such equipment, material, etc., shall be of the manufacturer's latest system or line.

1.10 SUBSTITUTIONS

A. Conditions: Contractor's substitutions shall be considered when one or more conditions are satisfied, as determined by the Engineer. (The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.)

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of the Contract Documents.

3. Request is timely, fully documented and properly submitted.

4. Request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request shall not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by governing authority, and the requested substitution can.

7. Substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear.

   a. Additional responsibilities for the Owner may include additional compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

   b. Contractor shall provide all data in support of any proposed substitute or “or-equal” at Contractor’s expense.

8. Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. Specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. Specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

1.11 SUBSTITUTION REQUEST FORM

A. Use Substitution Request Form in on page 01017-5.

B. Submit one form (4 copies) for each request.

END OF SECTION

SUBSTITUTION REQUEST FORM

TO: Adam Claes – Provost & Pritchard Consulting Group

PROJECT: CONSOLIDATED IRRIGATION DISTRICT, ADAMS & ACADEMY BASIN, EARTHWORK & STRUCTURES CONTRACT

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION:	PARAGRAPH:	SPECIFIED ITEM:

Proposed Substitution: _____

Attach: 1) Complete technical data, including laboratory tests, if applicable.

2) Complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

A. Does the substitution affect dimensions on Drawings?

B. Will the undersigned pay for changes to the project design, including engineering and detailing costs caused by the requested substitution?

C. What affect does substitution have on other trades?

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of the proposed and specified items are:

____Same _____ Different (explain on attached sheet)

SUBSTITUTION REQUEST FORM

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By:

Signature _____

Firm _____

Address _____

Date _____

Telephone _____

For Use by Design Consultant
Accepted Accepted as Noted Not Accepted Received Late By_____ Date_____ Remarks_____

SECTION 01018

CONTRACTOR'S RESPONSIBILITIES

PART 1 GENERAL

1.1 SUPERVISION AND SUPERINTENDENCE

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent thereto who shall not be replaced without written notice to Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

1.2 MAINTAINING TRAFFIC

A. Traffic and Access: The Contractor's operations shall cause no unnecessary inconvenience. The access rights of the public shall be considered at all times. Unless otherwise authorized, traffic shall be permitted to pass through the Work, otherwise a detour, approved by the Engineer, shall be provided. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, whether public or private, Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when Contractor has obtained written permission from the owner and tenant of private property involved, to obstruct traffic at the designated point.

B. In making open cut street crossings, Contractor shall not block more than one-half of the street at a time.

C. Contractor shall construct substantial bridges (trench plates when adequate) at all points where it is necessary to maintain traffic across pipeline construction. Bridges in public streets shall be acceptable to the Owner. Bridges erected in private roads and driveways shall be adequate for the service to which they will be subjected. Bridges shall be maintained in place as long as the conditions of the work require their use for safety of the public, except that when necessary for the proper prosecution of the Work in the immediate vicinity of a bridge, the bridge may be relocated or temporarily removed for such period as Engineer may permit.

D. The type and location of signs, lights, flags, flagmen and other traffic control and safety devices shall be in accordance with the "Manual of Traffic Controls - Warning Signs, Lights, and Other Devices for Use in performance of Work Upon Highways," latest edition, issued by the State of California, Department of Transportation. Copies of the Manual may be obtained from the Permits Engineer, State Department of Transportation, or on the internet at www.dot.ca.gov .

E. Reflectivity of construction signs shall conform to the State Standard Specifications.

F. Based on all the above, Contractor shall determine the need for any signs, lights, flags, flagmen and any other traffic control and traffic safety devices and shall include all such costs in the Miscellaneous Facilities and Operationsitem of Contractor's Bid. No other compensation will be made.

1.3 OBSTRUCTIONS

A. Attention is directed to the possible existence of underground utility facilities not indicated on the plans and to the possibility that utility lines may be in a location different from that which is indicated on the plans. The Contractor shall ascertain the exact location of underground utilities whose presence is indicated on the plans, the location of their service laterals or other appurtenances, and of existing service lateral or appurtenances of any other underground facilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes, prior to doing work that may damage any of the facilities or interfere with their service.

B. If the Contractor cannot locate an underground facility whose presence is indicated on the plans, the Contractor shall so notify the Engineer in writing. If the facility for which the notice is given is in a substantially different location from that indicated on the plans or in the special provisions, the additional cost of locating the facility will be paid for as extra work as provided in the General Conditions.

C. If the Contractor discovers underground utilities not indicated on the Plans, the Contractor shall immediately give the Engineer and the Utility Company written notification of the existence of those facilities. The utilities shall be located and protected from damage as directed by the Engineer, and the cost of that work will be paid for as extra work as provided in the General Conditions. The Contractor shall, if directed by the Engineer, repair any damage which may occur to the utilities. The cost of that repair work, not due to the failure of the Contractor to exercise reasonable care, will be paid for as extra work as provided in the General Conditions. Damage due to the Contractor's failure to exercise reasonable care shall be repaired at the Contractor's cost and expense.

D. Where it is determined by the Engineer that the rearrangement of an underground facility is essential in order to accommodate the project improvements and the plans do not provide that the facility is to be rearranged, the Engineer will provide for the rearrangement of the facility by other forces or the rearrangement shall be performed by the Contractor and will be paid for as extra work.

E. When ordered by the Engineer in writing, the Contractor shall rearrange any utility or other non highway facility necessary to be rearranged as a part of the project improvements, and that work will be paid for as extra work.

F. Should the Contractor desire to have any rearrangement made in any utility facility, or other improvement, for the Contractor's convenience in order to facilitate the Contractor's construction operations, which rearrangement is in addition to, or different from, the rearrangements indicated on the Plans, the Contractor shall make whatever arrangements are necessary with the owners of the utility or other facility for the rearrangement and bear all expenses in connection therewith.

G. The Contractor shall immediately notify the Engineer of any delays to the Contractor's operations as a direct result of utility facilities which were not indicated on the Plans or were located in a position substantially different from that indicated on the Plans, or as a direct result of utility or other non highway facilities not being rearranged as herein provided (other than delays in connection with rearrangements made to facilitate the Contractor's construction operations or delays due to a strike or labor dispute). These delays will be considered right of way delays within the meaning of Section 8 1.09, "Right of Way Delays" of the State Standard Specifications, and compensation for the delay will be determined in conformance with the provisions in Section 8 1.09. The Contractor shall be entitled to no other compensation for that delay.

H. Any delays to the Contractor's operations as a direct result of utility or other non highway facilities not being rearranged as provided in this Section, due to a strike or labor dispute, will entitle the Contractor to an extension of time as provided in Section 01013 - Beginning of Work, Time of Completion & Liquidated Damages. The Contractor shall be entitled to no other compensation for that delay.

I. Full compensation for conforming to the requirements of this article shall be considered as included in the various contract items of work and no separate payment will be made therefore.

1.4 PRE-CONSTRUCTION MEETING

A. The Contractor and its job superintendent, the Contractor's subcontractors and their job superintendents will be required to attend the pre-construction conference scheduled by the Owner as specified in Section 01200 – Project Meetings. A project schedule shall be submitted by the Contractor at this meeting.

1.5 SAFETY REPRESENTATIVE

A. The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the Work. The Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with the performance of the Work, whether on or adjacent to the site, with cause of death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injury or serious damage to the property

are caused, the accident shall be reported immediately by telephone or messenger to the Engineer. If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

1.6 SAFETY AND PROTECTION

A. Safety and Protection*:* The Contractor shall have at the work site, copies or suitable extracts of Construction Safety Orders, issued by Cal-OSHA. He shall comply with provisions of these and all other applicable laws, ordinances and regulations.

1. Contractors must comply with provisions of the safety and health regulations for construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29 C.F.R.

2. In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the Contract.

3. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his facilities, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.

4. The Contractor agrees that it shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner, and Provost & Pritchard Engineering Group, Inc. harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting for liability arising from the sole active negligence of the Owner or the Engineer.

5. In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

6. The duty of the Engineer to conduct construction review of the Contractor's performance and the undertaking of inspections by the Engineer or the giving of instructions as authorized herein is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the

construction site and shall not be construed as supervision of the actual construction nor make the Engineer or the Owner responsible for providing a safe place for the performance of work by the Contractor, subcontractors, or suppliers; or for access, visits, use, work, travel or occupancy by any person.

7. The Owner, the Engineer, and their respective employees' site responsibilities are limited solely to the activities of the Owner's and Engineer's employees on site. These responsibilities shall not be inferred by any party to mean that the Owner or Engineer has responsibility for site safety. Safety in, on, or about the site is the sole and exclusive responsibility of the Contractor alone. The contractor's methods of work performance, superintendence and the Contractor's employees, and sequencing of construction are also the sole and exclusive responsibilities of the Contractor alone.

B. Contractor shall comply with Public Contract Code Section 7104

1. The Contractor's attention is directed to the provisions of Public Contract Code Section 7104. This section requires that any public works contract which involves digging trenches or other excavations that extend deeper than four feet below ground level contain provisions requiring that (i) the Contractor must notify the local agency of certain specified conditions relating to hazardous waste, unexpected subsurface or latent conditions, or unknown physical conditions, (ii) the local agency must promptly investigate any such conditions reported to it and issue a change order if it makes certain findings regarding those conditions, and (iii) in the event of a dispute between the local agency and the Contractor as to whether hazardous waste exists or whether the conditions encountered differ from those expected, the Contractor is not excused from performance, but must proceed with all Work to be performed under the contract.

2. Full compensation for all costs involved in locating, verifying, protecting, exposing, bracing, and otherwise providing for utilities and compliance with Public Contract Code Section 7104 shall be included in the amounts bid for Miscellaneous Facilities and Operations or the various items of Work, and no separate payment shall be made therefor.

C. The Contractor shall include all costs for the above items in the various bid items, and no separate payment will be made therefore.

1.7 ACCIDENT PREVENTION

A. Precaution shall be exercised by the Contractor at all times for the protection of persons (including Owner, Engineer, and Regulatory Agency employees) and property. The safety provisions of applicable laws, and of building and construction codes shall be observed. Machinery, equipment and other hazards shall be guarded or eliminated.

B. First aid facilities and information posters conforming at least to the minimum requirements of the Occupational Safety and Health Administration shall be provided in a readily accessible location or locations.

C. The Contractor shall make all reports as are, or may be, required by any authority having jurisdiction, and permit all safety inspections of the work being performed under this Contract. Before proceeding with any construction work, the Contractor shall take the necessary action to comply with all provisions for safety and accident prevention.

1.8 PROTECTION OF EXISTING ITEMS

A. The Contractor shall protect all existing utilities, structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.

B. Contractor will be held responsible for any damage to existing utilities, structures, roadways and walkways, Work; materials; or equipment because of his operations and shall repair or replace any damaged utilities, structures, roadways, and walkways, work, materials, or equipment to the satisfaction of, and at no additional cost to, the Owner.

1.9 PROJECT SECURITY

A. The Contractor shall make adequate provision for the protection of the Work area against fire, theft, and vandalism, and for the protection of the public against exposure to injury.

B. Sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities, shall be provided in readily accessible locations.

1.10 PERMITS AND LICENSES

A. The Contractor shall procure all permits and licenses, pay all charges and fees, as required, and give all notices necessary and incidental to the due and lawful prosecution of the work.

1.11 PROJECT SITE MAINTENANCE

A. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work site clean and free from rubbish and debris.

B. Materials and equipment shall be removed from the site as soon as they are no longer necessary; and upon completion of the work and before final inspection, the entire work site shall be cleared of equipment, unused materials and rubbish so as to present a satisfactory clean and neat appearance. All cleanup and project site maintenance costs shall be included in the Contractor's Bid.

1.12 DEWATERING

A. Comply with Section 02200 – Earthwork and 02202 – Trenching and Backfilling.

1.13 STORM WATER CONTROL

A. Contractor shall be responsible for managing storm water runoff during the construction period. See Section 02503 of these Specifications. Contractor's full range of responsibilities is set forth in that section, but includes the following non-exhaustive list of duties:

1. Contractor shall prepare and submit a Storm Water Pollution Prevention Plan for the project. See Section 02503 of these Specifications. This plan must be prepared by a Qualified SWPPP Developer (QSD) as recognized by the State of California.

2. Contractor shall retain and provide the services of a Qualified SWPPP Practitioner (QSP) as recognized by the State of California, who shall perform or oversee all necessary monitoring, testing and reporting prescribed by the SWPPP and the State of California Construction General Permit. The QSP duties may be performed by the QSD.

3. Contractor shall prepare and post to SMARTS all required testing and reporting as mandated by the SWPPP and the Construction General Permit, including periodic inspection reports, quarterly reports, reports of non-storm water discharge, and annual reports. The City, as the Legally Responsible Party, will certify these reports after they are posted to SMARTS.

4. All Water Board fees for SWPPP-related tasks and posts shall be included in the Contractor's bid for this item of work,.

1.14 USE OF SITE AND OTHER AREAS

A. The Contractor shall effectively secure and protect adjacent property and structures, crops and other vegetation.

B. Contractor shall repair all fences damaged during the work.

C. In all cases where the Contractor removes fences to obtain room to work, he shall provide and install temporary fencing as required. Prior to completion of construction, the Contractor shall restore all original fences to the satisfaction of the Engineer. All costs of providing, work required for site maintenance and maintaining and restoring gates and fencing shall be borne by the Contractor.

D. The Contractor shall use extreme care during construction to prevent damage from dust to crops and adjacent property. The Contractor shall also abate dust nuisance by cleaning, sweeping and sprinkling with water or other means as necessary. Dust control shall conform to the applicable provisions of Section 10 of

the State Standard Specifications. All cleanup, dust control, and project site maintenance costs shall be absorbed in the Contractor's Bid.

E. Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned. Likewise, the Contractor shall not allow dust generated from the construction activities to obscure the vision of vehicular traffic on County roads or State Highways. The Contractor, at his own expense, shall provide adequate dust control for the right of way and take other preventive measures as directed by the Engineer.

F. The Contractor shall be responsible for all damage to any property resulting from trespass by the Contractor or his employees in the course of their employment, whether such trespass was committed with or without the consent or knowledge of the Contractor.

G. The Contractor shall provide and maintain enclosed toilets for the use of employees engaged in the Work. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps.

H. All traffic signs and street signs within the limits of the improvement shall be removed, salvaged and stockpiled at locations designated by the Engineer. Traffic control signs and street signs will be replaced upon the completion of the Work and the cost of removal and replacement will be included in various bid items, and no separate payment will be made as such.

I. Compensation for any necessary work required for site maintenance shall be considered as included in the prices paid for the various bid items and no additional compensation will be made therefore.

1.15 EMERGENCIES

A. In the event of an emergency or unusual conditions endangering life, the Work, or adjacent property, the Contractor may, without special instructions or authorization, act at his discretion to prevent or eliminate such danger. If the Engineer determines that a change in the Contract Documents is required due to the action taken by the Contractor in response to such an emergency, a change order will be issued.

1.16 AIR POLLUTION CONTROL

A. The Contractor shall not discharge smoke, dust or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.

B. Contractor shall comply with the San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. Dust control shall be as specified in Section 02504 – Dust Control.

C. Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Acts of 1970 and Cal OSHA.

1.17 PROJECT SITE SECURITY

A. The Contractor shall secure the project site at all times when work is not in progress. It shall be his responsibility to protect existing and newly construction facilities from damage due to his construction operations and shall be responsible for the repair or replacement of any facilities which are damaged due to his failure to secure the project site.

B. Contractor shall make his own arrangements, pay for and assume all responsibility for acquiring, using and disposing of additional work areas and facilities temporarily required by him. He shall indemnify and hold the Owner harmless from all claims for damages occasioned by such actions.

1.18 NOTIFICATION

A. The Owner shall be supplied at all times with the names and telephone numbers of at least two (2) persons in charge of or responsible for the work, who can be reached for emergency work twenty-four (24) hours a day, seven (7) days a week.

An Emergency Contact List with contract numbers and addresses for the Sheriff, Police, Fire Department, the names and telephone numbers of at least two (2) medical doctors practicing in the vicinity and the local ambulance service shall be prominently displayed adjacent to telephones.

B. The Contractor shall notify the Owner at least forty-eight (48) hours prior to commencing work.

C. Contractor shall notify. USA Underground Service Alert Organization for utility underground permits per Section 4216 of the government Code. The Contractor shall obtain all identification numbers and certifications required for underground utility locations prior to starting excavation within the project limits of work. The Underground Service Alert Phone Number is 800-227-2600. The Contractor shall immediately notify the District and the utility owner if he/she disturbs, disconnects, or damages any utility.

1.19 LABOR

A. No person whose age or physical condition is such as to make his employment dangerous to his health and safety or to the health and safety of others shall be employed on the Work, and in no event shall any person under the age of sixteen (16) years be employed.

END OF SECTION

SECTION 01019

CONSTRUCTION STAKES, LINES, AND GRADES

PART 1 GENERAL

1.1 LINES AND GRADE

A. The Work shall be executed in accordance with the lines and grades indicated in the Contract Documents. Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes.

1.2 OWNER'S SURVEY SERVICES

A. Construction surveying and staking for construction will be done by the Engineer or Engineer's representative at the Owner's expense. The Engineer will provide the following stakes:

Description	**Interval**
Top outside hinge point of levee embankment (rough & finished grade)	100' (straight) 50' (curves)
Pipelines	100' (straight) 50' (curves)
Structures (rough & finished grade)	4 stakes per structure

B. Additional detail staking layout will be the responsibility of the Contractor.

C. The Contractor shall be responsible for preserving construction survey stakes, permanent survey monuments and bench marks for the duration of their usefulness. If any construction survey stakes permanent survey monuments or benchmarks are lost or disturbed and need to be replaced, such replacement shall be made by the Engineer at the expense of the Contractor.

D. The Contractor shall notify the Engineer at least three (3) working days before he will require survey services in connection with laying out of any portion of the Work. The Contractor at his own expense shall dig all holes necessary for line and grade stakes prior to requesting survey services that depend on such digging.

END OF SECTION

SECTION 01022

CHANGES TO THE WORK

PART 1 GENERAL

1.1 GENERAL

A. The provisions of Caltrans Standard Specifications section 9-1.03 are deleted and replaced by this section.

1.2 COST OF CHANGED WORK

A. When extra work is to be paid for on a force account basis, the labor, materials and equipment used in the performance of that work shall be subject to the approval of the Engineer and compensation will be determined as follows:

1. To actual wages paid, a Labor Surcharge as specified in the California Department of Transportation publication entitled “Labor Surcharge and Equipment Rental Rates.”

2. To actual wages paid, including the Labor Surcharge, a fee of 15%.

3. To the costs incurred for materials purchased and equipment rental, a fee of 15%.

    a. Equipment rental rates shall be computed on the basis of “Labor Surcharge and Equipment Rental Rates” referenced above.

4. To the costs incurred for subcontracted work, a fee of 5%.

    a. Basis of cost shall be the subcontractor’s written quote.

B. For changes that result in a decrease in cost, the Contractor shall not be entitled to any compensation for loss of expected profit.

1.3 AUTHORIZATION REQUIRED

A. Contractor shall not proceed with work outside the scope, lines or grades shown on the Plans or other documents without proper authorization. Necessary authorization shall be a Work Change Directive or Change Order, properly signed by the Engineer and/or the Owner.

B. Work done without proper or timely authorization will not be paid.

END OF SECTION

SECTION 01025

MEASUREMENT & PAYMENT

PART 1 GENERAL

1.1 MEASUREMENT

A. Unless otherwise specified in the Contract Documents, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures and shall be measured on the basis of “in-place” quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be measured. Compensation for such incidental work is considered to be included in the various items of work bid.

1.2 INCREASED OR DECREASED QUANTITIES

A. Increases or decreases in quantities shall be governed by the General Conditions.

B. All written requests for adjustment shall be made no later than five working days after notification by the Engineer that the item of work is complete.

1.3 FINAL PAY QUANTITIES

A. Final pay quantities shall be in accordance with the General Conditions except as modified below.

B. Final pay quantities will be designated only in the Bid Schedule and in Section 01900 – Explanation of Bid Items, and are not shown on the Plans.

C. When an item of work is designated as a Final Pay Quantity on the Bid Schedule and/or in the Explanation of Bid Items, the estimated quantity for that item of work shall be the final pay quantity, unless the dimensions of any portion of that item are revised by the Engineer, or the item or any portion of the item is eliminated.

If the dimensions of any portion of the item are revised, and the revisions result in an increase or decrease in the estimated quantity of that item of work, the final pay quantity for the item will be revised in the amount represented by the changes in the dimensions.

If a final pay item is eliminated, the estimated quantity for the item will be eliminated.

If a portion of a final pay item is eliminated, the final pay quantity will be revised in proportion to the bid quantity represented by the eliminated portion of the item of work.

D. The estimated quantity for each item of work designated as a Final Pay Quantity on the Bid Schedule and/or in the Explanation of Bid Items shall be considered as approximate only, and no guarantee is made that the quantity which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations does not equal the estimated quantity.

E. In case of discrepancy between the quantity shown on the Bid Schedule for a final pay item and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity shown on the Bid Schedule.

1.4 PARTIAL PAYMENT

A. Attention is directed to Section 9-1.06 of the State Standard Specifications which, except as modified herein, shall apply in its entirety.

1. The local agency shall withhold not less than 5 percent of the contract price until final completion and acceptance of the project.

2. Partial payments for materials on hand shall not exceed one hundred percent (100%) of the value of material delivered on site, properly stored in a secured fenced area subject to, or under the control of, the owner and local agency, and unused. Contractor shall submit copies of invoices of materials to support values. Materials stored shall be installed within 60 days of delivery for payment eligibility.

B. Payment shall not relieve the Contractor from its obligations under the Contact; nor shall such payment be construed as acceptance of any of the Work. Payment shall not be construed as transfer of ownership of any equipment or materials to the Owner. Responsibility of ownership shall remain with the Contractor who shall obligated to protect any fully or partially completed work or structure for which payment has been made; or replace any materials or equipment to be provided under the Contract which may be damaged, lost, stolen or otherwise degraded in any way prior to acceptance of the Work, except as provided in Section 7-1.15 of the State Standard Specifications.

1.5 FINAL PAYMENT

A. Notice of Completion will be filed in the normal course of business following the first regular meeting of Consolidated Irrigation District Board of Directors which occurs far enough after Final Completion to allow for agendizing Consolidated Irrigation District Board of Directors approval of the Notice.

B. Final payment will be due thirty-five (35) days after the recording of the Notice of Completion by the Owner.

C. Upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Bidder's Proposal hereto attached. Payments on account thereof will be made as set forth in these Specifications.

D. The Contractor shall comply with Section 1026 -- Waiver and Release Submittals.

1.6 SECURITIES IN LIEU OF RETENTION AND ESCROW AGREEMENT

A. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with Owner, or with a state or federally chartered bank in California as the escrow agent, who shall then pay those withheld moneys to Contractor. Upon satisfactory completion of the contract, the securities shall be returned to Contractor.

B. Alternatively, Contractor may request and the owner shall make payment of retentions earned directly to the escrow agent at the expense of Contractor. At the expense of Contractor, Contractor may direct the investment of the payments into securities and Contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by Contractor. Upon satisfactory completion of the contract, Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from Owner, pursuant to the terms of this section. Contractor shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of Contractor.

C. Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Contractor and Owner.

D. Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between _____ _____ whose address is _____ _____ herein after called "Owner," _____ _____ whose address is _____ _____ hereinafter called "Contractor" and _____ _____ whose address is _____ _____ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for _____ in the amount of _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the escrow agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of _____, and shall designate the Contractor as the beneficial owner.

(2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to

the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:	On behalf of Contractor:	On behalf of Escrow Agent:
_____	_____	_____
Title	Title	Title
_____	_____	_____
Name	Name	Name
_____	_____	_____
Signature	Signature	Signature
_____	_____	_____
Address	Address	Address

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

Owner	Contractor
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature

END OF SECTION

SECTION 01026

WAIVER AND RELEASE SUBMITTALS

1.1 GENERAL INSTRUCTIONS FOR WAIVER AND RELEASE (LIEN WAIVER) SUBMITTALS

A. Waivers and Releases must be submitted, on forms provided by Owner or on equivalent forms supplied by Contractor. Copies of said forms, which comply with Civil Code Sections 8132 though 8138, are attached at the end of this Section.

B. Comply with Section 1025 - Measurement and Payment.

C. Waiver and Release submittal sequence:

1. Upon initial submittal for progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Progress Payment"**. If initial submittal is also a final submittal for any or all subcontractors, material or equipment suppliers, submit a **"Conditional Waiver And Release Upon Final Payment"** for those suppliers or subcontractors.

2. Upon each subsequent submittal for progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Progress Payment"** for the total amount through the current progress payment. Also submit an **"Unconditional Waiver And Release Upon Progress Payment"** reflecting the previous progress payment aggregate sum.

3. Upon submittal for final progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Final Payment"**. Also submit an **"Unconditional Waiver And Release Upon Progress Payment"** reflecting the previous progress payment aggregate sum.

4. Prior to final payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Final Payment"**.

5. Upon receipt of final payment, Contractor shall submit an **"Unconditional Waiver And Release Upon Final Payment"**.

END OF SECTION

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Through Date:_____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:_____

Amount of Check: $_____

Check Payable to:_____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release:_____

Amount(s) of unpaid progress payment(s): $_____

(4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Through Date:_____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: $_____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:_____

Amount of Check: $_____

Check Payable to:_____

Exception

This document does not affect any of the following:

Disputed claims for extras in the amount of: $ _____

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Maker of Check: _____

Amount of Check: $ _____

Check Payable to: _____

Exception

This document does not affect any of the following:

Disputed claims for extras in the amount of: $ _____

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

SECTION 01040

COORDINATION OF WORK

PART 1 GENERAL

1.1 RESPONSIBILITY OF CONTRACTOR

A. If any part of the Work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the Work by the Contractor.

1.2 WORK INVOLVED WITH EXISTING SYSTEM

A. Existing materials and equipment removed not designated to be salvaged for Owner in the execution of the Work shall become the property of the Contractor and shall be removed from, and disposed of, off the site by the Contractor in an acceptable and lawful manner.

1.3 COORDINATION OF WORK

A. The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with these Specifications, he shall obtain from each of his subcontractors a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

END OF SECTION

SECTION 01052

ENGINEER'S STATUS DURING CONSTRUCTION

PART 1 GENERAL

1.1 OWNER'S REPRESENTATIVE

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in these Specifications and will not be changed without written consent of Owner and Engineer.

1.2 VISITS TO SITE

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

1. At a minimum, Engineer shall be notified at least one (1) working day prior to commencement of the following activities:

   a. Placement of levee keyway fill

   b. Placement of levee fill

   c. Placement of pipelines

   d. Placement of pipeline backfill

   e. Placement of structural rebar prior to placement of formwork

   f. Placement of structural concrete

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Section 1.5, below. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or

procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

C. Review of the Work by the Engineer shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

D. No oral or telephonic agreement or conversation with any officer, agent or employee of the Owner or the Engineer, or with the Engineer, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the Contract Documents.

E. The Contractor shall pay the Owner for all overtime review in accordance with existing resolutions or fee schedules of the Owner, unless the charges for such inspection have been specifically waived in the Contract Documents. Overtime charges will be made for all reviews on Saturdays, Sundays and State holidays, and hours worked by the reviewer other than those of the normal working day.

1.3 AUTHORIZED VARIATIONS IN WORK

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided within the Contract Documents.

1.4 REJECTING DEFECTIVE WORK

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed. Neither this authority nor the Engineer's good faith judgment to reject or not reject any work shall subject the Engineer to any liability or cause of action by the Contractor, subcontractors, or any other suppliers or persons performing work on the Contract.

1.5 LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES

A. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident

thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

B. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

C. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

D. The limitations upon authority and responsibility shall also apply to, the Engineer's field representative, known as the Resident Project Representative, if any, and assistants, if any.

END OF SECTION

SECTION 01090

DEFINITIONS AND ABBREVIATIONS

PART 1 GENERAL

1.1 DEFINITIONS AND TERMS

A. Whenever in these Specifications, or in other Contract Documents, the following terms are used, the intent and meaning shall be interpreted as follows:

1. Board: Board of Directors, Consolidated Irrigation District.

2. Calendar Day: Every day shown on the calendar.

3. Contractor: The word “Contractor” means the person, firm or corporation to whom the award is made. Subcontractors as such will not be recognized.

4. Contract Unit Price: The Contractor’s original bid for a single unit of an item of work in the Proposal.

5. Contract Time: The number of calendar days for completion of the Work, including authorized time extensions. In the event a calendar date is specified for Project completion in lieu of a number of calendar days, the Work shall be completed by that calendar date. The Contract Time shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

6. Engineer: Provost & Pritchard Consulting Group, 2505 Alluvial Avenue, Clovis, California 93611-9166, (559) 326-1100.

7. Equipment: (Construction) - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of work. (Installed) - All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

8. General Conditions: As specified in Section 00700 – General Conditions.

9. General Requirements: All specifications contained in Division 1.

10. Notice: Any notice allowed or required to be given by the Owner may be given by the Engineer.

11. Owner: Consolidated Irrigation District.

12. Person: Any individual, association, partnership, corporation, trust, joint venture or other legal entity.

13. Plans: The drawings, profiles, cross-sections, working drawings and supplemental drawings, or reproduction thereof, approved by the Engineer, which show the location, character, dimensions or details of the work.

14. Proposal: The offer of a Bidder when submitted on the Proposal form; properly signed and guaranteed.

15. Reference Documents: Bulletins, Rules, Methods of Analysis or Test, Codes, Standards, and Specifications of public or private agencies, Engineer Societies, or Industrial Associations. Reference shall be to the latest edition thereof, including Amendments, which are in effect and published at the time the Request for Bids is issued, unless a specific edition is identified, in which case reference shall be to such specific edition. Reference Documents are intended to amplify the descriptions of materials, equipment, and construction systems and are to be considered a part of the Contract Documents insofar as the various sections thereof are referred to hereinafter. Examples of Reference Documents are Federal Specifications, State Standard Specifications, and those of American Society of Testing Materials (ASTM), American National Standards Institute (ANSI), American Standards Associations (ASA), and American Concrete Institute (ACI).

16. Salvage: The protection storage, and/or removal of specified existing equipment, parts or materials during the work for retention and later use by the Owner.

17. Sanitary Sewer: Any conduit and appurtenances intended for the reception and transfer of sewage.

18. State: The State of California.

19. State Standard Plans: State of California, Business and Transportation Agency, Department of Transportation, Caltrans, Standard Plans, latest revision.

20. State Standard Specifications: Standard Specifications for the project are those entitled "Standard Specifications, State of California, Business and Transportation Agency, Department of Transportation", 2006 edition, hereinafter referred to as the State Standard Specifications. These Specifications are to be considered a part of the Contract Documents insofar as they are not superseded by other provisions contained in Divisions 0 through 16 of these Specifications.

21. Storm Sewer: Any conduit and appurtenances intended for the reception and transfer of storm water.

22. Street: Any public road, highway, parkway, freeway, alley, walk or right-of-way.

23. Surety: Any individual, firm or corporation bound with and for the Contractor for the acceptable performance, execution and completion of the Work, and for the satisfaction of all obligations incurred.

24. Utility: Tracks, overhead of underground wires, pipelines, conduits, ducts or structures, sewers of storm drains owned, operated or maintained in or across a public right-of-way or private easement.

25. Water Main: Any conduit and appurtenances intended for the distribution of water.

26. Working Day: Any weekday (Monday through Friday), not a designated national holiday, during which weather allows the Contractor to work four or more hours consecutively, starting no later than 10:00 AM.

1.2 REFERENCED STANDARDS

A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the Owner. The Engineer will furnish, upon request, information as to how copies may be obtained.

1.3 LIST OF ABBREVIATIONS

A. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute

APWA	American Public Works Association
ARI	American Refrigeration Institute
ASA	(now U.S.A.S.I., USA Standards Institute) Association & its Standard Specifications
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America (formerly SCPI)
CAL/OSHA	California Occupational Safety and Health Administration
CALTRANS	California Department of Transportation
CBC	California Building Code
CCR	California Codes of Regulations
CDA	Copper Development Association
CEC	California Electrical Code
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CMC	California Mechanical Code
CPC	California Plumbing Code
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
DHI	Door and Hardware Institute
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EJCDC	Engineers' Joint Contract Documents Committee
EPA	Environmental Protection Agency
FED SPEC	Federal Specification
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual
FSA	Fluid Sealing Association
FTI	Facing Tile Institute
HEI	Heat Exchange Institute
HMI	Hoist Manufacturers Institute
HPMA	Hardwood Plywood Manufacturers Association

HTI	Hand Tools Institute
ICBO	International Conference of Building Officials
I-B-R	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IFI	Industrial Fasteners Institute
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
JIC	Joint International Conference (Hydraulic Institute)
MHI	Materials Handling Institute
MIL	Military Specification
MMA	Monorail Manufacturers Association
MSS	Manufacturers' Standardization Society
NAAMM	National Association of Architectural Metals Manufacturers
NACE	National Association of Corrosion Engineers.
MBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NBHA	National Builders Hardware Association
NCSPA	National Corrugated Steel Pipe Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NEMI	National Elevator Manufacturing Industry
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NLA	National Lime Association
NPC	National Plumbing Code
NPT	National Pipe Thread
NRCA	National Roofing Contractors' Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PFI	Pipe Fabrication Institute
PS	Product Standard
RTI	Resilient Tile Institute (formerly AVATI)
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SI	International Systems of Units (Metric)
SIGMA	Sealed Insulating Glass Manufacturers Association
SFPA	Southern Forest Products Association

SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPFA	Steel Plate Fabricators Association
SPI	Society of the Plastics Industry
SPTA	Southern Pressure Treaters Association
SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction (Greenbook)
UL	Underwriters' Laboratories
UPC	Uniform Plumbing Code
USBR	U.S. Bureau of Reclamation
USGS	United States Geological Survey
WCLA	West Coast Lumbermen's Association (Std. Grading and Dressing Rule)
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

END OF SECTION

SECTION 01300

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 GENERAL SUBMITTAL REQUIREMENTS

A. The Contractor shall submit to the Engineer such schedules, reports, drawings, lists, literature samples, instructions, directions, and guarantees as are specified or reasonably required for construction, operation, and maintenance of the Work. The Contractor's attention is directed to the individual Specification sections in these Contract Documents that may contain additional and special submittal requirements.

1.2 REVISIONS TO CONSTRUCTION SCHEDULE

A. Attention is directed to the provisions of Section 01011 – Description of Work and Schedule Constraints and Section 01013 - Liquidated Damages.

B. The Contractor shall submit a revised Construction Schedule within five (5) days of the occurrence of any of the following:

1. When delay in completion of any activity or group of activities indicates an overrun of the Contract time or control point requirement, by 5 calendar days or ten percent (10 percent) of the remaining duration, whichever is less.

2. Delays in submittals, deliveries, or work stoppage are encountered which make re-planning or rescheduling of the work necessary.

3. The schedule does not represent the actual prosecution and progress of the project as being performed in the field.

C. Acceptance of the revised Construction Schedule and all supporting data is contingent upon compliance with other related requirements specified elsewhere in this Division 1 – General Requirements and in any other Contract Documents, or requirements by the Engineer.

D. The cost of revisions to the Construction Schedule resulting from Contract changes will be included in the cost for the change in the Work, and will be based on the complexity of the revision or Change Order, man-hours expended in analyzing the change, and the total cost of the change.

E. The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.

1.3 ADMINISTRATIVE SUBMITTALS

A. The Contractor is reminded of his obligation, as required by law, to make required submittals to applicable Federal, State or local agencies. Failure to comply with this requirement may result in the withholding of progress payments and make the Contractor liable for other prescribed action and sanctions.

B. The Contractor shall submit for information to the Engineer a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, certified payrolls, etc. submitted directly to a federal, state, or other governing agency.

C. During the performance of the Contract, the Contractor shall maintain on a daily basis, and submit to the Engineer as requested, full and correct information as to the number of persons employed in connection with each subdivision of the work, the classification, cost, source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the work.

1.4 TECHNICAL SUBMITTALS (SHOP DRAWINGS)

A. Submittals are required for each item listed in Section 01301, Master List of Submittals. Contractor may submit additional materials and/or equipment at his option.

B. Requirements in this Section are in addition to any specific requirements for submittals specified in other divisions and sections of these Contract Documents.

C. Each submittal shall contain material pertaining to no more than one equipment or material item, and shall have the specification section and applicable paragraph number clearly identified. Each submittal shall be sequentially numbered starting with the first one delivered. Re-submittals shall include the number of the original submittal plus the suffix ".1" for the first re-submittal, ".2" for the second re-submittal, etc. (e.g. submittal 3.0, 3.1, 3.2, etc.) Submittals not conforming to these requirements will be rejected.

D. Designation of work "by others," if shown on shop drawings, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who has prepared the shop drawings.

E. Submittals will be promptly acted upon by the Engineer, and returned to the contractor not later than the time allowed for in B.1. below. The Contractor shall provide in his Construction Schedule the time for this review. If the Contractor is required by the Engineer to resubmit data, then the time required for the Contractor to prepare and resubmit such data, and the required time for Engineer review, shall not be a cause for delay in contract completion or a cause for an extension of contract time. Delay shall be assigned solely to the Contractor.

F. Additional costs for the Engineer's review beyond the second submission shall be borne by the Contractor. This applies to all submittals including shop drawings.

G. After a submittal has been reviewed and accepted, no changes or substitutions to that submittal will be allowed.

H. Shop Drawings and submittals will be reviewed for general conformance with the drawings and specifications. The intent of the review is to determine if the Contractor is submitting materials and equipment which are in general conformance with the Contract Documents. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed. Engineer's review of submittals shall not relieve Contractor from responsibility for errors, omissions, or deviations, nor responsibility for compliance with the Contract Documents. The Contractor shall indicate on the submittal transmittal form any deviation, the reasons, and how the submittal deviates from the contract requirements.

1.5 SUBMITTAL PROCEDURE:

A. The Contractor shall submit to the Engineer for his review four (4) copies of each submittal (shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items furnished under this Contract, etc.) Three (3) copies will be returned to the Contractor. (If Contractor needs more or less than three (3) copies returned, please submit more or less than four (4) copies. Engineer will retain one (1) copy of each submittal and return the rest.) Shop drawings shall be submitted in sufficient time to allow the Engineer not less than 10 regular working days for examining the shop drawings.

B. Shop drawings shall be accurate and complete, and shall contain all information required for Engineer to determine the suitability and conformance of each product submitted, including satisfactory identification of items in relation to the Contract Drawings and Specifications.

C. Shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the shop drawings that Contractor has checked and approved the shop drawings, that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved. Shop drawings which are incomplete or have not been checked by the Contractor will be returned to the Contractor for corrected resubmission.

D. After review by the Engineer, the requested number of submittal copies will be returned to the Contractor, appropriately stamped. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the Contractor with direction to make changes or corrections. The Contractor shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal. If changes are made by the Contractor on the resubmitted shop drawings in addition to those requested by the Engineer, such changes shall be clearly explained in an accompanying transmittal letter.

E. The review of shop drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of dimensions, fabrication details,

coordination with other work, space requirements, or for deviations from the Contract Drawings or Specifications, unless the Contractor has called attention to such deviations by a letter accompanying the shop drawings and the Engineer approves the change or deviation in writing at the time of his review; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings.

F. The Contractor agrees that shop drawing submittals processed by the Engineer do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and to permit the Engineer to monitor the Contractor's progress and understanding of the design.

G. Review by Engineer:

Upon review by the Engineer of each of the Contractor's submissions, the material will be returned to the Contractor with actions defined as follows:

1. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.

2. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the Contractor. No re-submittal required.

3. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Engineer. Resubmittal required.

4. SUBMIT SPECIFIED ITEM: Minor item in submittal missing or incomplete. Submit data, specifications, drawings covering specified item only. Submittal shall be referenced to the main submittal under review.

5. REJECTED: Submitted material does not conform to Plans and Specifications in major respect, i.e.: wrong item, wrong size, model, capacity, or material. Re-submittal required.

1.6 SHOP DRAWING REQUIREMENTS:

A. General: Shop drawings referred to herein shall include shop drawings, catalog cuts, information schematic diagrams, and other submittals for both shop and field-fabricated items. The Contractor shall submit, as applicable, the following for all prefabricated or manufactured structural items, material, and equipment:

1. Complete manufacturer's specifications, including materials description and paint system.

2. Samples of finish colors for selection.

1.7 RECORD DRAWINGS:

A. The Contractor shall deliver to the Engineer one complete set of final Record Drawings before the contract will be considered complete by the Owner. The Record Drawings will consist of a drafted marked-up set of Contract Record Drawings. Sketch mark-up on drawings will not be acceptable.

B. The Contractor shall keep an up-to-date set of marked-up Contract Record Drawings on a full-size set of the Contract Drawings. During the progress of the work, the Contractor shall record and mark-up any changes from or additions to the work described in the Plans and Specifications. All information recorded on the Contract Record Drawings shall be clearly legible.

C. At the end of the work, prior to Project Closeout, the Contractor shall provide the Engineer with the Contract Record Drawings, showing all "as-built" conditions.

D. Final payment will not be made to the Contractor until such time as the Record Drawings are satisfactorily submitted.

1.8 REQUESTS FOR INFORMATION

A. Requests for Information about the Contract Documents shall be directed by Contractor to Engineer using a Request for Information (RFI) form. Such requests will not be accepted by the Engineer from a Subcontractor or Supplier.

B. A separate form shall be used for each specific item for which information is required. Requests for Information for more than one item using a single RFI form will be permitted only when the items are so functionally related that expediency indicates review of the group of items as a whole.

C. The Engineer will reply to the Contractor's Request for Information within five (5) regular business days following receipt by the Engineer.

PART 2 PRODUCTS

Not used.

PART 3 PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01301

MASTER LIST OF SUBMITTALS

PART 1 GENERAL

A. The following submittals are required for the Work. Other submittals may be required as requested by the Owner or Owner's Representative.

1. Post-Bid Pre-Award Construction Schedule

2. Post-Award Construction Schedule

3. Contractor's Plan of Activities (submitted weekly)

4. Copies of all agency permits, including, but not limited to: Fresno County Encroachment Permit

5. Material certificates for aggregate base material as specified in Section 02232 – Aggregate Base.

6. Gradation specifications and materials certificates for rip rap and bedding, and manufacturer's installation manual for geotextile fabric as specified in Section 02272 – Rip Rap.

7. As specified in Section 02503 – Storm Water Pollution Prevention Plan.

8. As specified in Section 02504 – Dust Control

9. Pipe manufacturer's product literature and installation manuals as specified in Section 02610 – Pipe and Fittings.

10. Shop Drawings, calculations, and material certifications for the precast concrete culvert as specified in Section 02640 – Precast Reinforced Box Culverts.

11. Shop drawings for fences and gates as specified in Section 02800 – Fencing.

12. Product data for all waterstops and expansion joint material as specified in Section 3150 – Concrete Accessories.

13. Shop fabrication and placement drawings, and schedule for all reinforcing steel, and embedded items, as specified in Section 03300 – Cast-in-Place Concrete.

14. Product data for all grout as specified in Section 03600 – Grout.

15. Concrete mix designs, material certificates, admixtures, form release and curing compounds as specified in Section 03300 - Cast-In-Place Concrete.

16. Shop Drawings, calculations, and material certifications for all precast concrete structures as specified in Section 03400 – Precast Concrete Structures.

17. Shop Drawings for all miscellaneous metal work, catwalks, grating, and structural steel, as specified in Section 05500 – Fabricated Metal.

18. Product data for all caulking and sealants as specified in Section 09710 – Caulking and Sealants.

19. Product data and samples as specified in Section 09900 – Painting.

20. Shop Drawings, installation manual, product literature for Canal Gates as specified in Section 11287- Water Control Gates.

21. All other administrative and conditional submittals as explained in this Section 01300 – Submittal Procedures.

END OF SECTION

SECTION 01400

QUALITY CONTROL AND TESTING

PART 1 GENERAL

1.1 NOTICE OF DEFECTS

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

B. All defective Work may be rejected, corrected, or accepted, at the discretion of the Owner and Engineer.

1.2 ACCESS TO WORK

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests shall have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith.

1.3 MATERIALS AND EQUIPMENT

A. Materials and equipment shall be subject to the requirements of Section 01017 – Materials and Substitutions.

1.4 PROJECT SITE TESTING

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Except for specified material suitability tests, all initial routine tests of materials shall be at the expense of the Owner and shall be performed by an independent certified laboratory designated by the Owner. Whenever a specified percent relative compaction test is required and the material or portion thereof so tested fails to meet or exceed the relative compaction specified, all subsequent retesting shall be performed at the expense of the Contractor.

C. All material suitability tests shall be at the expense of the Contractor. Testing shall be by an independent certified laboratory approved by the Engineer.

1.5 TEST STANDARDS

A. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.

B. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the ASTM, where applicable.

1.6 UNCOVERING WORK

A. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without concurrence of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and recovered at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be re-observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall promptly correct said defects, including all work involved in uncovering and recovering the work, at no cost to the Owner.

2. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

1.7 CORRECTION OR REMOVAL OF DEFECTIVE OR REJECTED WORK

A. Upon receipt of notice, Contractor shall correct all defective or rejected Work and replace it with Work that is not defective, at no cost to the Owner.

1.8 ACCEPTANCE OF DEFECTIVE WORK

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so.

1. If any such acceptance occurs, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted.

2. Engineer shall determine the reasonableness of the diminished value of Work so accepted and Contractor shall pay all costs involved in making such determination.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall provide all temporary facilities and utilities required for completion of the Work as well as safety precautions and programs. No attempt is made to set out in detail the Contractor's means or methods necessary to accomplish the tasks involved.

1.2 TEMPORARY UTILITIES

A. Water

1. The Contractor may make arrangements with the Owner to use municipal water where appropriate during construction. See Section 02233 -- Watering of these specifications for details.

2. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.

B. Sanitary Facilities

1. The Contractor shall provide suitable and adequate sanitary conveniences for the use his staff at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

2. With respect to sanitation facilities, the Contractor shall cooperate with and follow directions of representatives of the Public Health Service and the State. State and County Public Health Service representatives shall have access to the Work, whether it is in preparation or progress, and the Contractor shall provide facilities for such access and inspection.

1.3 TEMPORARY CONSTRUCTION FACILITIES

A. Construction hoists, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. The Contractor shall submit design calculations prepared by a professional registered engineer for staging and shoring prior to application of loads.

C. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations from one hour before sunset each day to one hour after sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded in such a manner as to prevent person from falling, walking, or otherwise entering any excavation in any street, roadway, parking lot, treatment plant, or any other area, public or private.

D. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.

E. At such time or times any temporary construction facilities and utilities are no longer required for the work, the Contractor shall notify the Engineer of his intent and schedule for removal of the temporary facilities and utilities, and obtain the Engineer's approval before removing the same. As approved, the Contractor shall remove the temporary facilities and utilities from the site as his property and leave the site in such condition as specified, as directed by the Engineer, and/or as indicated on the Plans.

1.4 ACCESS ROADS AND STAGING AREA

A. Adequately access shall be maintained to all storage areas and other areas to which frequent access is required. The Contractor shall limit the location of his storage of equipment and materials outside of the project site. The Contractor shall make his own arrangements for space that may be required and bear all associated costs. The Contractor shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

B. Storage and protection:

1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with accordance with manufacturer’s recommendations to prevent corrosion.

2. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.

END OF SECTION

SECTION 01502

PROTECTION OF UNDERGROUND FACILITIES AND SURVEY MONUMENTS

PART 1 GENERAL

1.1 UNDERGROUND FACILITIES

A. Shown or Indicated*:* The information and data shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such underground facilities, including Owner, or by others.

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. Reviewing and checking all such information and data,

b. Locating all Underground Facilities shown or indicated in the Contract Documents,

c. Coordination of the Work with the owners of such underground facilities, including Owner, during construction, and

d. The safety and protection of all such underground facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated: If an underground facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated with reasonable accuracy in the Contract Documents, the provisions of Section 01018 shall apply.

1. Contractor shall develop and execute a work-plan, subject to Engineer's approval to protect underground facilities.

2. The Contractor shall expose, prior to staking and trenching, all existing utilities and existing facilities which may control proposed facility grades, and alignment. Two working days notice shall be given to the Engineer prior to commencing this work.

3. Full compensation for all costs involved in locating, verifying, protecting, exposing, and otherwise providing for utilities shall be included in the amounts bid for the various items of work, and no separate payment shall be made therefore.

1.2 PROTECTION

A. The Contractor shall not interrupt the service function or disturb the supporting base of any Utility by disrupting any facility identified in the Plans and Specifications without authority from the Owner or order from the Engineer. Where protection of such facilities is required to ensure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at the Contractor's expense.

B. The Contractor shall be prepared at all times with labor, equipment and materials to make repair on damaged mains or Utility facilities. The Contractor shall immediately notify the Engineer and the Utility owner if he disturbs, disconnects or damages any Utility. The Contractor shall bear the costs of repair or replacement of any Utility facility described with reasonable accuracy in the Plans and Specifications that is damaged by the Contractor. No extra compensation will be made for the repair of any services or mains damaged by the Contractor, nor for any damage incurred if the neglect or failure of providing protective barriers, lights and other devices or means required to protect such existing utilities or facilities described with reasonable accuracy in the Plans and Specifications.

1.3 SURVEY MARKERS AND PERMANENT REFERENCE POINTS

A. Surveying and Permanent Survey Markers

The Engineer will take measurements to assure the preservation of survey markers (monuments and bench marks). The Contractor shall not disturb permanent survey markers without the consent of Engineer and shall bear the expense of replacing any that may be disturbed without permission.

1. Replacement of survey markers shall be done only by the Engineer.

2. If disturbing of markers cannot be avoided, the Owner shall pay the cost of replacing said markers.

B. Lot Corner Monuments

The Contractor shall preserve property line and corner survey markers except where their destruction is unavoidable and the Contractor is proceeding in accordance with accepted practice. Markers that are lost or disturbed by his operations shall be replaced at the Contractor's expense by the Engineer.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 GENERAL

A. It is the intent of these Contract Documents that the Contractor shall deliver a complete and operable facility capable of performing its intended functions and ready for use.

1.2 CLEANING

A. Throughout the period of construction the Contractor shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris, excepting select material which may be required for refilling or grading.

1.3 FINAL SITE CLEAN-UP

A. Upon completion of the Work, and prior to final acceptance, the Contractor shall remove from the vicinity of the Work all paint, surplus material, and equipment belonging to him or used under his direction during construction.

1.4 WASTE DISPOSAL

A. The Contractor shall dispose of surplus materials, waste products, demolition materials, and debris. The Contractor shall transport and dispose of waste materials in accordance with applicable laws and regulations.

1.5 PROJECT RECORD DOCUMENTS

A. The Contractor shall maintain at the site, available to the Owner and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders, and other modifications in good order and marked to record all changes made during construction. These Documents shall be delivered to the Engineer upon completion of the Work.

B. Record documents shall be reviewed during progress meetings to ascertain that all changes have been recorded.

C. Store Record Documents separate from documents used for construction.

1.6 TOUCH-UP AND REPAIR

A. The Contractor shall touch-up or repair finished surfaces on structures, equipment, fixtures, or installations, that have been damaged prior to final

acceptance. Surfaces on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items, the item shall be replaced. Such items shall include, but not be limited to, the following:

1. Road surfaces

2. Exposed structure surfaces

3. Exposed equipment surfaces

4. Exposed piping surfaces

1.7 EQUIPMENT START-UP

A. After all acceptance tests have been completed by the Contractor and Owner but prior to final acceptance, the Contractor shall recheck all equipment for proper alignment and adjustment, check oil levels, re-lubricate all bearings and wearing points, and in general assure that all equipment is in proper condition for regular continuous operation.

1.8 OPERATION AND MAINTENANCE (O&M) MANUALS

A. Operation and maintenance instructions shall include, as a minimum, the following data for each item of mechanical, electrical, and instrumentation equipment: All equipment manufacturers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system.

1. An itemized list of all data provided.

2. Name and location of the manufacturer, the manufacturer's local representative, the nearest supplier, and spare parts warehouse.

3. Equipment function, normal operating characteristics, and limiting conditions.

4. Recommended maintenance procedures during storage of equipment prior to installation and after installation but prior to start-up.

5. Recommended installation, adjustment, start-up, calibration, and troubleshooting procedures.

6. Recommended lubrication, lubrication intervals, and an estimate of yearly quantity needed.

7. Recommended step-by-step procedures for all modes of operation. Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions. Instructions shall include

keystrokes and procedures required for adjusting control setpoints for equipment operation.

8. Complete internal and connection wiring diagrams.

9. Electrical equipment maintenance

10. Test data and performance curves, where applicable

11. Recommended preventive maintenance procedures and schedule.

12. Complete parts lists, by generic title and identification number, with exploded views of each assembly.

13. Recommended spare parts and any special tools required.

14. Disassembly, overhaul, and reassembly instructions.

B. Following completion of an item, instructions and procedures shall be modified by the Contractor to reflect field changes. In addition, the O&M Manuals shall contain reproducible prints of the Contract record wiring diagrams, schematics, and installation drawings required under the Electrical and Instrumentation Specifications. Information not applicable to equipment installed in the work shall be excluded.

C. Individual Manuals shall be broken into sections and indexed. The sections shall include Mechanical Equipment, Automatic and Special Valves, Control Systems, Electrical, and others as necessary. Under each section there shall be a description of the operation and maintenance, lubrication schedules, and installation instructions of each item. Sections shall be labeled and each item shall be sub-labeled. No acceptance of equipment will be made until the individual manual has been approved. Contractor's copy of the individual manual shall be available at the site of the Work for use by field personnel and the Engineer during start-up and testing of the equipment.

1.9 MASTER SETS

A. Before final acceptance of the project, the Contractor shall provide five (5) master sets of operation and maintenance instructions each consisting of a collection of the individual manuals previously submitted and approved. The master sets shall be arranged in hard-leaf, 3-ring binders. Each volume of each master set shall contain only that materials which can be held between the rings.

B. Manuals and other data shall be printed on heavy, first quality paper, 8 ½ by 11 inch size with standard 3-hole punching. Drawings and diagrams shall be reduced to 8 ½ by 11 inches or 11 by 17 inches. Where reduction is not practicable, larger drawings shall be folded separately and placed in envelopes which are bound into the manuals. Each envelope shall bear suitable identification .

C. No progress payment in excess of ninety five percent (95%) of the Contract amount shall be made until all such materials have been received from the Contractor.

D. Each volume of each master set shall include the following:

1. Embossed title on the outside front leaf and the spine:

Operation and Maintenance Manuals
ADAMS & ACADEMY Basin Project – Earthwork & Structures Contract

2. A plastic laminated (both sides) table of contents listing all items contained therein and their location.

3. Tabbed and labeled dividers separating the individual operation and maintenance manuals contained in the volume. Dividers shall be keyed to the table of contents.

4. A list of manufacturer's local representatives for the major equipment items contained in the volume.

5. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.

6. Submit final volumes revised, within ten days after final inspection.

1.10 FINAL EQUIPMENT CHECK

A. After test operation and before final acceptance, or acceptance for the final 7-day test run by the Owner, each piece of machinery shall be lubricated and all components and couplings checked for proper alignment and adjustment.

B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. Provide submittals to Owner that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.11 MANUFACTURER'S CERTIFICATES OF PROPER INSTALLATION

1. The Contractor shall submit manufacturers' certificates of proper installation for all items of equipment.

1.12 WARRANTIES

A. Provide notarized copies.

B. Execute and assemble documents from subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in binder with durable plastic cover.

D. Submit prior to Application for Final Payment

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

END OF SECTION

SECTION 01900

EXPLANATION OF BID ITEMS

PART 1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Specifications, quantities of work shall be determined per each, or from measurements or dimensions in a horizontal plane. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule.

B. Except as noted, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for. Compensation for such work and/or material shall be included in the prices paid for other items of work.

PART 2 BID ITEMS

Bid Item 1 – Mobilization/Demobilization, Bonds, Insurance, and Permits: Payment for this item shall include full compensation for all labor, materials, tools, equipment and incidentals making up the cost of mobilization, move-in, move-out, securing all necessary bonds, insurance, permits, licenses, and associated fees required during the performance of the work as specified. This item also includes demobilization, including the removal of all equipment, supplies, personnel and incidentals from the project at the end of construction. This bid item will be paid for by Lump Sum, prorated, based on percentage of contract work completed.

Bid Item 2 – Worker Protection: Payment for this item shall be considered full compensation for all labor, materials, tools, equipment and incidentals for providing for worker protection from caving ground in excavations and other hazards that may occur at all times the during construction period, in accordance with the Plans and specifications. This bid item will be paid for by Lump Sum, prorated, based on percentage of contract work completed.

Bid Item 3 – **Miscellaneous Facilities and Operations:** This bid item includes provisions for de-watering, maintaining drainage, temporary storm and flood water control, dust control, traffic control, construction and removal of temporary security fencing, construction of staging areas, protection of existing facilities, furnishing and installing project sign, maintaining and providing the record documents and O&M manuals, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items. This bid item will be paid for by Lump Sum, prorated, based on percentage of work completed.

Bid Item 4 – **SWPPP BMP Installation and Maintenance:** Payment under this item shall be considered full compensation for all labor, materials, tools, equipment and incidentals required for the installation of Best Management Practices and maintenance of BMPs per Project SWPPP developed by P&P and/or required inspection report maintenance. Project SWPPP requirements include, but are not limited to, swale grading, wire backed silt fence installation, gravel placement, concrete washouts, and construction good housekeeping measures. Bid Item includes SWPPP Closeout which entails BMP removal and ground/site restoration to prevent erosion. This bid item will be paid for by Lump Sum, prorated, based on percentage of work completed.

Bid Item 5 – **Clearing and Grubbing:** This item includes furnishing all labor, equipment, tools, materials and incidentals to clear and grub all areas as needed to perform all other tasks at the project site, and any clearing and grubbing necessary to haul and dispose of unsuitable material that was cleared and grubbed to an approved disposal site selected by the Contractor and approved by the Engineer, as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per Acre of the project site cleared.

Bid Item 6 – **Abandon and Destroy Existing On-Site Well:** This bid item is a unit bid price for destroying the existing on-site agricultural well and appurtenances and shall be per lineal foot destroyed, and shall be full compensation for furnishing all labor, equipment and materials to complete the destruction as described herein, and no additional compensation will be made therefore. The top of the casing shall be cut off ten feet (10') below ground level, the well shall be destroyed in accordance with State Health Department, County of Fresno, and the California Water Well Standards (including Department of Water Resources Bulletins 74-81 and 74-90) requirements. “Filler” and “sealing” material used for well destruction, as defined in the Department of Water Resources Bulletins 74-81 and 74-90, shall consist of bentonite clay or neat cement for the entire length of the well. Other “filler” or “sealing” material shall not be acceptable. The Contractor shall restore the site to conditions similar to those prior to abandonment. Also included in this bid item is the preparation and filing of a complete Well Destruction Report with the California Department of Water Resources. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price. This bid item will be paid for on a Lump Sum basis.

Bid Item 7 – **Construct Levee Keyways (F):** This item includes furnishing all labor, equipment, tools, materials and incidentals required to excavate, fill and recompact the reservoir and settling channel levee keyways. This item shall include preparation of the subgrade including over-excavation, excavation of unsuitable material, scarification, backfill, moisture conditioning, and compaction, as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per Cubic Yard of in-place compacted material for keyway construction and will be a Final Pay Item (refer to Section 01025).

Bid Item 8 – **Construct Reservoir Levees (F):** This item includes furnishing all labor, equipment, tools, materials and incidentals required for the construction of the reservoir levees. This includes scarifying, and recompacting the subgrade, moisture conditioning, excavating, placing, compacting, finish grading the engineered fill for the embankments, and providing all miscellaneous materials, incidentals, labor, tools and equipment and for doing all work involved as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per Cubic Yard of in-place compacted material that is used for levee construction and will be a Final Pay Item (refer to Section 01025).

Bid Item 9 – **Construct Kirby Ditch Turnout Structure:** This item includes furnishing all labor, equipment, tools and materials required to furnish and install the precast concrete turnout structure and construct the appurtenances, trash rack, 54-inch canal gate, concrete canal lining, 54-inch diameter concrete pipe with cutoff collars, air vent, and miscellaneous metals. This item also includes, sub-grade preparation including excavation, scarification, backfill, placing sand-cement slurry backfill to the pipe springline, moisture conditioning, and compaction, and other incidentals required to construct the bid item detailed on the Plans and Specifications. This bid item will be paid for on a Lump Sum basis.

Bid Item 10 – **Construct Project Distribution Structure:** This item includes furnishing all labor, equipment, tools and materials required to construct the concrete control structure and appurtenances, galvanized metal covers and hand-railing, board guides, bollards and other miscellaneous metals, concrete canal lining at the embankment transitions, 42-inch diameter canal gates, 42-inch diameter concrete pipelines to the basins including cutoff collars, thrust blocks, and air vents, and furnishing and placing rip rap the pipeline basin outlets. This item also includes, sub-grade preparation including excavation, scarification, backfill, placing sand-cement slurry backfill to the pipe springline, moisture conditioning, and compaction, and other incidentals required to construct the Project Distribution concrete control structure detailed on the Plans and Specifications. This bid item will be paid for on a Lump Sum basis.

Bid Item 11 – **Construct Basin Staff Gage:** This item includes furnishing all labor, equipment, tools and materials required to construct the basin staff gages as detailed on the plans and specifications. This includes constructing the concrete footing, and furnishing and installing the pipe with painted striping. This item also includes, sub-grade preparation including excavation, scarification, backfill, moisture conditioning, and compaction, and other incidentals required to

construct the staff gages detailed on the Plans and Specifications. This bid item will be paid for each staff gage constructed.

Bid Item 12 – Construct Stilling Well: This item includes furnishing all labor, equipment, tools and materials required to construct the stilling well at the box culvert canal crossing as detailed on the plans and specifications. This includes furnishing and installing the corrugated metal pipe and anchorage, equipment housing, and other incidentals required to construct the stilling well detailed on the Plans and Specifications. This bid item will be paid for on a unit price basis for each stilling well constructed.

Bid Item 13 – Construct Well Discharge Standpipes and Pipelines: This item includes furnishing all labor, equipment, tools, and materials to construct the RW101 and RW102 well discharges to the Kirby Ditch including concrete standpipes, trenching, backfill, compaction, 24-inch diameter concrete pipes, concrete and other incidentals necessary for completing all work involved as detailed on the Plans and Specifications. This bid item will be paid for each well discharge constructed.

Bid Item 14 – Construct Concrete Canal Lining at Well Discharges: This item includes furnishing all labor, materials, tools, equipment and incidentals to construct concrete canal lining on the canal floor and side slopes of the Kirby Ditch at the two (2) well discharge locations as detailed on the Plans and Specifications. This item also includes sub-grade preparation including excavation, scarification, backfill, moisture conditioning, compaction, and furnishing and installing the rip rap transitions on the upstream and downstream side of the lining. This bid item will be paid for on a Unit Price basis per Square Foot of the combined in place canal lining at the well discharge locations, and shall be measured along the exposed surface of the canal lining, including the top of the thickened edges.

Bid Item 15 – Construct Box Culvert Canal Crossing: This item includes furnishing all labor, equipment, tools, and materials to construct the culvert canal crossing in the Kirby Ditch as detailed in the Plans and Specifications. This includes demolishing and removing the existing concrete bridge crossing, furnishing and installing the pre-cast box culvert, constructing the reinforced concrete wingwalls, and constructing concrete canal lining at the upstream and downstream ends of the box culvert. This item also includes sub-grade preparation including excavation, scarification, backfill, moisture conditioning, and compaction for the pre-cast box culvert structure and concrete canal lining. This bid item will be paid for on a Lump Sum basis.

Bid Item 16 – Furnish and Install Perimeter Wire Fence: This item includes furnishing all labor, equipment, tools, materials and incidentals to furnish and install new wire fencing as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per Linear Foot of fencing constructed.

Bid Item 17 – Furnish and Install Single 16' Drive Gates: This item includes furnishing all labor, equipment, tools materials and incidentals to furnish and

install new single 16 foot drive gates as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per each single 16' drive gate furnished and installed.

Bid Item 18 – Furnish and Install Double 16' Drive Gates: This item includes furnishing all labor, equipment, tools materials and incidentals to furnish and install new double 16 foot drive gates as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per each double 16' drive gate furnished and installed.

Bid Item 19 – Furnish & Install Class II Aggregate Base 3" Driveway Surface (F): This item includes furnishing all labor, equipment, tools materials and incidentals to furnish and place class II aggregate base, including sub grade preparation, finish grading, moisture conditioning and compaction at each of the four (4) project access driveways between the County road edge of pavement and the perimeter fence drive gates, as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per Ton of aggregate base placed and will be a Final Pay Item (refer to Section 01025).

ADDITIVE BID ITEMS

Bid Item 20 – Furnish & Install Class II Aggregate Base 3" Levee Road Surface (F): This item includes furnishing all labor, equipment, tools materials and incidentals to furnish and place class II aggregate base, including sub grade preparation, finish grading, moisture conditioning and compaction as detailed on the Plans and Specifications. If awarded, this bid item will be paid for on a Unit Price basis per Ton of aggregate base placed and will be a Final Pay Item (refer to Section 01025).

Bid Item 21 – Construct Perimeter Irrigation Ditches: This item includes furnishing all labor, equipment, tools, materials and incidentals required for the construction of the perimeter irrigation ditches along the road frontages of the Project site. This includes excavating the ditches and using the excavated material, if suitable, for the reservoir levee construction, and providing all miscellaneous materials, incidentals, labor, tools and equipment and for doing all work involved as detailed on the Plans and Specifications. This bid item will be paid for on a Unit Price basis per Cubic Yard of cut material and will be a Final Pay Item (refer to Section 01025).

Bid Item 22 – Construct Perimeter Irrigation Ditch Turnouts & Pipe Culverts: This item includes furnishing all labor, equipment, tools and materials required to furnish and install two precast concrete turnout structures and construct the appurtenances, 12-inch canal gates, and 12-inch diameter concrete pipe with cutoff collars. This item also includes, sub-grade preparation including excavation, scarification, backfill, placing sand-cement slurry backfill to the pipe springline, moisture conditioning, and compaction, and other incidentals required

to construct the bid item detailed on the Plans and Specifications. This bid item will be paid for on a Lump Sum basis.

END OF SECTION

SECTION 02050

DEMOLITION

PART 1 GENERAL

1.1 DESCRIPTION

A. The work of this section consists of demolition and removal of concrete structures and pipe, the bridge crossing, and miscellaneous items, miscellaneous debris, and portions of abandoned utilities.

B. Definitions:

1. Portland Cement Concrete: A mixture of Portland cement, fine aggregate, coarse aggregate, admixtures (if used) and water, proportioned and mixed. Also, included is rebar.

2. Asphalt Concrete: A mixture of liquid asphalt and graded aggregate used as paving material for roadways and parking lots.

1.2 WORK INCLUDED

A. Repair and restoration of areas damaged due to demolition work.

B. Salvaging of equipment for Owner.

C. Removal of demolished materials from site.

D. Remove existing piping and other existing structures as shown on the Plans to be removed.

E. Properly dispose of all removed materials.

F. Dewatering as needed in order to complete the proposed demolition.

1.3 RELATED WORK

A. Section 02115 – Clearing and Grubbing

B. Section 02200 – Earthwork.

C. Section 02503 – Storm Water Pollution Prevention Plan

D. Section 02504 – Dust Control

E. Section 03300 – Cast In Place Concrete

1.4 SEQUENCING

A. Sequence work to minimize interference with District facilities operation.

1.5 REGULATORY REQUIREMENTS

A. Obtain required permits.

B. Dispose of removed materials in an approved disposal or salvage facility.

1.6 REFERENCES

A. Section 16 – Clearing and Grubbing, State Standard Specifications

B. Section 19 – Earthwork, State Standard Specifications

1.7 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures

B. Demolition plan including sequence of operations. The plan shall specifically address methods of demolition, schedule, sequence of demolition, and procedures for archeological monitoring. Demolition shall not proceed until the plan has been approved.

1.8 QUALITY ASSURANCE

A. General: Take all necessary precautions with regard to safety in carrying out the demolition and site work. Erect suitable barriers around open excavations and fulfill all appropriate requirements of CAL/OSHA. Comply with safety requirements for demolition, ANSI A10.6-90.

1.9 PROJECT CONDITIONS

A. Underground utilities exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.

B. Keep dust to a minimum at removal site and on haul roads. Use sprinklers or water trucks as necessary or as directed by the Engineer.

C. Ensure safety of persons in demolition area. Provide temporary barricades as required.

D. Excavations may encounter groundwater and require dewatering depending on the time of year and amount of seasonal run-off. Loose sands exposed in excavation sidewalls may be unstable and require shoring or lying back in accordance with OSHA requirements. Flowing sands may also be encountered in excavations below groundwater levels.

1.10 CLOSEOUT SUBMITTALS

A. As specified in Section 01700 – Project Close Out.

B. Show all capped and abandoned utility terminations and location of remaining facilities on project Record Drawings.

PART 2 PRODUCTS

2.1 REPAIR AND RESTORATION MATERIALS

A. Concrete materials shall be as required by Section 03300 - Cast In Place Concrete.

B. Backfill materials shall be as required by Section 02200 – Earthwork and Section 19, Earthwork, State Standard Specifications.

2.2 MATERIALS

A. Salvaged Materials: Materials to be salvaged shall remain the property of the Owner and shall be stockpiled as directed by the Engineer. Contractor shall inventory all salvaged materials. Stockpiled materials shall be free of hazardous substances. Salvage materials include:

B. Items to be Salvaged and Relocated shall be salvaged and/or relocated as shown on the drawings, or as directed by the Engineer.

C. Materials and items demolished and not designated for reuse, salvage or transfer to the Owner, as well as all debris, rubbish and other materials resulting from the demolition operations, shall become the property of the Contractor and shall be removed from the site within 48 hours of demolition.

D. Storage or sale of the removed items will not be permitted at the site.

PART 3 EXECUTION

3.1 INSPECTION

A. Prior to demolition, inspect the site conditions, verifying all governing dimensions, notes and specification. Notify the Engineer of any apparent errors or omissions in the contract documents.

B. Make such explorations and probes as are necessary to ascertain any required protection measures before proceeding with the demolition and removal work.

3.2 PREPARATION

A. Protect all buildings, structures, utilities, and vegetation to remain.

B. Prior to demolition work, all soil erosion control measures specified in Section 02503 - Stormwater Pollution Prevention Plan (SWPPP) and inlet protection barriers shall be in place. Contractor shall provide appropriate measures to prohibit demolition debris and/or soil from entering any watercourse.

C. Prior to demolition work, all dust control measures specified in Section 02504 – Dust Control shall be in place.

3.3 DEMOLITION REQUIREMENTS

A. Conduct demolition to protect and minimize damage to structures and existing improvements.

B. Conduct salvaging to protect and minimize damage to salvaged equipment.

C. All work within a Caltrans right of way shall conform to Section 15 of the State Standard Specifications.

D. Execute the work in a careful, orderly and safe manner, with the least possible disturbance to the public. Cease operations immediately if adjacent work appears to be endangered. Do not resume operations until corrective measures have been taken.

E. Pavement and Slabs:

1. Remove completely all Portland cement concrete slabs-on-grade including, but not limited to, equipment pads, sidewalks, etc.

2. Saw cut existing asphalt concrete pavements cleanly in straight continuous lines. Remove asphalt concrete pavement as shown on the drawings.

   a. Asphalt Concrete Milling Equipment: Milling machines shall be power operated, self-propelled machines capable of removing the desired thickness. They shall have sufficient power, traction and stability to accurately maintain depth of cut and slope.

b. Any material thus processed shall conform to the specifications for Section 02232 - Aggregate Base

3. In areas that are demolished, but where no future roads or structures are shown, the exposed subgrade shall be scarified an additional 18 inches before placing backfill.

F. Concrete and Masonry Structures: Remove structure to a minimum of 3 feet below grade. Break remaining portions to permit drainage. Remove completely if shown on the plans or if under proposed structures or roadways.

G. Items to be Salvaged: Remove as directed by the Engineer. Remove carefully. All salvaged material remains the property of the Owner. Store where directed by the Engineer.

H. Abandoned Utilities: Remove above ground utilities and terminate as approved by the utility company and the Engineer. Remove necessary portions of underground utilities to within 24 inches of excavation or final grade. Plug abandoned pipes and conduits with concrete plugs. Plugs shall be 6 inches or 2 times the pipe diameter in length, whichever is greater.

1. Water lines shall be capped as close as possible to active mains.

3.4 SALVAGE EQUIPMENT

A. Salvaged equipment shall be delivered to the Owner at a designated site within the project site. Salvaged equipment shall be placed on wood or concrete blocks so the equipment will be 4 inches minimum above ground elevation.

B. Equipment to be salvaged:

1. Water Control Gates

3.5 ORDER OF WORK

A. Existing facilities shall remain in operation until the District shuts down water for the maintenance period.

3.6 PRESERVATION

A. If indicated or required, preserve trees, plants, rock outcroppings, or other features designated to remain. Protect trees and plants from damage; fell trees in a manner which shall not injure standing trees, plants and improvements which are to be preserved.

3.7 RESTORATION

A. All demolition areas, staging/stockpiling, and open excavations shall be filled in accordance with the Earthwork Sections. Fill all open excavations deeper than one foot to an elevation to match the surrounding topography.

1. New Construction Areas: As shown on drawings.

3.8 DISPOSAL

A. As specified in Section 01500 – Temporary Facilities.

END OF SECTION

SECTION 02115

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of clearing, grubbing, grinding, removing and disposing of trees, stumps, roots, vegetation debris, and landscaping, within the clearing limits.

B. Protect trees, landscaping and shrubs that are not designated to be removed or near construction site that may be harmed by construction activities.

1.2 RELATED WORK

A. Section 02050 – Demolition

B. Section 02200 – Earthwork

C. Section 02503 – Storm Water Pollution Prevention Plan

D. Section 02504 – Dust Control

1.3 REGULATORY REQUIREMENTS

A. Obtain all required permits.

B. Dispose of removed materials in an approved disposal facility.

1.4 REFERENCES

A. Section 16 – Clearing and Grubbing, State Standard Specifications

B. Section 19 – Earthwork, State Standard Specifications

PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

A. Clear the specified areas by removing landscaping; vegetable growth such as trees, shrubs, logs, upturned stumps, roots of down trees, brush, and similar material.

B. Grub the specified areas below the natural ground surface, to a depth necessary to remove all boulders, stumps, roots, buried logs, and other objectionable material including rock and concrete.

3.2 PRESERVATION

A. If indicated or required, preserve trees, plants, rock outcroppings, or other features designated to remain. Protect trees and plants from damage; fell trees in a manner which shall not injure standing trees, plants and improvements which are to be preserved.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.1 WORK INCLUDED

A. Excavate earth and rock as necessary to allow the installation or construction of various items of work, regardless of character and subsurface conditions.

B. Haul, place, rough grade, compact, and finish grade excavated material as engineered fill on those portions of the project site where it is necessary in order to construct the facilities indicated on the Plans.

C. Dispose of unsuitable material off-site or in designated areas, as directed by the Engineer.

D. Prepare excavation and fill for compaction testing.

1.2 RELATED WORK

A. Section 02115 – Clearing and Grubbing

B. Section 02202 – Trenching & Backfilling

C. Section 02229 – Utility Line Marking

D. Section 02503 – Storm Water Pollution Prevention Plan

E. Section 02504 – Dust Control

F. Section 02610 – Pipe and Fittings

G. Section 02640 – Valves and Appurtenances

H. Section 03300 – Cast-In-Place Concrete

I. Section 03400 – Precast Concrete Structures

1.3 REFERENCES

A. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Sol-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.

C. ANSI/ASTM D1556 – Density of Soil and base rock in Place by Sand-Cone Method.

D. ASTM D 6938 – Density of soil and base rock in place by Nuclear method.

E. ASTM D 2937 – Density of soil and in place by Tube method.

F. Section 26 – Aggregate Bases, State Standard Specifications.

G. Section 16 – Clearing and Grubbing, State Standard Specifications

H. Section 17 – Watering, State Standard Specifications

I. Section 19 – Earthwork, State Standard Specifications

J. *Geotechnical Engineering Investigation Report* entitled*, Proposed South and Highland Recharge Basins, Northeast of South Leonard and South Avenues, Fowler, Fresno County, CA (BSK-G13-005011F)* by BSK Associates, dated April 16, 2013.

1.4 PROTECTION

A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

1. Trenches shall have sloping, sheeting, shoring, and bracing conforming with 29CFR1926, Subpart P—Excavations, CAL/OSHA requirements, and the Contract Documents.

B. Notify Engineer of unexpected subsurface conditions.

C. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

D. Grade excavation top perimeter to prevent surface water run-off into excavation.

1.5 CONTROL AND DIVERSION OF WATER

A. General – The Contractor shall furnish or procure all materials and labor required for constructing and maintaining all necessary cofferdams, channels, flumes, drains, sumps, and/or other temporary diversion and protective works and shall furnish, install, maintain, and operate all necessary pumping and other equipment for removal of water from the various parts of the work and for maintaining the foundations and other parts of the work free from water.

B. Plan – Prior to beginning any work on the removal of water from foundations, the Contractor shall submit for the Engineer’s approval a water control plan showing his proposed method for the removal of water from foundations and other parts of the work.

1.6 SUBMITTALS

A. Submit plans as required for work protection against caving ground in excavation. Designs for shoring, bracing, sloping, or similar provisions shall bear the seal of a registered civil or structural engineer.

B. Submittals shall be in accordance with Section 01300 - Submittal Procedures.

1.7 QUALITY ASSURANCE

A. Relative Compaction:

1. All costs for initial compaction tests shall be borne by the Owner. All areas that fail to meet the minimum compaction requirements shall be reworked as required by the Engineer and retested until minimum compaction requirements are obtained.

2. The cost of any retests, including time for the Engineer, shall be borne by the Contractor at no additional cost to the project. Testing will be required as directed by the Engineer. Test locations shall be determined by the Engineer upon notification from the Contractor that the grade is ready for tests. Contractor shall be present when samples of bedding, select backfill, and backfill materials are gathered for analysis or testing.

B. Compaction tests will be performed for each lift or layer.

C. Tests for compaction shall conform to references listed in Part 1.3 of this section

D. Sample backfill materials per ASTM D 75.

1.8 DEFINITION

A. Unsuitable Material: Unsuitable material is material determined to be

1. Incapable of being compacted to specified density using ordinary methods at optimum moisture content.

2. Too wet to be properly compacted if circumstances prevent satisfactory in-place drying prior to incorporation into the work.

3. Otherwise unsuitable for the planned use.

1.9 PROJECT CONDITIONS

A. Underground utilities may exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.

B. Arrange construction sequences to provide the shortest practical time that trenches will be open to avoid hazard to the public, and to minimize the possibility of trench collapse.

C. Obtain all required permits and licenses before installing utilities and follow the rules and requirements of the authority having jurisdiction.

1.10 EXCAVATION CLASSIFICATION

A. Regardless of the nature of material excavated, all excavation will be considered unclassified.

PART 2 PRODUCTS

2.1 GENERAL

A. All backfill material shall be approved before use and be free of cinders, ashes, ice, frozen soil, large hard clods, organic debris, or other deleterious items.

B. Unless otherwise specified, engineered fill materials for all fill areas shall be as required by Section 19, Earthwork, State Standard Specifications.

C. Gravel: Pit run, natural stone; free of shale, clay, friable materials and debris; graded in accordance with 1½" x ¾" aggregate grading in Section 90-3, State Standard Specifications.

D. Pea Gravel: Natural stone; washed, free of clay, shale, organic matter; ¼" minimum to $^{5}/_{8}$" maximum size.

E. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter, graded in accordance with Section 90-3, State Standard Specifications, within the following limits:

Sieve Size	Percent Passing
No. 4	75 - 100
No. 200	0 – 10

F. Imported sand shall have a sand equivalent of 30 per ASTM D 2419.

G. Class 2 Aggregate Base: Material as specified for ¾" maximum grading in Section 26, State Standard Specifications, unless otherwise specified.

H. Permeable material for use in backfilling under, around, and over underdrains; and permeable material for chimney drains, riprap bedding, or other subdrainage purposes shall consist of hard, durable, clean sand, gravel or crushed stone and shall be free from organic materials, clay balls, or other deleterious substances.

1. The percentage composition by weight of permeable materials in-place shall conform to the following gradation when determined by ASTM D-422:

Sieve Size	Percent Passing
1½ inch	90-100
¾ inch	45-75
No. 4	30-45
No. 50	4-10
No. 100	1-3
No. 200	0-2

2.2 UTILITY LINE MARKING

A. As specified in Section 02229 – Utility Line Marking

2.3 MATERIALS FOR EMBANKMENTS

A. Unless otherwise specified or modified herein, embankment and backfill material shall be as required by Section 19, “Earthwork,” State Standard Specifications.

B. Embankment material for embankments shall be selected to the maximum practical extent from excavation. Deficiency of material, if any, may be made up from other sources, as approved by the Engineer.

C. On-site soils excavated from within the upper 3-feet that are free of organic material or deleterious substances must be used to backfill over-excavated areas and construct basin embankments. Soils which meet this criterion possess the Unified Soil Classification of SM. Soils classified as SP of SP-SM (with less than 12-percent fines content) do not met this criterion and would require blending and mixing fine grained silty soils if used in embankments.

PART 3 EXECUTION

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum.

3.2 MOISTURE CONTROL

A. Water development, hauling, and application shall be in accordance with Section 17, “Watering,” State Standard Specifications.

3.3 EXCAVATION

A. Excavate the specified areas as shown.

B. If the Plans require placement of fill prior to pipe, or structure excavation, the fill shall first be constructed to the design grade shown for a distance each side of the

pipe or structure of not less than 5 times the diameter of the pipe or the width of the structure after which the trench shall be excavated and the pipe or structure installed.

3.4 ENGINEERED FILL AND EMBANKMENT CONSTRUCTION

A. Unless otherwise noted, placement and compaction of engineered fill materials for all fill areas shall be performed according to the provisions of Section 19-6, State Standard Specification, except:

1. Large rocky material or hard lumps large than 3 inches, in greatest dimension will not be allowed in the top 18” inches of fill.

2. Fill material shall be compacted to a minimum of 93-percent of maximum dry density.

B. Before placing embankment, scarify ground surface to provide ample bond between old and new material, as shown on the Plans. Place embankment material in layers not exceeding 8 inches, loose measurement. Compact each layer before placing the next layer. As the compaction of each layer progresses, continually level and manipulate to ensure uniform moisture and density. Add water to obtain optimum moisture content. Removal of excess water shall be accomplished through aeration by plowing, blading, disking, or other methods satisfactory to the Engineer.

C. The native soils at the project location contain extensive cemented zones. The contractor shall apply the necessary effort to achieve the specified particle size control within the material placed in the embankment prism.

3.5 EXCAVATION FOR CONCRETE STRUCTURES

A. Excavate for all foundations, slabs, curbs, walks and/or similar work. Remove any curbs, slabs, paving, trees, bushes, shrubs, stumps, roots, buried objects, or any objects that interfere with construction of building foundations, or as required by the Engineer.

1. The exposed surface shall be over excavated to a depth of 2 feet below proposed bottom of structure and 5 feet laterally beyond edge of structure, conditioned to at least 93-percent of maximum dry density.

B. Excavations for all footings, piers, finished walls and grade beams shall be sufficiently large so that forms for concrete may be properly placed, removed, and inspected.

C. Excavation for footings may be made to the net footing size plus 2 inches if the earth banks are sufficiently stable to remain in position until the concrete is in place and if approved by the Engineer.

D. The bottoms of footings, piers, slabs, walls, and grade beams to receive concrete shall be level before placing concrete. All foundations shall rest on firm bearing in undisturbed soil, or on controlled compacted fill.

E. If any existing foundations, roots, stumps, debris, waste materials, pipes, or similar items have been removed, the Contractor shall excavate below these portions to solid undisturbed earth and foundations in these areas shall be built to necessary levels.

F. If soil conditions in excavations indicate that footings need not be carried down as deep as shown, or must be carried deeper, the changes shall be made by the Contractor after approval by the Engineer.

1. Engineered fill in over excavated areas shall be import fill material, free from organic materials or deleterious substances.

G. Excavated native silty sand free from organic materials or deleterious substances may be placed as engineered fill.

3.6 UTILITY INSTALLATION

A. Utility Installation: Shape the trench bottom to ensure uniform contact with the full length of the installed line and remove any sharp-edged materials that might damage the line. Compaction shall be maintained beneath the line.

B. Install utility marking as specified in Section 02229 – Utility Line Marking.

3.7 SHORING AND SHEETING

A. Construct and maintain all shoring, sheeting, and slope layback necessary to protect the excavation, as needed, for the safety of the employees and as required by applicable State and Federal laws. Provide suitable barricades for public safety, regardless of trench depth.

3.8 DEWATERING

A. The Contractor shall keep all excavation free from water. Furnish, install, maintain, and operate all necessary pumping and other equipment for dewatering of excavations. The Contractor shall at all times have on the project sufficient pumping equipment for immediate use, including stand-by pumps for use in case other pumps become inoperable.

B. The dewatering operation shall be continuous, so that the excavated areas are kept free from water during the construction, until backfill has been placed to a sufficient height to anchor the work against possible floatation.

C. Dewatering devices shall be adequately filtered to prevent the removal of fines from the soil.

D. Repair any damage caused by the failure of any part of the protective works. Remove temporary protective works when they are no longer needed for dewatering purposes.

E. Any drain rock required in the trench bottom to convey water or stabilize wet soil shall be included at no extra cost to the Owner. Drain rock shall not be used in reservoir or canal embankments.

3.9 SURPLUS MATERIAL

A. Unless otherwise specified, surplus excavated material shall be used to widen embankments uniformly or to flatten slopes,

3.10 UNSUITABLE MATERIAL

A. Unsuitable material shall be excavated and disposed of in a lawful manner off the project site, all disposal shall be approved by the Engineer prior to initiating the work.

3.11 OFF-SITE BORROW AREAS

A. Engineered fill material may be obtained from off-site borrow areas, if on-site sources prove to be insufficient.

3.12 SURFACE FINISH WORK

A. Paved Areas: Replace removed paving and base course with new material of equal or better quality and of the same texture and color as the adjacent paved areas. Saw cut pavement edges to a true line and broom as needed prior to repaving.

B. Open Areas: Grade all disturbed areas, blending with adjacent terrain. Minor irregularities will be permitted.

C. Drainage Ditches: Restore drainage ditches to appropriate line and grade, using approved surface erosion prevention techniques.

D. Clean Up: Remove all rubbish and excess material for disposal as approved, and leave area in a neat, satisfactory condition.

3.13 TOLERANCES

A. Top Surface of Backfilling: Plus or minus 0.05 feet from design grade.

B. Finished grades: plus or minus 0.05 feet from design grade.

END OF SECTION

SECTION 02202

TRENCHING & BACKFILLING

PART 1 GENERAL

1.1 WORK INCLUDED

A. This section includes material, testing, and installation for trench excavation, backfilling and compacting.

1.2 RELATED WORK

A. Section 02115 – Clearing & Grubbing

B. Section 02200 – Earthwork

C. Section 02504 – Dust Control

D. Section 02513 – Asphalt Concrete Paving

1.3 REFERENCES

A. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Sol-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.

C. ANSI/ASTM D1556 – Density of Soil and base rock in place by Sand-Cone Method.

D. ASTM D 2922 and D – 3017 Density of soil and base rock in place by Nuclear method.

E. ASTM D 2937 –Density of soil and in place by Tube method.

F. Section 26 – Aggregate Bases, State Standard Specifications.

G. Geotechnical Engineering Investigation Report entitled, Proposed South and Highland Recharge Basins, Northeast of South Leonard and South Avenues, Fowler, Fresno County, CA (BSK-G13-005011F) by BSK Associates, dated April 16, 2013.

1.4 PROTECTION

A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

1. Trenches shall have sloping, sheeting, shoring, and bracing conforming with 29CFR1926, Subpart P—Excavations, CAL/OSHA requirements, and the Contract Documents.

B. Notify Engineer of unexpected subsurface conditions.

C. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

D. When the pipelaying is not in progress, including the noon hours, close the open ends of pipe. Do not allow trench water, animals or foreign material to enter the pipe.

1.5 QUALITY ASSURANCE

A. Relative Compaction:

1. All costs for initial compaction tests shall be borne by the Owner. All areas that fail to meet the minimum compaction requirements shall be reworked as required by the Engineer and retested until minimum compaction requirements are obtained.

2. All gradation analysis will be scheduled and paid for by the Contractor at no additional cost to the Owner. Testing shall be performed by an independent Certified Geotechnical Engineering Lab, licensed in the State of California, selected by the Contractor and approved by the Owner.

3. The cost of any retests, including time for the Engineer, shall be borne by the Contractor at no additional cost to the project. Testing will be required as directed by the Engineer. Test locations shall be determined by the Engineer upon notification from the Contractor that the grade is ready for tests. Contractor shall be present when samples of bedding, select backfill, and backfill materials are gathered for analysis or testing.

B. Compaction tests will be performed for each lift or layer.

C. Tests for compaction shall conform to references listed in Part 1.3 of this section

D. Sample backfill materials per ASTM D 75.

E. Compaction testing will be performed in accordance with Section 19-5.03, State Standard Specifications, except that fill material shall be compacted to a minimum of 93-percent of maximum dry density.

1. Test trench backfill for every 1 to 2 feet in backfill thickness once every 150 feet, with at least two tests at different depths at each location.

1.6 SAMPLES

A. Submit samples under provisions of Section 01400 – Quality Control

1.7 SUBMITTALS

A. Submit plans as required for worker protection against caving ground in excavations.

B. Submittals shall be in accordance with Section 01300 – Submittal Procedures.

1.8 CONTROL AND DIVERSION OF WATER

A. General – The Contractor shall furnish or procure all materials and labor required for constructing and maintaining all necessary cofferdams, channels, flumes, drains, sumps, and/or other temporary diversion and protective works and shall furnish, install, maintain, and operate all necessary pumping and other equipment for removal of water from the various parts of the work and for maintaining the foundations and other parts of the work free from water.

B. Plan – Prior to beginning any work on the removal of water from trenches, the Contractor shall submit for the Engineer's approval a water control plan showing his proposed method for the removal of water from trenches and other parts of the work.

C. Dispose of the water in a manner that will prevent damage to the adjacent property and in accordance with regulatory requirements.

D. Do not drain trench water through the pipeline under construction.

1.9 PROJECT CONDITIONS

A. Underground utilities may exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.

B. Obtain all required permits and licenses before installing utilities and follow the requirements of the authority having jurisdiction.

C. Arrange construction sequences to provide the shortest practical time that the trenches will be open to avoid hazard to the public, and to minimize the possibility of trench collapse

PART 2 MATERIALS

2.1 SELECT AND IMPORT MATERIAL IN PIPE AND BEDDING ZONE

A. Gravel: Pit run, natural stone; free of shale, clay, friable materials and debris; graded in accordance with 1½" x ¾" aggregate grading in Section 90-3, State Standard Specifications.

B. Pea Gravel: Natural stone; washed, free of clay, shale, organic matter; 1/4-inch minimum to 5/8-inch maximum size.

C. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter, graded in accordance with Section 90-3, State Standard Specifications, within the following limits:

Sieve Size	Percent Passing By Weight
No. 4	75 – 100
No. 200	0 - 10

D. Imported sand shall have a sand equivalent of 30 per ASTM D 2419.

2.2 NATIVE EARTH BACKFILL

A. Native earth backfill used above the pipe zone shall be granular or coarse-grained materials free from roots, debris, and rocks larger than 3 inches.

2.3 SAND-CEMENT SLURRY

A. Sand-cement slurry backfill shall be as specified in Section 03300 – Cast in Place Concrete.

2.4 CONCRETE FOR PIPE ENCASEMENT AND THRUST BLOCKS

A. Concrete for pipe encasement and thrust blocks shall be as specified in Section 03000 – Cast in Place Concrete.

B. Provide thrust blocks at fittings in pipe having rubber gasket bell and spigot or unrestrained mechanical joints.

1. Do not provide thrust blocks for steel pipe having welded, flanged, or butt strap joints unless detailed on the plans or required elsewhere in these specifications.

C. See the details in the drawings for thrust block sizes.

2.5 UTILITY LINE MARKING

A. As specified in Section 02229 – Utility Line Marking

2.6 WATER FOR COMPACTION

A. Water shall be free of organic materials injurious to the pipe coatings, have a pH of 7.0 to 9.0, maximum chloride concentration of 500 mg/l, and a maximum sulfate concentration of 500 mg/l.

B. Provide any meters required if the water is taken from a city, water district, or agency source.

PART 3 EXECUTION

3.1 GENERAL

A. Excavation, grading and compaction shall conform to the requirements of Section 19 of the State Standard Specifications.

3.2 INSPECTIONS

A. Verify stockpiled material has been approved for reuse.

B. Verify areas to be backfilled are free of debris, snow, ice, or water, and surfaces are not frozen.

3.3 PREPARATION

A. Identify required lines, levels, contours, and datum.

3.4 AC PAVEMENT AND CONCRETE REMOVAL

A. Cut bituminous and concrete pavements, regardless of the thickness, curbs, gutters and sidewalks prior to excavation of trenches.

1. Width of material removed shall be at least equal to the required width of the trench at ground surface.

2. Width of material removed shall be as shown on the Plans

3. AC pavement and concrete rubble shall not be used for trench backfill.

3.5 EXCAVATION

A. Excavate the trench to the lines and grades shown on the Drawings for storm sewer, sanitary sewer, water, and other utilities and points of connection, with allowance for pipe thickness, sheeting and shoring if used, and for special bedding.

B. Paved Areas: Cut existing pavement to full depth to a true line before excavation and maintain the edge suitable for repaving. Pavement removed shall not be used as backfill.

A. Trenching Guidelines: Excavate the trench to the approximate level of the grade of the utility line to be installed, using adequate trench width and side slopes to safely accommodate worker access.

1. Rocky Trench Bottom: Where ledge rock, hard pan, boulders, or sharp-edged materials are encountered, over excavate a minimum depth of 6 inches below the bottom of the utility exterior wall to permit adequate bedding preparation. The installed utility shall have at least 6 inches of clearance from any rock protrusion.

a. Unstable Trench Bottom: Secure approval of depth of over-excavation and stabilization method. For wet trench construction, use approved method of dewatering through diversion, damming and pumping, well points, or underdrain systems. Dispose of removed fluidized materials as approved. Use bedding material to build a suitable foundation to within 6 inches of finished utility grade, prior to bedding with the specified material. Compact layers to 95 percent of maximum density in not greater than 6-inch layers. Do not proceed with utility installation until wet trench and unstable conditions are corrected to the satisfaction of the Engineer.

B. Remove areas of sub-grade not readily capable of it-situ compaction.

1. Backfill with Bedding or Select Backfill material and compact to density equal to requirements for subsequent backfill.

C. Correct unauthorized excavation at no cost to Owner.

1. If the trench is excavated below the required grade, refill any part of the trench excavated below the grade.

2. Place the refilling material over the full width of trench in compacted layers not exceeding 8 inches deep to the established grade with allowance for special bedding.

D. Trench widths in the pipe zone shall be as shown it the drawings. If no details are shown, maximum width shall be 24 inches greater than the pipe outside diameter.

1. Trench width at the top of the trench will not be limited except where width of excavation would undercut adjacent structures and footings. In such case, width of trench shall be such that there is at least 2 feet between the top edge of the trench and the structure or footing.

E. Hand trim for bell and spigot pipe joints.

F. Remove lumped soil, boulders and rock.

G. Excavation shall not interfere with normal 45 degree bearing splay of foundations.

H. During trench excavation, place the excavated material only within the working area. Do not obstruct roadways or streets. Conform to federal, state, and local codes governing the safe loading of trenches with excavated material.

I. Foundation stabilization

1. After the required excavation has been completed, the Engineer will inspect the exposed subgrade to determine the need for any additional excavation. It is the intent that additional excavation be conducted in all areas within the influence of the pipeline where unsuitable materials exist at the exposed subgrade. Over excavation shall include the removal of all such

unacceptable material that exists directly beneath the pipeline to a width 24 inches greater than the pipe outside diameter and to the depth required.

2. Rock refill used by the Contractor for his convenience will not receive any additional payment.

3.6 TRENCH EXCAVATION IN EMBANKMENT AREAS

A. Construct and compact the embankment to an elevation 1 foot, minimum, over the top of the largest pipe or conduit to be installed prior to trench excavation.

3.7 UNSUITABLE MATERIAL

A. Unsuitable material shall be excavated and disposed of in a lawful manner off the project site, all disposal shall be approved by the Engineer prior to initiating the work.

3.8 DEWATERING

A. The Contractor shall keep all excavation free from water. Furnish, install, maintain, and operate all necessary pumping and other equipment for dewatering of excavations. The Contractor shall at all times have on the project sufficient pumping equipment for immediate use, including stand-by pumps for use in case other pumps become inoperable.

B. The dewatering operation shall be continuous, so that the excavated areas are kept free from water during the construction, until backfill has been placed to a sufficient height to anchor the work against possible floatation.

C. Dewatering devices shall be adequately filtered to prevent the removal of fines from the soil.

D. Repair any damage caused by the failure of any part of the protective works. Remove temporary protective works when they are no longer needed for dewatering purposes.

E. Any drain rock required in the trench bottom to convey water or stabilize wet soil shall be included at no extra cost to the Owner.

F. Provision of dewatering and dewatering equipment shall be considered part of the project with no additional compensation allowed.

3.9 BACKFILLING

A. Support pipe during placement and compaction of bedding fill.

B. Backfilling and cleanup work shall be accomplished as sections of pipe or conduit are tested and approved. Vehicular travel through the work site shall be impeded or obstructed as little as possible.

A. Compaction: Use vibratory compactors for sands and gravels (non-cohesive soils). Use mechanical tampers for sand and gravel containing a significant portion of fine-grained materials, such as silt and clay (cohesive soils). Hand tamp around pipe or cable to protect the lines until adequate cushion is attained. Puddling or water flooding for consolidation of backfill or compaction by wheel rolling will not be permitted.

B. Employ a placement method that will not disturb or damage pipe or utilities.

C. Maintain optimum moisture content of backfill materials to attain required compaction density.

D. Compact trench backfill to the specified relative compaction. Compact by using mechanical compaction or hand tamping. Do not use high impact hammer type equipment except where the pipe manufacturer warrants in writing that such use will not damage the pipe.

E. Compact material placed within 12 inches of the outer surface of the pipe by hand tamping only.

1. Carefully place the material around the pipe so that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe.

2. Use particular care in placing material on the underside of the pipe to prevent lateral movement during subsequent backfilling.

F. After pipe has been bedded, place pipe zone material simultaneously on both sides of the pipe, in maximum 8-inch lifts, keeping the level of backfill the same on each side.

G. Do not use any axle-driven or tractor-drawn compaction equipment within 5 feet of building walls, foundations, and other structures.

H. Do not permit free fall of the material until at least 2 feet of cover is provided over the top of the pipe. Do not drop sharp, heavy pieces of material directly onto the pipe or the tamped material around the pipe. Do not operate heavy equipment over the pipe until at least 3 feet of backfill has been placed and compacted over the pipe.

I. Remove surplus backfill materials from site.

J. Leave stockpile areas completely free of excess fill materials.

3.10 TOLERANCES

A. Top Surface of Backfilling: Plus or minus 0.05 feet from design grade.

B. Finished grades: plus or minus 0.05 feet from design grade.

3.11 SAND CEMENT SLURRY, CONCRETE ENCASEMENT AND THRUST BLOCKS

A. Place in accordance with the Contract drawings.

3.12 COMPACTION REQUIREMENTS

A. Compaction requirements shall be as shown on the Plans.

END OF SECTION

SECTION 02229

UTILITY LINE MARKING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing and installing utility line marking along the concrete pipelines.

1.2 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Samples: 24-inch strips of tape.

C. Certification that the materials used in the tape fabrication meet the requirements of this section.

PART 2 PRODUCTS

2.1 MARKING TAPE

A. Capable of being inductively detected electronically.

B. Construction: Metallic foil laminated between two layers of impervious plastic film not less than 3 inches wide. Total thickness of tape shall not be less than 0.005 inch (5 mil) plus or minus 10 percent manufacturing tolerances.

1. Film: Inert plastic. Each film layer shall be not less than 0.0005 inch thick (0.5 mil).

2. Foil: Not less than 0.00035 inch thick (0.35 mil).

3. Adhesive: Compatible with foil and film.

C. Imprint: 3/4-inch or larger bold black letters.

D. Legend: Identify buried utility line tape with imprint such as "Caution: Sewer Line Below". Repeat identification at approximately 24-inch intervals.

E. Background Color: APWA color code and as specified below:

Color	Utility
Safety Precaution Blue	Water System, Irrigation

F. Manufacturer: Lineguard, Inc., Wheaton, Illinois; Reef Industries, Inc., Houston, Texas; Thor Enterprises, Inc., Sun Prairie, Wisconsin; or Engineer approved equivalent.

PART 3 EXECUTION

3.1 MARKING TAPE

A. Install tape in backfill directly over each buried utility line as shown. Place tape by plowing or during final backfilling.

B. Where utilities are buried in a common trench, identify each line by a separate warning tape. Bury tapes side by side directly over the applicable line.

END OF SECTION

SECTION 02232

AGGREGATE BASE

PART 1 GENERAL

1.1 WORK INCLUDED

A. Furnish, spread, and compact aggregate base in roadways and driveways as shown on the Plans, if awarded.

1.2 RELATED WORK

A. Section 02200 – Earthwork

1.3 REFERENCES

A. Section 17 – Watering, State Standard Specifications.

B. Section 26 – Aggregate Bases, State Standard Specifications.

C. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.

D. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Sol-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.

E. ANSI/ASTM D1556 – Density of Soil and base rock in Place by Sand-Cone Method.

F. ASTM D 2922 and D – 3017 Density of soil and base rock in place by Nuclear method.

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. If materials are obtained from a commercial source, submit certification from the supplier certifying that aggregate base course meets the requirements of this section.

C. Copies of certified weight tickets for each load of aggregate delivered to the project site.

1.5 QUALITY ASSURANCE.

A. Tests for compaction shall conform to references listed in Part 1.3 of this section

B. The percentage composition by weight shall conform to Class 2 aggregate base determined by Test Method No. Calif. 202, modified by Test Method No. Calif. 905 if there is a difference in specific gravity of 0.2 or more between the coarse and fine portion of the aggregate or between blends of different aggregates.

C. Aggregate base shall also conform to the following quality requirements:

Tests	Test Method Calif. No
R-Value	301
Sand Equivalent	217
Durability Index	229

D. Testing required to determine compliance with the requirements for the work for this section shall be performed by an independent testing laboratory appointed and paid for by the Contractor.

E. Quality Control shall be under the provisions of Section 01400 – Quality Control.

PART 2 PRODUCTS

2.1 MATERIALS

A. AGGREGATE BASE

1. Class 2 Aggregate Base, ¾-inch maximum; as per Section 26-1.02 A, State Standard Specifications, except the material shall not contain recycled asphaltic concrete.

2. Aggregate for Class 2 aggregate base shall be free from vegetable matter and other deleterious substances.

3. Aggregate base shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base.

B. WATER

1. As specified in Section 02332 – Watering.

2. At the time aggregate base is spread, it shall have a moisture content sufficient to obtain the required compaction. Such moisture shall be uniformly distributed throughout the materials.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

A. As specified in Section 02200 – Earthwork.

3.2 SPREADING

A. The aggregate base course material shall be deposited and spread to the required compacted thickness by means that will maintain the uniformity of the mixture. The aggregate base course shall be free from pockets of coarse or fine material.

B. Deliver aggregate base to the area to be paved as a uniform mixture and spread each layer in one operation.

C. Aggregate base placed at locations which are inaccessible to the spreading equipment shall be spread in two layers by any means to obtain the specified results.

D. The aggregate shall not be treated with lime, cement or other chemical materials before the Durability Index test has been performed.

E. The surface of the finished aggregate base at any point shall not vary more than 0.05-foot above or below the grade shown.

3.3 PLACING

A. If the required compacted depth of the aggregate base course exceeds 6 inches, place course in two or more layers of approximately equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches.

3.4 MIXING

A. Mix the aggregate by any one of the three following methods.

1. Stationary Plant Method: Mix aggregate base course material and appropriate amount of water for compaction in an approved mixer. After mixing, transport aggregate to the job site while it contains the proper moisture content and place on the roadbed with an approved aggregate spreader. If necessary, before compaction, remove excess moisture by approved means.

2. Travel Plant Method: After the material for each layer has been placed through an aggregate spreader or windrow sizing device, it shall be uniformly mixed by a traveling mixing plant.

3. Road Mix Method: After placing each layer, mix materials at optimum moisture content using motor graders or other approved equipment until the moisture is uniform throughout.

B. When commercial binders or fillers are used with aggregate, mix with a central mixing plant of the twin-pugmill type. Other methods that ensure a thorough and homogenous mixture may be used on written approval from the Engineer.

3.5 MOISTURE CONTROL

A. When spread, aggregate base shall have a moisture content sufficient to obtain the specified compaction.

3.6 SURFACE FINISHING

A. Use a smooth steel wheel roller for the final rolling of top surface base course. Water surface and evenly spread loose stones before final rolling. Make minimum of two complete passes over area to embed stones. Correct soft spots developed during rolling.

B. Compacted aggregate base course surface shall be smooth and free from waves and other irregularities. Unsatisfactory portions of base course shall be torn up, reworked, re-laid, and re-rolled, at no additional expense to the Owner.

3.7 MATERIAL ACCEPTANCE REQUIREMENTS

A. Acceptance will be based on periodic samples and tests taken following mixing and before placing.

3.8 TOLERANCES

A. Surface: The Engineer will test finished surface of the base course with a 10-foot straightedge or other device. The variation between any two contacts with the surface shall not exceed 0.05 feet. Any areas not complying with these tolerances shall be reworked to obtain conformity.

B. Width: Plan dimension, plus or minus 0.1 feet.

C. Thickness: Plan dimension, plus or minus 0.05 feet.

3.9 MAINTENANCE

A. Maintain base course in a satisfactory condition until surfaced or until final acceptance.

END OF SECTION

SECTION 02233

WATERING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing, hauling, and applying water required for compaction of embankments, backfills, subgrade, and base course, and for landscaping, and other construction operation.

1.2 RELATED WORK

A. Section 01500 – Temporary Facilities.

B. Section 02504 – Dust Control.

1.3 REFERENCES

A. Section 17 - Watering, State Standard Specifications

PART 2 PRODUCTS

2.1 WATER

A. Free of debris, organic matter, and other objectionable substances.

PART 3 EXECUTION

3.1 WATER TRUCK

A. Keep at least one water truck on site at all times, unless Engineer approves removal of the truck from the site before final completion.

3.2 APPLCATION

A. Use pressure type distributors or a pipeline equipped with sprinkler system. Provide approved meter devices near points of discharge.

B. Ensure a uniform application of water for optimum moisture content. Avoid excessive runoff and minimize water waste.

C. The Contractor may water excavation areas before excavating. Drill full depth of excavation to make moisture determinations.

D. If over watering occurs, de-water at no additional expense to the Owner.

3.3 SPECIAL CONTROLS

The Contractor shall take all reasonable means to minimize inconvenience and injury to the public by dust, noise, diversion of storm water, or other agencies under his control.

A. Dust Control

1. As specified in Section 02504 – Dust Control

B. Water

1. The Contractor shall pay for and shall construct all facilities necessary to furnish water for his use during construction. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water. The Contractor may make arrangements with the Owner to use non-potable water where appropriate during construction.

2. Full compensation for furnishing all labor, materials, tools and equipment and for doing all work involved in furnishing and applying water as required by the Contract Documents and Specifications and the State Standard Specifications, shall be considered as included in the contract unit prices paid for other items of work and no additional allowance will be made therefore.

END OF SECTION

SECTION 02272

RIP RAP

PART 1 GENERAL

WORK INCLUDED

A. The work of this section consists of furnishing and placing stone riprap for embankment and channel protection.

1.2 RELATED WORK

A. Section 02200 – Earthwork

B. Section 03300 – Cast-in-Place Concrete

1.3 REFERENCES

A. Section 72, State Standard Specifications.

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Manufacturer's installation instructions for geotextile fabric.

PART 2 PRODUCTS

2.1 GEOTEXTILE FABRIC

A. Non-woven drainage fabric, Mirafi 140NC as manufactured by Nicolon Corp., Mirafi Division, Charlotte, NC 28224, or Engineer approved equivalent.

B. Provide securing pins recommended by fabric manufacturer and fold back as shown on the drawings.

2.2 RIPRAP

A. Riprap shall be Class No. 2 as specified in Section 72-2.02 of the State Standard Specifications. Rip rap shall be well graded with external diameter ranging from 3 inches to 12 inches.

B. Concrete rubble which meets the requirements in section 2.2.A, may be used if authorized by the engineer.

1. Concrete rubble shall not contain any reinforcing steel or asphalt.

PART 3 EXECUTION

3.1 EXCAVATION

A. Excavate as shown and as necessary to accept variation in stone size. Obtain Engineers approval of subgrade before placing geotextile fabric or riprap.

3.2 GEOTEXTILE FABRIC

A. Place on smooth, uniform slope, loosely enough to conform to minor surface irregularities. Follow manufacturer's recommendations for making laps and for fastening and securing. Repair or replace fabric that has been damaged to stone placement. Re-lay fabric that becomes dislodged.

3.3 PLACEMENT

A. Placement shall be method B as specified in Section 72-2.03 of the State Standard Specifications

END OF SECTION

SECTION 02503

STORM WATER POLLUTION PREVENTION PLAN

PART 1 GENERAL

1.1 WORK INCLUDES

A. The Contractor shall furnish and exercise every reasonable precaution to protect channels, storm drains, and bodies of water from pollution and provide all labor, materials, tools, and equipment necessary to prevent storm water pollution associated with construction activities, including installation, maintenance and final removal of all temporary and permanent erosion and sediment control measures, in accordance with the requirements of the Contract Documents.

B. The Owner has applied for and obtained coverage under State of California Construction General Permit Order 2009-0009-DWQ as amended per 2010-0014-DWQ and 2012-0006-DWQ (CGP). The Contractor shall implement storm water pollution prevention measures as prescribed in the approved SWPPP to prevent sediment from entering streams or water bodies throughout the duration of the Work in compliance with the permit requirements. Work shall be performed in accordance with all Federal, State, and local regulations.

1. The Legally Responsible Party (LRP) is the Mr. Phillip Desatoff, Consolidated Irrigation District.

2. The Qualified SWPPP Developer & Practitioner (QSD/P) is provided by the Owner.

C. **Penalties**: Failure to comply with this Section may result in significant fines and possible imprisonment. The Regional Water Quality Control Board (RWQCB) or other prosecuting authority may assess fines for each violation. Should the District be fined or penalized as a result of the Contractor failing to comply with this Section and applicable permit requirements, the Contractor shall reimburse the District for any and all fines, penalties and related costs.

D. All costs for work required for compliance with this Section shall be included in the price bid “SWPPP BMP Installation and Maintenance”.

1.2 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Submittals under this section shall be completed and submitted at least two weeks prior to beginning work and within 10 days of issuance of the Notice to Proceed. A copy of the SWPPP, Permit Registration Documents, annual reports, and all other permit compliance documents submitted to the State Water Board via the

SMARTS system shall be provided to the Contractor for reference and shall be kept onsite in either a job trailer or accessible lockbox.

1. Required Submittals:

   a. Construction Schedule including SWPPP installations

   b. Contractor SWPPP contact information/site responsible party information including training records for SWPPP.

   c. BMP Site Map markups or letter stating concurrence with existing plan.

   d. Designated contractor sampling personnel, training records, and contact information.

   e. Designated sample testing laboratory, contact information and method of delivery.

   f. Updated list of “Pollutants Associated with Construction Activities”.

   g. Additional SWPPP BMP measures not included in SWPPP but requested for site use. If submitting additional BMP measures sufficient explanation and backup calculations will be necessary (catch basin sizing, slope drain pipeline sizing, etc.).

1.3 QUALITY ASSURANCE

At minimum, the following measures shall be taken to help ensure control of storm water based pollution. These measures shall not be construed to limit or override the measures set forth and called for in the SWPPP.

A. Control the rate and effect of dewatering in such a manner as to avoid all objectionable settlement and subsidence and to assure the integrity of the finished work.

B. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, establish reference points and observe at frequent intervals to detect any settlement that may develop. Conduct the dewatering operation in a manner that protects adjacent natural resources and facilities. Cost of repairing all damage to adjacent resources and facilities shall be the sole responsibility of the Contractor.

C. Before commencing grading, excavation or filling in any part of the site, Contractor shall construct swales, diversion channels, inlet protection barriers, sedimentation traps, and other measures to guide runoff away from the work area and to capture eroded material before it reaches natural water courses. The measures shall be in accordance with the approved storm water pollution prevention plans.

D. Arrange demolition activities to minimize erosion to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the Project site necessary for demolition. Minimize the area exposed and unprotected.

E. Clearly mark and delineate the work limits activities. Equipment shall not be allowed to operate outside the limits of work or to disturb existing vegetation. Excavation and grading shall be completed during the dry season to the maximum extent possible.

1.4 GENERAL REQUIREMENTS

A. The Contractor shall exercise care in preserving vegetation and protecting property, to avoid disturbing areas beyond the limits of the Work and promptly repair any damage caused by Contractor operations.

B. The Contractor shall provide all necessary water pollution control devices to prevent, control, and abate water pollution, and implement good housekeeping pollution control measures to reduce the discharge of pollutants from the Site to the maximum extent practicable. These water pollution control devices include structural BMPs, drains, gutters, slope protection blankets and retention basins and shall be constructed concurrently with other Work at the earliest practicable time.

C. Stockpiles of earth and other construction-related materials shall be protected from being transported from the Site by wind or water.

D. The Contractor shall properly store and handle fuels, oils, solvents, and other toxic materials in a manner not to contaminate the soil or surface waters, enter the groundwater, or be placed where they may enter a live stream, channel, drain, or other water conveyance facilities. All approved toxic storage containers shall be protected from weather. Spills shall be cleaned immediately and cleanup materials shall be properly disposed of. Spills shall not be washed into live streams, channels, drains, storm drains, or other water conveyance facilities.

E. Excess or waste concrete shall not be washed into the public way or any drainage systems. The concrete wastes shall be retained on-site until they can be appropriately disposed of or recycled. Concrete wastes shall not be washed into live streams, channels, drains, storm drains, or other water conveyance facilities.

F. Non-stormwater runoff from equipment or vehicle washing and any other activities shall be contained at the work site and properly disposed of. Non-stormwater runoff shall not be allowed to enter live streams, channels, drains, storm drains, or other water conveyance facilities.

G. The Contractor shall prevent sediments and other materials to be tracked from the Site by vehicle traffic. Construction entrance roadways shall be stabilized to inhibit sediments from being deposited onto public ways. The Contractor shall immediately sweep up accidental depositions and not allow depositions to be washed away by rain or by any other means.

1.5 REGULATORY REQUIREMENTS

A. The Contractor shall comply with the requirements of the State Water Resources Control Board (SWRCB), RWQCB, Owner and any other agencies having jurisdiction in stormwater discharges and non-stormwater waste management.

B. General Permit Registration Documents:

1. All engineering calculations, reports, and drawings shall be prepared, sealed and signed by a California licensed engineer in accordance with California Business and Professional Code Section 6700, et seq.

2. The Contractor shall not commence any construction work until a Waste Discharger Identification (WDID) number assigned by the State Water Board is received.

C. The Contractor shall comply with the following prohibitions and limitations:

1. Discharge prohibitions shall be in accordance with Article III of the CGP.

2. Effluent released from the project site shall meet the requirements of Article V of the CGP.

3. Receiving water limitations shall comply with the requirements of Article VI of the CGP.

1.6 STORM WATER POLLUTION PREVENTION PLAN DEVELOPMENT AND IMPLEMENTATION

A. SWPPP Specifications:

1. The SWPPP must be prepared in full conformance with the requirements of Article XIV of the CGP, for the respective project type and Risk Level.

2. The SWPPP must describe the erosion control practices to be implemented during demolition and construction and the selection and implementation of appropriate BMPs to account for site-specific and seasonal conditions. As the SWPPP is considered as a dynamic document, the Contractor shall notice changes to QSD for SWPPP amendments as construction conditions and activities warrant.

3. The SWPPP and all amendments shall be developed and revised by a QSD retained by the LRP.

4. Implementation of all BMPs and all required site sampling and testing shall be overseen by a personnel or a laboratory employed and/or retained by the Contractor.

5. All erosion and sediment control measures shall be implemented as specified in the SWPPP. Erosion and sediment control may consist of one

or more of the following elements, plus other measures as may be appropriate to the specific site:

a. Maintenance of existing permanent or temporary storm drainage systems, as necessary.

b. Construction of new permanent and temporary storm drainage systems, as necessary.

c. Construction of temporary erosion and sediment control facilities, such as silt fences, sediment traps, earth dike/drainage swales and ditches, sandbag barriers, etc.

d. Placement and maintenance of topsoil and seeding in areas disturbed by construction and all areas not occupied by structures or pavement in accordance with the requirements of the Project plans and specifications or as determined by LRP and Construction Manager.

6. A copy of the SWPPP, including working details (fact sheets) for construction site BMPs and applicable amendments, shall be kept and maintained by the Contractor on the construction site and continuously updated in accordance with CGP requirements to reflect current site conditions throughout the duration of the project.

B. The Contractor shall implement all activities required by the CGP for the type and Risk Level of the project at hand and as detailed in the SWPPP.

C. Non-Stormwater Management: As specified in CGP Attachment C, D or E as appropriate to the project Risk Level, the SWPPP shall discuss any non-stormwater sources (i.e., landscaping irrigation, pipe flushing, street washing and dewatering). In addition, the SWPPP shall include standard observation measures and BMPs, including BCT/BAT practices that are to be implemented in order to reduce the pollutant loading in the discharge waters.

D. Amendments: All SWPPP amendments shall be prepared by the QSD.

1. The Contractor shall, at no additional cost to the Owner, notify the QSD and request an amendment of the SWPPP whenever there is a change in construction or operations which may affect the discharge of pollutants to stormwater.

2. The Contractor shall, at no additional cost to the Owner, notify the QSD and request an amendment of the SWPPP if it is in violation of any conditions of the CGP or has not achieved the general objective of reducing pollutants in stormwater discharges.

E. Annual Reporting: The QSD shall submit to the SWRCB via the SMARTS system an annual report, no later than September 1st of each year, in accordance with the

requirements of Article XVI of the CGP, including but not limited to: a summary and evaluation of all sampling and analysis results, original laboratory reports, chain of custody forms, a summary of all corrective actions taken during the compliance year and identification of any compliance activities or corrective actions that were not implemented. A project of 90 days or more duration can require more than one Annual Report. The Contractor shall provide any such information/materials to the QSD for completion of the Annual Report. See below.

1. An Annual Report is required while the Project is still under construction, if construction begins not later than June 1 of a calendar year and is not completed by September 1 of that same year.

2. An Annual Report is required, without exception, prior to the September 1 following project completion.

3. Example: A project commencing on May 31 and completed on September 2 of the same year would require an annual report both by September 1 of the construction year, and by September 1 of the year following.

F. Notice of Termination: Once construction is completed and the Site has been stabilized with final, sustainable cover, the QSD shall prepare a Notice of Termination (NOT), including a final site map, photos, and a final project Annual Report, shall obtain necessary signatures from the LRP and shall submit all through the State Water Board's SMARTS website and within 90 days after all land disturbing activities end and construction is complete, in accordance with Article II D of the CGP. The Contractor shall provide any such information/materials to the QSD for completion of the Annual Report.

A Notice of Termination is distinct from an Annual Report. Both are required.

PART 2 PRODUCTS

2.1 GENERAL

A. Materials furnished for BMPs shall meet the requirements of the California Stormwater Quality Association, Stormwater Best Management Practice Handbook, Construction – November 2009 edition (or most current version) unless otherwise indicated.

B. Before the work begins, sufficient equipment shall be available on the site to assure that the operation and adequacy of the erosion control plans can be continuously maintained.

PART 3 EXECUTION

3.1 GENERAL DESCRIPTION

A. The Contractor shall install and maintain all erosion and sediment control measures and carry out inspection in accordance with the Drawings and the approved SWPPP.

B. Sediment transport and erosion from working stockpiles shall be controlled and restricted from moving beyond the immediately stockpile area by implementing applicable BMPs, including but not limited to construction of temporary toe-of-slope ditches and accompanying silt fences as necessary. If the BMPs proposed in the SWPPP prove inadequate to control sediment transport and erosion on the Site, the Contractor shall without delay implement additional provisions to obtain effective control. The SWPPP shall be updated to reflect the necessary changes as discussed in paragraph 1.6 above.

C. The Contractor shall be responsible for taking the proper actions to prevent contaminants and sediments from leaving the project Site. The Contractor shall take immediate action if directed by the Construction Manager, or if the Contractor observes contaminants and/or sediments entering the storm drainage system, to prevent further stormwater from entering the system.

3.2 NOTIFICATION AND REPORTING

A. If non-stormwater pollution occurs in the work area for any reason or when the Contractor becomes aware of any violation of this Section, the Contractor shall correct the problem and shall follow the requirements of the SWPPP for monitoring, control and reporting of non-stormwater discharges.

3.3 FIELD QUALITY CONTROL

A. The Contractor shall maintain the BMPs and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures.

Should the QSP note any deficiencies in necessary BMPs during the course of QSP's inspections and reporting, Contractor shall immediately repair or replace the defective BMPs as required by the QSP.

3.4 INSPECTIONS

A. The LRP's QSP shall inspect disturbed areas of the construction site, areas that have not been finally stabilized used for storage of materials exposed to precipitation, stabilization practices, structural practices, other controls, and area where vehicles exit the Site at least weekly, and within 48 hours prior to a storm event (with NOAA probability prediction of 50% or greater), every 24 hours during

the storm event (during normal business hours) and within 48 hours of the end of any storm that produces 0.5 inches or more rainfall at the site.

3.5 RECORDS

A. The Contractor shall retain records/copies of the SWPPP and all attachments and amendments; compliance certifications; notifications of non-compliance; training; incidents such as spills or other releases, including photographs as available; sampling and analysis of discharges discovered through visual monitoring; all reports required by the CGP; BMP inspections and checklists, and maintenance and repair activities; and activity-based BMPs, such as good housekeeping, that have been implemented.

B. After the work is complete and finally accepted by the Owner, submit to the Engineer all records/copies of documents required by the CGP, including, but not limited to, the records/copies of the documents noted above and all documents uploaded to the SMARTS system.

3.6 MAINTENANCE OF TEMPORARY FACILITIES

A. Inspect erosion and sediment control structures daily and as specified in the SWPPP.

B. Sediment shall be removed from behind run off control structures after each storm, or as directed by the Engineer, QSD or QSP.

C. If areas are seeded, Contractor shall examine those areas during and after major storms to check that grass is becoming established.

3.7 DISPOSAL OF SEDIMENT FROM STORM WATER POLLUTION CONTROL STRUCTURES

A. Sediment excavated from temporary sediment control structures shall be disposed on the site with general fill or with topsoil. Sediment shall be allowed to dry out as required before reuse. All trash shall be removed before reuse.

B. Contractor shall place the sediment removed from traps and other structures where it will not enter a storm drain or water course and where it will not immediately reenter the basin.

3.8 REMOVAL OF TEMPORARY STORM WATER POLLUTION CONTROL MEASURES

A. In accordance with SWPPP requirements, temporary control measures shall be removed once grading is completed and slopes have stabilized, and permanent drainage works have been constructed. Contractor shall not breach any temporary control structures until the associated catchment area is complete unless approved by the Engineer.

END OF SECTION

SECTION 02504

DUST CONTROL

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of implementing measures to prevent air pollution during construction activities, in accordance with Federal, State, and local regulations, and in accordance with the Dust Control Plan (DCP). The DCP can be amended, by the Owner and/or Contractor, as needed should revisions be determined necessary during construction activities.

1.2 RELATED WORK

A. Section 01500 – Temporary Facilities

B. Section 02233 – Watering

C. DIVISION 2 – SITE WORK

1.3 REFERENCES

A. San Joaquin Air Pollution Control District (SJVAPCD) Regulation VIII.

B. Dust Control Plan Fee, Pursuant to the adoption of Rule 3135, Adopted October 20, 2005 and subsequent revisions, compliance assistance bulletins and editions regarding Rule 3135 and PM 10 regulations.

C. Dust Control Plan included in the Appendix.

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Submit, prior to beginning work and within 15 days of issuance of the Notice to Proceed:

1. Construction Schedule including SWPPP installations

2. Contractor DCP contact information/site responsible party information including training records for DCP.

3. BMP Site Map markups or letter stating concurrence with existing plan.

4. Additional BMP measures not included in DCP but requested for site use. If submitting additional BMP measures sufficient explanation and backup calculations/product specifications will be necessary.

1.5 QUALITY ASSURANCE

A. Control the rate and effect of watering in such a manner as to avoid all objectionable settlement and subsidence as approved by the Engineer and to assure the integrity of the finished work.

B. Before commencing grading, excavation or filling in any part of the site, Contractor shall construct the required measures specified in the DCP.

C. Arrange demolition activities to minimize dust to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the Project site necessary for construction. Minimize the area exposed and unprotected.

D. Clearly mark and delineate the work limits activities. Equipment shall not be allowed to operate outside the limits of work or to disturb existing vegetation.

1.6 REGULATORY REQUIREMENTS

A. Contractor shall comply with all provisions of the SJVAPCD regulations, as well as Federal and State regulations.

B. The requirements of the Dust Control Plan shall apply continuously through the duration of the Contract.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Before the work begins, sufficient equipment and resources shall be available on the site to assure that the operation and adequacy of the dust control measures can be continuously maintained.

2.2 DUST CONTROL MEASURES

A. Water shall be available to the contractor for dust control as specified in section 01500 – Temporary Facilities.

B. Dust Suppressants shall be polymer emulsions or hygroscopic suppressants. Petroleum emulsions and bituminous materials will not be allowed.

1. If dust suppressants other than water are utilized, Contractor shall submit MSDS, Manufacturer's Usage Instructions, and certification by the manufacturer that the product is safe for ground application.

2. If dust suppressants other than water are utilized, Contractor shall notify the Owner 15 days prior to use for notification to the SJVAPCD.

C. Gravel used for Gravel Pads shall be washed gravel, a minimum of one - three inches in diameter, and shall be placed a minimum of three - six inches deep.

PART 3 EXECUTION

3.1 GENERAL DESCRIPTION

A. Dust control measures shall include, but may not be limited to: Water application, dust suppressant application, physical barriers limiting site access, reduction of vehicle speed on site, utilization of gravel pads, utilization of grizzlies, and wheel washers. If physical barriers are utilized, the Engineer shall approve the location, size, and type. Physical barriers shall be removed upon project completion.

B. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent dust. Temporary measures shall be to Contractor's own design and Contractor shall be solely responsible for risks related to the management of dust control during construction.

3.2 METHODS

A. As described in the DCP and approved by the Engineer.

3.3 MAINTENANCE OF TEMPORARY FACILITIES

A. Inspect dust control facilities daily and as specified in the DCP.

B. Sediment shall be removed from grizzlies, gravel pads, and/or paved surfaces as required by the DCP, or as directed by the Engineer.

C. If areas are seeded, contractor shall examine those areas during or after major storms to check that grass is becoming established.

3.4 DISPOSAL OF SOIL FROM PAVED SURFACES AND DUST CONTROL DEVICES

A. Soil excavated from temporary dust control structures shall be disposed on the site with general fill or with topsoil. Soil shall be allowed to dry out as required before reuse. Any trash shall be removed before reuse.

B. Contractor shall place the sediment removed from traps and other structures where it will not enter immediately reenter the device or paved area.

3.5 REMOVAL OF TEMPORARY DUST CONTROL MEASURES

A. Temporary control measures shall be removed once grading is completed and soils have stabilized.

3.6 RECORD KEEPING

A. Contractor shall keep accurate records as required by the SJVAPCD of dust control methods utilized during the course of construction. The Contractor shall utilize the forms provided by the SJVAPCD, included in the Appendix.

B. Contractor shall keep a copy of the approved DCP, any approved revisions, and all dust control records at the site.

C. Contractor shall furnish upon request by the Owner, Engineer, or SJVAPCD Inspector the approved DCP, approved revisions, and dust control records.

D. Contractor shall submit to Owner and Engineer copies of dust control records no later than the 10th of the following month. (Example, records for September shall be submitted no later than October 10th of the same year).

E. Contractor shall maintain dust control records for one year after project completion.

F. The Dust Control

1. The Contractor shall take whatever steps, procedures, or means as are required to limit dust generated by his operations during the Work, including Saturdays, Sundays, and Holidays. Dust shall be controlled to the standards of the local governing agency or, in the absence of local standards, to the satisfaction of the Engineer. Dust control shall extend to any unpaved road which the Contractor or any of his subcontractors are using, to excavation or fill areas, to demolition operations, and to other activities. Control shall be by sprinkling, use of dust palliatives, modification of operations, or any other means acceptable to the local governing agency or, in the absence of same, the Engineer.

2. If the dust control is not adequate in the opinion of the Engineer, work may be suspended until dust emissions are brought into control.

3. If the dust control is not adequate in the opinion of the Engineer, this work may be done by others, and the cost shall be deducted from the total payment due the Contractor.

END OF SECTION

SECTION 02610

PIPE AND FITTINGS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Provide all work required for pipe hauling, unloading, distributing, trenching, placing, backfilling and testing of pipelines.

1.2 GENERAL

A. All dimensions and locations of new and existing pipelines, facilities and connections shown on the Plans are to be verified in the field by the Contractor.

B. Coordinate with the Owner on locations for delivery and storage pipe.

C. No pipe shall be used which is cracked or damaged or which, in the opinion of the Engineer, is unsuitable for use. Used materials, rejects, misfits, or seconds are not acceptable for use.

1.3 RELATED WORK

A. Section 02200 - Earthwork

B. Section 03300 - Cast-In-Place Concrete

C. Section 03400 – Precast Concrete Structures

D. Section 09900 - Painting

1.4 REFERENCES

A. California Plumbing Code

B. American Water Works Association, AWWA.

C. American Society for Testing of Materials, ASTM

D. NRCS 430DD

1.5 SUBMITTAL REQUIREMENTS

A. Shop drawings, manufacturer's literature, and guarantees.

B. Shop drawings of mechanical restrained joint assemblies when used in-lieu of concrete thrust blocks.

C. Submittals shall be in accordance with Section 01300 – Submittal Procedures.

PART 2 PRODUCTS

2.1 RUBBER GASKETED REINFORCED CONCRETE PIPE (RGRCP)

A. RGRCP shall conform to the specification for Reinforced Concrete Low Pressure Pipe, ASTM Designation C361. Circular reinforcement shall be used, use of elliptical reinforcement in the pipe is not allowed. Cement used in the manufacture of RGRCP shall be Type II. The joints shall show no signs of leakage at hydrostatic pressures up to twenty-five (25) feet. Pipe class shall be as follows:

1. Depth over the top of pipe from three (3) up to five (5) feet – Class A-25
2. Depth over the top of pipe from five (5) up to ten (10) feet – Class B-25
3. Depth over the top of pipe from ten (10) up to fifteen (15) feet – Class C-25
4. Depth over the top of pipe from fifteen (15) up to twenty (20) feet – Class D-25

B. Each joint shall be marked with the following information

1. The name or trademark of the manufacturer.
2. Class and size of pipe, as indicated by applicable specifications.
3. Conformance with ASTM standards.
4. The type of cement.
5. The date of manufacture of the reinforced concrete pipe, if applicable.

C. Pipe shall be tested in the factory as specified in ASTM C-361. The District reserves the right to observed factory tests, as specified in Section 01400 – Quality Control.

D. Joints: Rubber gasketed joints shall conform to the requirements of ASTM designation C 443 capable of withstanding a constant pressure of up to the Head Class rating of the pipe. Rubber gaskets shall be lubricated with the lubricant recommended and supplied by the manufacturer of the pipe.

1. Shallow depths, loads, or other conditions that would require RGRCP stronger than D-25 shall require a pipe design submittal, by the Contractor, and approval by the Engineer.

E. Fittings: All concrete pipe fittings shall be pre-manufactured and shall conform to the ASTM standard for the class of pipe used. Fittings shall be properly restrained

with thrust blocks. Fittings shall have pressure rating at least equivalent to that of the pipe.

2.2 STEEL PIPE

A. General: Steel pipe 12-inches in diameter and smaller shall conform to the requirements of the "Specifications for Black and Hot-Dipped Zinc-Plated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses (ASTM A120), and shall be "Standard Weight" Steel Pipe larger than 12 inches in diameter shall be ASTM A139, AWWA C200, wall thickness not less than 0.18 inches.

B. Joints: Pipe 4-inches in diameter and larger shall be flanged or shall have grooved ends for Victaulic-type couplings. Where shown on the Plans, the pipe shall be flanged or plain end for flanged coupling adapters. Flanges shall be standard 150 psi flanges meeting the requirements of ANSI B16.1. Flanges shall be furnished with flat faces. Unless otherwise stated, bolts shall comply with ASTM 307. Pipe smaller than 4 inches shall have screwed or grooved joints unless shown otherwise on the Plans.

C. Fittings: All fittings shall be flanged cast or ductile iron, screwed malleable iron, or Victaulic-type fittings. The Contractor may substitute Victaulic-type fittings for flanged fittings or screwed fittings unless the particular joint requires a specific end for compatibility with a valve or special fitting. All Victaulic-type fittings shall be of strength equal to the pipes with lining and coatings equivalent to that specified for the pipe.

D. Unless otherwise specified or noted in the Plans, all steel pipe 2-1/2 inch and smaller shall be Hot-Dipped galvanized, and pipes larger than 2-1/2 inch shall be black steel with epoxy or lining with minimum 10 mil dry thickness. Exterior surfaces of all pipe shall be shop primed. Finish coatings shall be as specified in Section 09900 - Painting.

2.3 FLEXIBLE COUPLINGS

A. Flexible couplings shall be one of the following, or Engineer approved equivalent:

1. Dresser, Inc., Style 38

2. Smith Blair, Inc., Series 411

3. Romac Industries, Inc., Style 400 or 511

B. Hardware shall be as follows:

1. Aboveground; Steel in accordance with AWWA C111.

2. Underground or Underwater; Stainless Steel, type 316 in accordance with ASTM F593

C. Center sleeves shall comply with the following

Nominal Pipe Diameter	Minimum Sleeve Length
6 inch and smaller	Manufacturer's Standard
8 through 14 inch	7 inch
14 inch and larger	10 inch

2.4 CONCRETE FOR THRUST BLOCKS

A. As specified in Section 03300 – Cast In Place Concrete.

PART 3 EXECUTION

3.1 HANDLING AND DISTRIBUTION OF MATERIALS

A. Delivery: Handle pipe carefully to ensure delivery at the project site in sound, undamaged condition. Contractor shall replace damaged pipe at no additional expense to the Owner.

B. Storage: Do not store materials directly on the ground. Adequately support piping to prevent warping. Use protective covers where pipe may be damaged by direct sunlight.

C. Before laying, pipe shall be inspected for cracked, broken, or defective pieces. Such pieces shall be rejected. Pipe shall be carefully lowered into the trench to prevent damage. All dirt or other foreign matter shall be removed from inside the pipe before lowering into the trench.

3.2 INSTALLATION OF BURIED PRESSURE PIPING

A. General: Pipe, fittings, and appurtenances shall be installed in accordance with the manufacturer's instructions and in accordance with the following references as appropriate:

1. Reinforced Concrete Pipe – ASTM C361.

B. Any damage to pipe shall be carefully repaired by the Contractor in accordance with pipe manufacturer's recommendations and to the satisfaction of the Engineer, before backfilling is commenced. Any pipe damaged beyond repair, in the opinion of the Engineer, shall be replaced by the Contractor at his sole expense.

C. Handling: The pipe shall be protected to prevent entrance of foreign materials during laying operations. When laying is not in progress, open pipe ends shall be protected with a watertight plug or other approved means to exclude water or foreign material.

D. Before work is stopped for the day, all joints shall be completed with the exception of joints adjoining structures.

E. Alignment: Trenches shall be true to line and grade, and the bottom shall be smooth and free from all objectionable material. The width of the trench shall be

sufficient to permit laying of the pipe correctly and to permit proper handling and joining of the pipe.

1. The pipe shall be placed firmly in the center of the trench.

2. Each pipe section shall be within 0.05 foot of the calculated invert grade upon installation. Alignment of pipe shall be within 1 foot of the staked alignment upon installation.

F. Deflection: Pipe joints may be deflected but shall not be deflected more than 75% of the maximum allowable as recommended by the pipe manufacturer.

1. Where horizontal or vertical curves are shown in the alignment that cannot be installed by joint deflection of standard pipe lengths, the Contractor may select from the following options with prior approval by the Engineer:

   a. Use shorter pipe lengths and allowable joint deflection as specified.

   b. Use special mitered joints.

   c. Use standard or special fabricated bends.

   With all of the above options, thrust blocking or thrust restraint may be required. If it is determined that thrust blocking, or restraint is necessary, it shall be furnished at no additional cost to the Owner.

G. Placing of Pipe: All surfaces against which pipe is to be placed shall be free form standing water, loose earth, mud, and debris. Where the bottom of the trench is soft, wet or otherwise unstable, it shall be excavated a minimum of one foot below grade for the full width of the trench. When the bottom of the trench is excavated below grade, the excavation below grade shall be refilled with select material approved by the Engineer and compacted to the in-place density shown on the Plans. Immediately before placing each section of the pipe, the bottom of the trench or pipe bedding, or both, shall be prepared to provide uniform bearing along the full length of the pipe except at bell holes.

1. Where necessary, a bell hole shall be excavated under and immediately in front of the last section of pipe that has been laid. The bell hole shall provide a minimum clearance between the pipe barrel or coupling and bottom of the bell hole of three inches (3”) but in no case shall the bell holes be smaller than required to facilitate joining or laying the pipe.

2. Pipe shall be kept clean and free of foreign material during laying operations.

3. The pipe joints shall be assembled according to the pipe manufacturer’s recommendations, these Specifications, and as directed by the Engineer, but regardless of the method used the joints shall be watertight.

4. The Contractor shall comply with current OSHA Guidelines for excavations and Construction Safety Orders.

5. Excavated material that is unsuitable, as determined by the Engineer, shall be segregated and not used for backfilling.

6. The Contractor shall provide temporary bridging over pipe trenches where it is necessary to provide crossings for workman and equipment or access roads. Where the side walls of the trench are unstable or where the depth of the trench will present a safety hazard to workmen, the Contractor shall provide adequate sheeting that has been suitably braced. The sheeting shall be withdrawn as the backfill is placed about the pipe. Any voids that result from the withdrawn sheeting shall be backfilled and compacted to the same density as the remainder of the trench.

H. Backfill: Backfill and Compaction shall be in conformance with Section 02200 – Earthwork.

1. Relative compaction shall conform to the trench sections for the various pipe types, as shown on the Plans.

I. Joints:

1. Pipe shall be assembled and joined in accordance with the manufacturer's published instructions for the type of pipe and joint used. Where mechanical joints are used, the pipe shall be marked in such a manner that it can be determined after installation that the pipe is properly seated.

2. Where flexible couplings are used as expansion joints, the ends of the pipes shall be separated to allow for expansion. Couplings shall be centered on pipe ends. Runs of pipe containing flexible couplings shall be properly blocked, anchored or tied to the structure to prevent joints from pulling apart.

3. Mechanical restrained joints shall be installed in accordance with joint manufacturer's instructions and recommendations.

3.3 THRUST BLOCKS OR MECHANICAL RESTRAINED JOINTS

A. Place concrete thrust blocks at all tees, elbows, plugs, and other locations where unbalanced forces exist in underground pipe in accordance with details shown. Place blocks between undisturbed ground and fitting to be anchored. Place blocking so that pipe and fittings will be accessible for repairs. Thrust blocks shall be of such size as to give bearing against undisturbed vertical earth banks sufficient to absorb the thrust from line pressure, allowing a maximum earth bearing pressure of 3000 pounds per square foot below natural grade or as shown on the Plans.

B. Restrained joint fittings may be used in-lieu of thrust blocks, at the discretion of the Engineer. Contractor shall submit shop drawings showing methods of joint restraint for each type of restrained joint fitting to be used including the length of pipe having restrained push-on joints on all pipes which connect to the restrained fitting.

C. When it is necessary to restrain push-on joints adjacent to restrained fittings, a harness restraint device shall be used. All harnesses shall have a pressure rating equal to that of the pipe on which it is used

1. Harness assemblies including tie bolts shall be manufactured of ductile iron conforming to ASTM A536-80. Harness shall be manufactured by EBAA Iron, Inc. or shall be of the type as shown on the Plans.

3.4 ACCEPTANCE TESTS FOR BURIED PIPING

A. All newly installed sections of buried pressure piping shall be pressure and leakage tested as described herein.

B. Rubber Gasketed Reinforced Concrete Pipe

1. The water level in the concrete Project Distribution Box Structure shall be maintained at the concrete sill elevation for a period of no less than 2 hours.

2. The allowable leakage under working conditions for RGRCP pipe shall not exceed 250 gallons per 24 hours per inch of pipe diameter, per mile of gravity pipeline tested.

C. Tests shall be made after the trench has been backfilled and compacted, but not until at least 5 days have elapsed since any thrust blocks in the section have been poured.

D. Slowly fill the pipe with water at a rate such that the velocity does not exceed 0.25 foot per second and allow to stand for a minimum of 24 hours prior to starting the test. Expel all air from the pipe. Absorption by the pipe or pipe lining material may require a longer period before beginning the test, as directed by the Engineer.

E. Should testing disclose any visible leaks or leakage greater than that allowed, the defective joints or pipe shall be located, repaired, and re-tested until satisfactory results are obtained by the Contractor at his expense.

END OF SECTION

SECTION 02640

PRECAST REINFORCED BOX CULVERTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing and installing precast reinforced concrete box culvert.

1.2 RELATED WORK

A. Section 02200 – Earthwork

B. Section 03300 – Cast In Place Concrete

C. Section 03400 – Precast Concrete Structures

D. Section 03600 – Grout

E. Section 07910 – Caulking and Sealants

1.3 REFERENCES

A. American Concrete Institute (ACI)

B. American Society for Testing and Materials (ASTM)

C. American Association of State Highway and Transportation Officials (AASHTO)

D. State Standard Specifications

E. California Building Code (CBC)

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Submit manufacturer's catalog data on precast concrete items. Show dimensions of culverts and thicknesses of walls, bases, and top slabs. Show reinforcing wire and steel. Show materials of construction by ASTM reference and grade.

C. Load Rating – Box culvert shall be load rated for AASHTO HS-20 traffic loading.

D. Submit manufacturer’s joint details including maximum allowable joint gap information for all box sizes provided.

E. Submit details of all specials including details of reinforcing steel.

F. Submit manufacturer's design calculations and certification signed and sealed by a professional civil or structural engineer registered in the state of California that box culvert design and construction comply with the specified design load conditions and the referenced ASTM specifications (e.g., ASTM C1433).

1.5 SPECIALS

A. A special is defined as any piece of culvert other than a normal full-length straight section. This includes but is not limited to short pieces, adaptor sections with special ends, sections with outlets, elbows, etc.

PART 2 PRODUCTS

2.1 PRECAST REINFORCED BOX CULVERT

A. Precast concrete box culverts shall comply with ASTM C1433 except as modified herein.

B. Precast reinforced concrete box culvert shall be as manufactured by Piranha Pipe and Precast, Chowchilla, CA, Jensen Precast, Fresno, CA, or Engineer approved equivalent.

C. Design loads shall be in accordance with ASTM C1433, Table 1, except as modified herein.

D. Soil depth of cover shall be “0<2” feet. Soil lateral loads shall be as determined by ASTM C1433, Appendix X1 or loadings specified in the project soils report, whichever is greater. Alternate design by the strength design method shall include a load factor of 1.7 times the lateral earth or hydrostatic pressures.

E. Form the ends of the precast sections so that the sections can be laid together to make a continuous line of box sections with a smooth interior free of appreciable irregularities in the flow line within the permissible variations of ASTM C1433.

F. Handling devices or holes will be permitted in each member for the purpose of handling and laying. Plug and seal cored and handling holes so the members meet the requirements of these specifications.

G. Lifting devices shall have sufficient bearing on the inside of the box section to avoid damage resulting from a concentration of stresses around the lift holes.

H. Design joints using a butyl rubber sealant per ASTM C990.

2.2 SPECIALS

A. All pieces required for closure between precast and cast-in-place elements shall be fabricated with protruding dowels or exposed reinforcing steel as shown on the plans. All dowels and exposed reinforcing shall be fully developed.

2.3 CEMENTITIOUS MATERIAL

A. Cement shall be a combination of cement conforming to ASTM C150 and fly ash conforming to ASTM C618. Cement shall be Type II/V. Fly ash shall be Type F and shall not exceed 15% of the total cementitious weight.

2.4 SEALANTS AND MORTAR

A. Butyl rubber sealing compound shall comply with ASTM C990. Mortar shall comply with ASTM C387, Type S. Non-shrinking grout shall comply with Section 03600.

PART 3 EXECUTION

3.1 STRUCTURE EXCAVATION, SUBGRADE, AND BACKFILLING

A. As specified in Section 02200 – Earthwork, Section 02202 - Trenching and Backfilling, and as shown in the Plans.

3.2 SEALING AND GROUTING

A. Fill joints between precast sections with a butyl rubber sealing compound, and fill remaining voids with non-shrinking grout per Section 03600.

3.3 INSTALLING BOX CULVERTS

A. Excavation and subgrade preparation for the box culverts shall be in accordance with Section 02200 – Earthwork, Section 02202 - Trenching and Backfilling, and as shown in the Plans.

B. Set individual box sections to lines and grades shown in the drawings with the groove end upstream and the spigot end extended full length into the adjacent downstream section of box. Maximum deflection from grade is 1/2-inch and from line is 2 inches. In no case shall the maximum allowable joint gap exceed the manufacturer's recommendation. The manufacturer's recommendations shall be closely followed during installation.

C. Seal joints between individual box sections on the interior. Remove foreign materials from joint surfaces and make sure the joint sealant is properly in place. Do not apply non-shrinking grout until all backfill and compaction is complete.

D. After installing the internal joint seal, place the precast section in place by fitting the ends together. Jack the unit to the portion of the barrel already formed to ensure a tight seal. Set level and firmly position each section before placing additional sections. Jack every unit that is added onto the barrel.

E. Fill lift holes with expansive mortar or tapered precast mortar plugs to provide a watertight section. Finish the mortar flush on the inside of the box and cure on the outside. Thoroughly seal tapered precast plugs with plastic joint compound material.

3.4 BACKFILL AROUND BOX CULVERTS

A. As specified in Section 02200 – Earthwork, Section 02202 - Trenching and Backfilling.

1. Do not place backfill until structure has been approved by the District.

3.5 ACCEPTANCE FOR BOX CULVERT

A. It is anticipated that the Kirby Ditch canal will not convey water until the Owner's irrigation delivery season commences, anticipated to be May 2014. Should an inspection during the irrigation season identify any visible leaks or leakage, the defective joints or culvert section shall be located and repaired by the Contractor and approved by the Engineer at the Contractor's expense.

END OF SECTION

SECTION 02800

FENCING

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish and install chain link fencing as indicated on the Plans.

B. Furnish and install drive gates as indicated on the Plans.

C. Furnish and install barbed wire fencing and gates as indicated on the Plans.

D. Furnish and install all other fencing appurtenances (footings, braces, line posts, etc.) as shown on the Plans.

1.2 RELATED WORK

A. Section 02200 – Earthwork

B. Section 03300 – Cast-in-Place Concrete

1.3 SUBMITTALS

A. Shop drawing of fence and gates, materials, dimensions and specifications. Submittals shall be in accordance with Section 01300 - Submittals.

1.4 REFERENCES

A. Section 80, State Standard Specifications.

PART 2 - PRODUCTS

2.1 FENCE MATERIALS

A. Materials shall conform to Section 80-4, State Standard Specifications.

2.2 GATES

A. Manually operated gates shall be constructed in accordance with Section 80-4, State Standard Specifications.

PART 3 - EXECUTION

3.1 FENCES AND GATES

A. Installation shall be in accordance with Section 80-3, State Standard Specifications, and as indicated on the Plans.

END OF SECTION

SECTION 03150

CONCRETE ACCESSORIES

PART 1 GENERAL

1.1 WORK INCLUDED

A. Furnish all materials, supplies, and performing all labor to furnish and install concrete accessories as described in this section of the Specifications, shown on the Plans. The work shall include, but is not necessarily limited to

1. Polyvinyl chloride waterstop.

2. Hydrophilic waterstop

3. Bentonite strip waterstop

4. Preformed synthetic sponge rubber expansion joint material.

5. Preformed bituminous fiber expansion joint material.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

B. U. S. Army Corps of Engineers (USACE):

1. CRD-C-572, Specification for Polyvinyl Chloride Waterstop.

1.3 RELATED WORK

A. Section 03300 – Cast in Place Concrete

B. Section 07910 – Caulking and Sealents

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Product Data:

1. Waterstops and Preformed Expansion Joint Material: Sufficient information on each type of material for review to determine conformance of material to requirements specified.

C. Provide material certificates, shop fabrication and placement drawings, and schedule.

D. Samples: Provide samples of each product to be supplied under this section.

E. Laboratory Test Reports: Indicating that average properties of material and finish conform to requirements specified in this section.

F. Manufacturer's Installation Instructions: For all materials specified under this section

G. Quality Control Submittals:

1. Certificates of Compliance:
   a. Written certificates that waterstops and Preformed Expansion Joint Material supplied meet or exceed physical property requirements of this section.

1.5 QUALITY ASSURANCE

A. Mock-Ups:

1. 1. Welding Demonstration:

   a. Demonstrate ability to weld acceptable joints in polyvinyl chloride waterstop before installation of waterstop begins.

B. Field Joints:

1. Polyvinyl Chloride Waterstop Field Joints: Shall be free of misalignment, bubbles, inadequate bond, porosity, cracks, offsets and other defects which would reduce the potential resistance of the material to water pressure at any point. Replace defective joints. Remove faulty material from the site and disposed of by the Contractor at its own expense.

C. Inspections:

1. Quality of welded joints will be subject to acceptance of the Engineer.

2. Polyvinyl Chloride Waterstop: The following defects that represent a partial list that will be grounds for rejection.

   a. Any combination of offset or crack which will result in a net reduction in the cross section of the waterstop in excess of 1/16-inch or 15 percent of the material thickness, at any point, whichever is less.

   b. Misalignment of the joint, which will result in misalignment of the waterstop in excess of 1/2-inch in 10 feet.

   c. Porosity in the welded joint as evidenced by visual inspection.

   d. Bubbles or inadequate bonding.

PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

A. Waterstops:

1. Polyvinyl Chloride Waterstops:

a. One of the following or Engineer approved equivalent:

1) Vinylex Corporation, Kwik-Tie.

2) Greenstreak Plastic Products Company, Inc.

b. Type: Ribbed Waterstop. Unless otherwise specified, joints shall be constructed as follows:

1) Construction Joints: ribbed type, width to be 7 inches unless otherwise specified or shown on the plans, without center bulb.

2) Expansion Joints: ribbed type, width to be 7 inches unless otherwise specified or shown on the plans, with hollow center bulb.

c. Provide polyvinyl chloride waterstops complying with following requirements:

Property	**Test Method**	**Required Limits**
Water absorption	ASTM D 570	0.15% max
Tear Resistance	ASTM D 624	200 lb/in (35 kN/m) min.
Ultimate Elongation	ASTM D 638	350% min.
Tensile Strength	ASTM D 638	2000 psi (13.78 Mpa) min.
Low Temperature Brittleness	ASTM D 746	No Failure @ -35° F (-37° C)
Stiffness in Flexure	ASTM D 747	600 psi (4.13 Mpa) min.
Specific Gravity	ASTM D 792	1.45 max.
Hardness, Shore A	ASTM D 2240	79 $\pm$3
Tensile Strength after accelerated extraction	CRD-C 572	1850 psi (11.03 Mpa) min.
Elongation after accelerated extraction	CRD-C 572	300% min.
Effect of Alkalies after 7 days: Weight Change Hardness Change	CRD-C 572	 between -0.10% / +0.25% +/- 5 points

2. Hydrophilic waterstop

a. One of the following or Engineer approved equivalent:

1) Cetco, Akwastop.

2) Greenstreak Plastic Products Company, Inc., Hydrotite

b. Performance Requirements as follows:

Chloroprene Rubber

Property	Test Method	Required Limits
Tensile Strength	ASTM D 412	1300 PSI min.
Ultimate Elongation	ASTM D 412	400% min.
Hardness (Shore A)	ASTM D 2240	50 +/- 5
Tear Resistance	ASTM D 624	100 lb/inch min.

Modified Chloroprene (Hydrophilic) Rubber

Property	Test Method	Required Limits
Tensile Strength	ASTM D 412	350 PSI min.
Ultimate Elongation	ASTM D 412	600% min.
Hardness (Shore A)	ASTM D 2240	52 +/- 5
Tear Resistance	ASTM D 624	50 lb/inch
Expansion Ratio	Volumetric Change - Distilled Water @ 70° F	3 to 1 min.

3. Bentonite Strip Waterstop

a. One of the following or Engineer approved equivalent:

1) Cetco, Waterstop, RX.

B. Preformed Expansion Joint Materials:

1. Preformed Synthetic Sponge Rubber Expansion Joint Material:

a. Manufacturers: One of the following or Engineer approved equivalent:

1) Tammstech, Inc., Cementone.

2) Burke Concrete Accessories Inc., Neoprene Sponge Rubber Expansion Joint.

2. Preformed Bituminous Fiber Expansion Joint Material:

a. Conform to ASTM D994-71, preformed bituminous type, 1/2-inch thick

b. One of the following or Engineer approved equivalent:

1) Tammstech, Inc., Hornboard/fiber.

2) Burke Concrete Accessories Inc., Fiber Expansion Joint.

2.2 ACCESSORIES

A. Adhesives and sealants:

1. Provide as recommended by product supplier

PART 3 EXECUTION

3.1 INSTALLATION

A. Waterstops - General:

1. Install per manufacturer's instructions, including the use of primers.

2. Waterstops shall be stored so as to permit free circulation of air around the waterstop material and to prevent direct exposure to sunlight.

3. Install waterstops in concrete joints where indicated on the Drawings.

4. Carry waterstops in walls into lower slabs and join to waterstops in slabs with appropriate types of fittings.

5. In Water bearing Structures: Provide all joints with waterstops, whether indicated on the Drawings or not.

6. Provide waterstops that are continuous.

7. Set waterstops accurately to position and line as indicated on the Drawings.

8. Hold and securely fix edges in position at intervals of not more than 24-inches so that they do not move during placing of concrete.

9. Position the waterstop so that the center axis of the waterstop shall be coincident with the centerline of the joint.

10. Do not drive nails, screws, or other fasteners through waterstops in vicinity of construction joints.

11. Secure waterstop against movement at not more than 24-inches on centers.

12. Terminate waterstops 3-inches from top of finish surfaces of walls and slabs unless otherwise specified or indicated on the Drawings.

13. When any waterstop is installed in the concrete on one side of a joint, while the other half or portion of the waterstop remains exposed to the

atmosphere for more than two days, suitable precautions shall be taken to shade and protect the exposed waterstop from direct rays of sunlight during the entire exposure and until the exposed portion is embedded in concrete.

14. Use specific type in applications as indicated on the Drawings.

15. No scrap or recycled material shall be used.

B. Polyvinyl Chloride Waterstops:

1. Install waterstops so that joints are watertight.

2. Weld joints such as unions, crosses, ells, and tees, with thermostatically controlled equipment recommended by waterstop manufacturer.

a. The material shall not be damaged by heat sealing.

b. Make joints by overlapping then simultaneously cut the ends of the sections to be spliced so they will form a smooth even joint.

c. The continuity of the waterstop ribs and tubular center axis shall be maintained.

d. The splices shall have a tensile strength of not less than 60 percent of the unspliced materials tensile strength.

3. Butt joints of the ends of two identical waterstop sections may be made while the material is in the forms.

4. All joints with waterstops involving more than two ends to be joined together, and all joints that involve an angle cut, alignment change, or the joining of two dissimilar waterstop sections shall be prefabricated prior to placement in the forms, providing not less than 24-inch long strips of waterstop material beyond the joint.

5. Vertical crosses and tees shall be prefabricated by the manufacturer. Horizontal crosses or tees may be field or factory welded.

6. Split type waterstop will not be permitted except where specifically indicated on the Plans.

C. Preformed Expansion Joint Material:

1. Fasten expansion joint strips to concrete, masonry, or forms with adhesive. No nailing will be permitted, nor shall expansion joint strips be placed without fastening

D. Joints:

1. Install construction, and expansion joints as indicated on the Plans.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 WORK INCLUDED

A. Work required under this section consists of furnishing all materials, supplies, equipment, tools, transportation, and facilities, and performing all labor and services incidental to furnishing and installing concrete work as described in this section of the Specifications, shown on the accompanying Plans, or reasonably implied therefrom, except as hereinafter specifically excluded. The work shall include, but is not necessarily limited to:

1. All form work including special forms as required for any special construction and/or to accommodate the work of others and removal of forms.

2. All concrete reinforcement, placement, bending and forming thereof.

3. All concrete and cement finishing, all surface treatment and curing including non-slip finishes.

4. Installation of all reglets, bolts, anchors, cans, sleeves, column bolts, etc., whether furnished under this section or by others (except cans and sleeves required under the Electrical and Mechanical Sections).

5. The furnishing of all items required to be or shown on the Plans as embedded in concrete, which are not specifically required under other sections.

6. Setting headers and screens finishing, curing, and protecting concrete.

B. Where prior inspection and test of materials are required, documentary evidence, in the form of test reports, shall be furnished prior to the time the material is incorporated into the work. All rejected material shall be promptly removed from the premises.

1.2 RELATED WORK

A. Division 2 – Sitework

B. Section 03150 – Concrete Accessories

C. Section 03600 – Grout

D. Section 05500 – Fabricated Metal

E. Section 07910 – Caulking and Sealants

F. Section 09900 – Painting

1.3 REFERENCES

A. American Concrete Institute (ACI)

B. American Society for Testing and Materials (ASTM)

C. State Standard Specifications

D. California Building Code (CBC)

1.4 DEFECTIVE WORK

A. Work considered to be defective may be ordered, by the Engineer, to be replaced in which case the Contractor shall remove and replace the defective work at his expense. Work considered to be defective shall include, but not be limited to, the following:

1. Concrete incorrectly formed, or not conforming to details and dimensions on the Plans or with the intent of these documents, or concrete the surfaces of which are out of plumb or level.

2. Concrete in which defective or inadequate reinforcing steel has been placed.

3. Concrete containing wood, cloth, or other foreign matter, rock pockets, voids, honeycombs, cracks or cold joints not scheduled or indicated on the Plans.

4. Concrete below specified strength.

1.5 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Provide material certificates, shop fabrication and placement drawings, and schedule for all reinforcing steel, imbedded items, form release and curing compounds.

PART 2 PRODUCTS

2.1 CONCRETE

A. Concrete shall conform to Section 90 of the State Standard Specifications. Unless otherwise shown or specified, all concrete shall contain not less than 611 pounds

of Portland cement per cubic yard of concrete (6-1/2 sack) with a minimum 28-day compressive strength of 4,000 psi.

1. Portland cement shall be Type II or Type II, Modified.

2. Concrete shall contain 4% ±1% entrained air.

3. Water/cement ratio shall not exceed 0.45 (by weight).

4. Slump at placement shall be 4 inches.

B. Concrete for canal liner shall conform to Section 90 of the State Standard Specifications. Unless otherwise shown or specified, all concrete shall contain not less than 611 pounds of Portland cement per cubic yard of concrete (6 sack) with a minimum 28-day compressive strength of 3500 psi.

1. Portland cement shall be Type II,.

2. Concrete shall contain 4% ±1% entrained air.

3. Water/cement ratio shall not exceed 0.50 (by weight).

4. Slump at placement shall be 4 inches.

5. Macro-Synthetic fiber reinforcement shall be added at a rate of 3 pounds per cubic yard, or as recommended by the manufacturer.

a. Macro-Synthetic fiber reinforcement shall be Propex Fibermesh 650, or Engineer approved equivalent.

C. Concrete used for thrust blocks shall contain not less than 517 pounds of Type II Portland Cement per cubic yard of concrete (5 1/2 sack).

D. Concrete used for pipe encasement shall contain not less than 517 pounds of Type II Portland Cement per cubic yard of concrete (5 1/2 sack).

E. Slurry cement backfill used in lieu of compacted soil shall contain not less than 235-pounds of Type II Portland Cement per cubic yard of concrete (2-1/2 sack) and shall comply with Section 19 of the State Standard Specifications.

2.2 AGGREGATE

A. Aggregate for normal weight concrete shall conform to ASTM C-33. Aggregates shall be free of dirt, clay balls, roots, bark and other deleterious substances and shall be thoroughly washed before use.

2.3 WATER

A. Water shall be clean and free from injurious amounts of acids, alkalis, salts, oils, organic materials or other deleterious substances.

2.4 ADMIXTURES

A. Air Entraining: ASTM C260

B. Water Reducing: ASTM C494, Type A or D

C. Accelerating: ASTM C494, Type C or E

1. No admixture containing any chloride ions is acceptable.

D. Retarding: ASTM C494, Type B or D

1. No admixture containing any chloride ions is acceptable.

2.5 REINFORCING STEEL

A. Rebar shall be ASTM designation A615, Grade 60.

B. Welded wire fabric shall conform to ASTM A 185.

2.6 EXPOSED-TO-VIEW CONCRETE

A. For exposed-to-view concrete, where legs of metal supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class I).

B. Metal bar supports in slab covers for sewage-containing structures shall also be provided with plastic coated legs.

2.7 FORM MATERIALS

A. Exposed Concrete: Plywood complying with U.S. Plywood Standard PS-1 “BB (Concrete Form) Plywood” Class I, or better.

B. Textured Finish Concrete: Units of face design, size arrangement and configuration to match control sample.

C. Cylindrical Columns and Supports: Metal, fiberglass or waxed paper tubes of sufficient wall thickness to resist imposed loads without deformation.

D. Form Release Agent shall leave behind a paintable concrete surface.

1. Release #1, The Burke Co., or approved equal.

2.8 CURING MATERIALS

A. Reinforced waterproof paper

1. Sisal Kraft, Orange Label, or approved equal.

B. Liquid-membrane curing compound

1. Curing compound shall comply with ASTM C309, Type 2.

    a. White pigmented material

PART 3 EXECUTION

3.1 REINFORCING STEEL

A. Comply with CRSI, “Placing Reinforcing Bars” and as specified herein.

B. Place reinforcing steel and embedded items in accordance with approved shop drawings.

C. Splicing of bars shall be by lapping. Lapped splices shall be 45 bar diameters for bar size through #8 and 60 bar diameters for larger bars, unless otherwise shown on the Plans.

D. Splicing of the wire fabric shall be by lapping. Lapped splices shall be two full mesh, minimum.

E. All rebar in vertical walls shall be supported by concrete block spacers or metal chairs.

F. Prior to placement of the concrete, reinforcing steel shall be cleaned and free of all concrete, dirt, oil, mill scale, rust or other coatings that would reduce or destroy the bond.

G. All reinforcing steel and embedded items shall be reviewed and approved by the Engineer prior to concrete placement.

3.2 FORMS

A. All forms shall be cleaned and an approved agent applied each time they are used and shall be so constructed and set as to resist, without springing or settlement, the pressure of the concrete and the placing operations.

B. In designing forms and falsework, the concrete shall be treated as a liquid weighing at least 150 lbs. per cubic foot for vertical loads and not less than 85 lbs. per cubic foot for horizontal pressure. The design of the forms and falsework system shall include allowances for temporary construction loads. The rate of placement of concrete shall be so regulated that the pressures caused by the wet concrete will not exceed the designed form pressure. The unsupported length of wooden columns and compression members shall not exceed 30 times the width of the least side.

C. All forms shall be set and maintained in true alignment, grade and section until the concrete has sufficiently set. The interior surfaces of forms shall be adequately treated with an acceptable material to insure non-adhesion of mortar. All forms

shall be mortar-tight. When forms appear to be unsatisfactory in any way, concrete placement shall be stopped until the defects have been corrected.

D. Metal tie rods or anchorages within the forms shall be fitted with suitable cones or comparable devices. Metal tie rods or anchorages shall be removed to a depth of 1" from the surface without injury to the concrete. All fittings for metal ties shall be of such design that upon their removal, the cavities which are left will be of the smallest possible size, but of sufficient diameter to allow the cavity to be "dry packed" with cement mortar. The cavities shall be filled with cement mortar and the surface left sound, smooth and even.

E. Form release agent shall be applied to the form so that no agent comes in contact with reinforcing steel.

3.3 PLACING

A. All concrete shall be placed before it has taken its initial set and shall be placed in horizontal layers and in such a manner as to avoid segregation. The concrete adjacent to the forms and joints shall be thoroughly internal consolidated with a vibrator operating at not less than 4,500 vibrations per minute.

1. Pumping equipment shall be of suitable type, without Y-sections, and with adequate pumping capacity.

2. Loss of slump in pumping should not exceed $1^{1}/_{2}$ ".

3. Concrete shall not be placed through reinforcing that may cause separation of aggregates.

B. The concrete shall be deposited as nearly as possible in its final position. Drop chutes and elephant trunks shall be used on drops greater than 5 feet. Concrete shall be placed at such a rate that all concrete in the same lift will be deposited on plastic concrete. The concrete comprising each unit of work shall be placed in a continuous lift.

C. The Contractor shall notify the Engineer 24 hours (1 working day) prior to concrete placement.

1. The form work and reinforcing steel placement shall be approved by the Engineer prior to ordering concrete.

D. Form Removal. Minimum times for removal after concrete placement are as follows:

Beam sides but not shoring	3 days
Column forms and wall forms	2 days
Forms for supported slabs but not shoring	14 days

3.4 CURING

A. Exposed concrete surfaces shall be protected from premature drying by covering as soon as possible with canvas, plastic sheets with sealed joints, burlap, sand or other satisfactory materials and kept continuously moist; or, if the surfaces are not covered, they shall be kept continuously moist by flushing or sprinkling.

1. Curing shall continue for a period of not less than 7 days after placing the concrete. If curing compound is used, two (2) applications will be made for even coverage. Curing methods shall be approved by the Engineer prior to use.

3.5 FINISHING

A. Defective and honeycombed surfaces shall be chipped back to such a depth to expose solid concrete. The surface shall be dampened and coated with a bonding agent and packed with mortar.

B. Concrete Finishes for Vertical Wall Surfaces:

1. Form facing material shall produce a smooth, hard, uniform texture.

a. Use forms specified for surfaces exposed to view in accordance with the Plans and other Specification Sections.

2. At a minimum, repair the following surface defects:

a. Tie holes

b. Honeycombs deeper than ¼”

c. Air pockets deeper than ¼”

d. Rock holes deeper than ¼”

e. Scabbing

3. Chip or rub off fins exceeding 1/8” in height.

4. Provide Class 1 finish for:

a. Walls being waterproofed, painted, coated with some other material.

b. All exposed surfaces not specified to receive another finish.

C. Related Uniform Surfaces (Except Slabs):

1. Strike smooth tops of walls or buttresses, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces after concrete is placed.

2. Float surface to a texture consistent with that of formed surfaces.

3. Continue treatment uniformly across unformed surfaces.

D. Concrete Finishes for Horizontal Slab Surfaces:

1. General: Tamp concrete to force coarse aggregate down from surface. Screed with straightedge, eliminate high and low places, bring surface to required finish elevations; slope uniformly to drains. Dusting of surface with dry cement or sand during finishing processes not permitted.

2. Slab Finish shall be as follows:

a. Surfaces intended to receive damp proofing or water proofing membranes: Float finish.

b. Floors intended to receive floor coverings and MCC rooms: Trowel finish.

c. Sidewalks, garage floors, drive-throughs and ramps: Broom finish.

d. Exterior slabs, platforms, steps and landings, exterior and interior pedestrian ramps and interior stairs and all process equipment areas, not covered by other finish materials: Broom finish.

3. Deviation in finish surface shall not exceed ¼" in 10 ft.

4. No tolerance will be allowed that will result in the maximum running, or cross, slope exceeding the requirements of the Americans with Disabilities Act.

3.6 TESTING

A. Testing of concrete shall be as required by the Engineer and in accordance with ACI 301, Chapter 16.

1. All costs of initial testing will be paid by the Owner unless otherwise noted.

2. All costs involved, including those required by the Engineer, in retesting of concrete required because of a failure to meet these Specifications shall be at the expense of the Contractor.

3.7 WATERTIGHTNESS OF CONCRETE WORK

A. It is the intent of this Specification to obtain concrete and grout with homogenous structure, which when hardened will have the required strength, is watertight, and resistant to weathering.

END OF SECTION

SECTION 03360

SHOTCRETE

PART 1 GENERAL

1.1 WORK INCLUDED

A. Work required under this section consists of furnishing all materials, supplies, equipment, tools, transportation, and facilities, and performing all labor and services incidental to furnishing and installing concrete work as indicated on the Plans. The work shall include, but is not necessarily limited to:

1. Concrete canal or embankment lining

B. Shotcrete shall consist of concrete pneumatically applied onto a surface and shall be applied by the wet mix process. All shotcrete shall be accurately formed, properly placed, and finished as indicated on the drawings and specified herein.

C. Where prior inspection and test of materials are required, documentary evidence, in the form of test reports, shall be furnished prior to the time the material is incorporated into the work. All rejected material shall be promptly removed from the premises.

1.2 RELATED WORK

A. Division 2 – Sitework

1.3 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Specifications and data for material and equipment proposed for the project, including concrete mix design, compressed air equipment, proposed arrangements, and capacities.

C. Reinforcement shop drawings for fabrication and placement.

1.4 DEFECTIVE WORK

A. Work considered to be defective shall be removed and replaced by the Contractor at his expense.

B. The Owner may consent to allow defective work to be corrected in cases where the construction schedule will not permit time for replacement. The Contractor shall, at his expense, make all such corrections and alleviation measures as directed by the Owner.

PART 2 PRODUCTS

2.1 CONCRETE

A. All materials shall conform to ACI specifications 506, 506R, 506.2 or as specified in these specifications. Shotcrete shall be mixed and applied by the wet-mix process and shall consist of Type II, Type II modified or Type V (sulphate resistant) cement, fine aggregate with a minimum of 20% pea gravel, synthetic fibers, and water, and shall contain not less than 564 pounds of Portland cement per cubic yard. The maximum size of pea gravel shall be such that 100 percent passes a ½ inch screen and at least 90 percent passes a 3/8 inch screen.

B. Wet-mix shotcrete slump shall be kept as low as possible consistent with proper handling and thorough compaction. Unless otherwise authorized by the Engineer, slump shall not exceed 4 inches.

C. At the option of the Contractor, fly ash may be substituted for up to 15 percent of the Portland cement on the basis of 1.5 pounds of fly ash for each pound reduction in cement. Fly ash shall comply with ASTM C618, Class F, except loss on ignition shall not exceed 4 percent. Class C fly ash will not be acceptable

D. The total volumetric air content of wet-mix shotcrete delivered shall be 3 percent plus or minus 1 percent.

E. Minimum compressive strength at 28 days, as determined by ASTM C42, shall be 3,500 psi.

2.2 ADMIXTURES

A. The admixture content, batching method, and time of introduction to the mix, when used, shall be in accordance with the manufacturer's recommendations for minimum shrinkage for compliance with these specifications.

B. Admixtures: For wet-mix process only.

1. Retarder - ASTM C494, Type D; Grace “Daratard-17”,or Master Builders “Pozzolith 300R”.

2. Water-Reducer ASTM C494, Type A; Grace “WRDA with Hycol”, or Master Builders “Pozzolith 300N”.

3. Air-Entraining Agent ASTM C260; Grace “Darex AEA”, Master Builders “MB-AE10”, or Sika Chemical “AER

C. No calcium chloride or admixture containing chloride from other than impurities from admixture ingredients will be acceptable.

2.3 REINFORCEMENT

A. Rebar shall conform to ASTM designation A 615, Grade 40.

B. Welded Wire Mesh shall conform to ASTM designation A 185

C. Synthetic Fiber Reinforcement shall be fibrillated polyurethane fibers as manufactured by the Fibermesh Company, the W.R. Grace & Co., or approved equivalent. Synthetic fibers shall be added at a rate of 2 pounds per cubic yard of concrete. Fibers shall be added either at the batch plant, or to each truck mixer at the project site. Concrete shall be mixed following addition of the fibers to uniformly disperse the fibers in the raw concrete.

2.4 EMBEDMENTS

A. Anchor bolts, castings, steel shapes, sleeves, and other materials that are to be embedded in the shotcrete shall be accurately positioned and securely anchored. All exposed surfaces not to be in contact with shotcrete shall be protected during shotcreting.

B. Embedments shall be clean when installed. After shotcrete placement, surfaces not in contact with shotcrete shall be cleaned of shotcrete spatter and other foreign substances.

2.5 CURING MATERIAL

A. Sheet curing material shall be canvas, plastic sheets with sealed joints, burlap, sand or other satisfactory materials and kept continuously moist.

B. Liquid-membrane curing compound shall be nontoxic and taste and odor free, and provide a paintable concrete surface

1. Curing compound shall comply with ASTM C309, Type 2.

a. White pigmented material

PART 3 EXECUTION

3.1 EMBANKMENT TRIMMING

A. Prior to placement of shotcrete, the Contractor shall trim, finish and moisten all foundation surfaces upon which the shotcrete lining is to be placed to provide a firm foundation for the lining. Surfaces to be trimmed shall include earth surfaces of the excavated reservoir, and the surfaces of compacted fill and compacted embankment. Subgrade for shotcrete lining shall be finished accurately to lines and grades.

3.2 REINFORCEMENT

A. Splicing of bars shall be by lapping. Lapped splices shall be 36 bar diameters, minimum.

B. Splicing of welded wire mesh shall be by lapping. Lapped splices shall be one complete grid, minimum.

C. The Contractor shall notify the Engineer 48 hours prior to placing to inspect reinforcing placement.

D. The Contractor shall place reinforcement in accordance with shop drawings reviewed and approved by the Engineer.

3.3 PLACING

A. The limits of each placement shall be predetermined by the Contractor and shall be acceptable to the Engineer. All shotcrete within such limits shall be placed in one continuous operation. Preparation and placement shall be as specified in ACI 506.2, unless otherwise specified.

B. Before shotcrete is placed, reinforcement and embedments shall be rigidly secured in proper position. All dirt, mud, water, ice, snow, and debris shall be removed from the space to be occupied by shotcrete. All surfaces encrusted with dried shotcrete and concrete from previous placement operations shall be cleaned. The entire installation shall be acceptable to the Engineer.

C. Particular care shall be taken during placement of shotcrete to maintain a uniform spray distance from the surface and to keep the nozzle as nearly perpendicular to the application surface as possible. The Contractor shall notify the Engineer 24 hours (1 working day) prior to concrete placement.

D. The shotcrete shall be applied to compact surfaces, with no sand pockets.

E. At the edge of any section where the operations are temporarily suspended, the shotcrete shall be brought to a tapered edge.

F. Prior to placing the adjacent section, the surface of the tapered edge shall be cleaned by scraping and blowing away all rebound, and washing down with air and water blast. No square joints will be permitted.

G. As the operation progresses, all rebound shall be kept out of the work. If the rebound does not fall clear of the work, it shall be removed by proper methods. No shotcrete shall be placed over rebound and in case of such condition arising, the Contractor shall remove, at his own expense, any shotcrete so placed. All rebound removed shall be discarded and shall not be included in batches.

H. Shotcreting shall be ceased immediately if excessive aggregate rebound and cement loss occur. Shotcrete shall not be placed during adverse weather conditions which may result in excessive moisture loss.

I. Prior to placement of shotcrete, the Contractor shall submit details of thickness control procedures and aids to the Engineer for review. During application of shotcrete coats, the Contractor shall demonstrate the effectiveness of his control procedures.

J. After the shotcrete has been placed as nearly as practicable to the required depth, the surface shall be checked with a straightedge, and any low spots or depressions shall be brought to grade by placing additional shotcrete in such a manner that the finished surface will be reasonably smooth and uniform for the type of work involved. The final surface shall have a coarse broom finish and loose areas of shotcrete shall be removed and replaced by the Contractor at his expense. The thickness of the finished liner shall be a minimum of three (3) inches, unless shown otherwise on the Plans.

K. Longitudinal (vertical) grooved joints shall be placed in the shotcrete lining at 10 foot centers. A transverse (horizontal) grooved joint shall be placed in the shotcrete lining 10 feet from the top of the lining as shown on the Plans or as directed. All grooves shall be made along straight lines and shall be maintained to the required slope and dimensions during any subsequent finishing operations until the shotcrete has hardened. Grooves shall be made in such a manner that spalling or tearing of adjacent shotcrete is avoided. Shotcrete adjacent to grooves shall have a surface finish equivalent in smoothness to that specified paragraph 3.3.J All affected shotcrete surfaces and grooves shall be clean and free from water, unspecified foreign material, laitance and loose or defective surface shotcrete during all phases of joint construction.

3.4 CURING

A. Exposed concrete surfaces shall be protected from premature drying by covering as soon as possible as specified in part 2; or, if the surfaces are not covered, they shall be kept continuously moist by flushing or sprinkling. Curing shall continue for a period of not less than 7 days after placing the concrete.

B. If curing compound is used, two (2) applications shall be made to insure coverage. Curing materials and methods shall be approved by the Engineer prior to application.

3.5 TESTING

A. The Contractor will supply the testing laboratory with a shotcrete sample panel once per day measuring 18” x 18” x 3.5”. All panels shall be prepared in the same manner that the Contract work is performed. Cores shall be taken from the test panel for compressive tests at 7 and 28 days. Initial tests shall be provided by the Owner. All retests shall be at the expense of the Contractor.

END OF SECTION

SECTION 03400

PRECAST CONCRETE STRUCTURES

PART 1 GENERAL

1.1 WORK INCLUDED

A. Work required under this section consists of furnishing and installing the precast reinforced concrete canal and perimeter irrigation ditch turnout structures of the size and type called for on the Plans, complete with openings, inserts, and hardware. This section does not provide specifications for the precast reinforced box culvert. Refer to Section 02640 for specifications for the precast reinforced box culvert.

1.2 RELATED WORK

A. Section 02200 – Earthwork

B. Section 02610 – Pipe and Fittings

C. Section 02640 – Valves and Appurtenances

D. Section 03300 – Cast In Place Concrete

E. Section 03600 – Grout

F. Section 05500 – Fabricated Metal

G. Section 07910 – Caulking and Sealants

H. Section 11287 – Water Control Gates

1.3 REFERENCES

A. American Concrete Institute (ACI)

B. American Society for Testing and Materials (ASTM)

C. State Standard Specifications

D. California Building Code (CBC)

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Manufacturer's descriptive details of the manufacturer's latest standard product proposed for use on this project, including, but not limited to:

1. All principal dimensions.

2. Knockout locations and dimensions.

3. Hardware details.

4. Certification that the cement conforms to ASTM C150.

C. Shop and erection drawings, including design criteria and calculations, locations and types of all inserts, lifting anchors, lugs, and the locations of all openings and location and type of joints.

1. The calculations and design drawings shall be stamped and signed by a civil or structural engineer registered in the State of California.

1.5 DEFECTIVE WORK

A. Work considered to be defective may be ordered, by the Engineer, to be replaced in which case the Contractor shall remove and replace the defective work at his expense.

PART 2 PRODUCTS

2.1 GENERAL

A. Design all precast structures as specified herein and in accordance with the applicable requirements of ASTM C913, except that Type II modified Portland cement shall be used.

1. Comply with the provisions of Section 03300 – Cast In Place Concrete.

B. Structures shall be of the sizes and configurations shown on the Drawings, with openings as shown. Wall and floor thickness, roof thickness and joint location shall be determined by the fabricator.

2.2 STRUCTURES

A. Precast perimeter irrigation ditch turnout structures shall be manufactured by Piranha Pipe and Precast, Chowchilla, CA, or Engineer approved equivalent.

B. Project Turnout Structure shall be as manufactured by Piranha Pipe and Precast, Chowchilla, CA, or Engineer approved equivalent.

PART 3 EXECUTION

3.1 GENERAL:

A. Precast structures shall be set vertically and in true alignment, at the elevations indicated and at the locations shown on the Plans

B. All holes in sections used for handling purposes shall be thoroughly plugged with mortar.

C. If starter couplings are not supplied, place pipe sections flush on the inside of the structure wall, projecting outside sufficiently for proper connection with the next pipe section

D. Follow manufacturer's recommended installation procedures.

END OF SECTION

SECTION 03600

GROUT

PART 1 GENERAL

1.1 WORK INCLUDED

A. Epoxy grouting of anchor bolts and reinforcing bars to be installed in hardened concrete.

B. Adhesive bonding of fresh concrete to existing hardened concrete surfaces.

C. Installation of pipe and sleeve into existing concrete.

D. Structure and Equipment leveling pads.

1.2 RELATED WORK

A. Section 03300 - Cast-in-Place Concrete

B. Section 03400 – Precast Concrete Structures

C. Section 05000 - Fabricated Metals

1.3 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

PART 2 PRODUCTS

Material Type	Approved Product
1. Nonshrinking Grout	L&M Chemical "Crystex", Gifford-Hill "Supreme", Master Builders "Masterflow 713 Grout" Sauereisen Cements "F-100 Level Fill Grout", U.S. Grout "Five Star Grout", UPCO "Upcon High Flow" or "Upcon Super Flow", or equal.
2. Epoxy Grout	
a. Adhesive, Moisture insensitive	
For floors and horizontal surfaces	Adhesive Engineering "Concressive 1539", Rescon "Concrete Bonder R616", or equal
For vertical walls or overhead applications, non-sagging consistency	Adhesive engineering "Concressive 1440" Rescon "Concrete Bonder R616" or equal
b. Aggregate	As recommended by the epoxy grout manufacturer
3. Epoxy Bonding Adhesive	Sikadur 32, Hi-Mod Master Builders Concressive Standard Liquid or equal.
4. Water	Clean and free from deleterious substances.

A. Non-shrinking grout shall be furnished factory premixed, so only water is added at jobsite. Grout shall be mixed in a mechanical mixer. No more water shall be used than is necessary to produce a flowable grout. Cured grout shall have a minimum compressive strength of 3500 psi.

B. Epoxy grout shall consist of a two component liquid epoxy adhesive of appropriate viscosity for the application and location and an inert aggregate filler component. Components shall be packaged separately at the factory and field mixed. All proportioning and mixing of the components shall be in accordance with the manufacturer's recommendations. Cured grout shall have a minimum compressive strength of 3500 psi.

PART 3 EXECUTION

3.1 PREPARATION

A. The concrete surface to receive non-shrinking grout shall be saturated with water for 24 hours prior to grouting.

B. Where indicated on the drawings, dowels shall be epoxy grouted in holes drilled into hardened concrete. Hole diameter shall be as recommended by the manufacturer. The embedment depth for epoxy grouted dowels shall be as indicated on the Plans.

C. Holes shall be prepared for grouting as recommended by the grout manufacturer.

D. The existing concrete surface to receive fresh concrete shall be clean and sound. The existing surface may be dry or damp, but free of standing water, free of dust, laitance, grease, airing compounds, and disintegrated materials. The existing concrete surface and rebar shall be sand blasted or cleaned by approved mechanical methods.

3.2 INSTALLATION

A. Non-shrinking Grout

1. Placement - Unless otherwise specified or indicated on the Plans, the thickness of grout shall be 1-1/2 inches. Grout shall be placed in strict accordance with the directions of the manufacturer.

2. Edge Finishing - The grout shall be finished smooth in all locations where the edge of the grout will be exposed to view after it has reached its initial set. Except where indicated to be finished on a slope, the edges of grout shall be cut off flush at the base plate, bedplate, member, or piece of equipment.

3. Curing – Non-shrinking grout shall be protected against rapid loss of moisture by covering with wet rags or polyethylene sheets. After edge finishing is complete, the grout shall be wet cured for at least 7 days.

4. Epoxy Grout - Dowels shall be clean, dry, and free of grease and other foreign matter at time of installation. The bars shall be set and positioned and the epoxy grout shall be placed and finished in accordance with the recommendations of the grout manufacturer. Particular care shall be taken to ensure that all spaces and cavities are filled with epoxy grout, without voids.

B. Epoxy Bonding Adhesive: Pre-mix each component as specified by manufacturer. Mix only that quantity that can be applied within its pot life. Apply as specified by manufacturer.

END OF SECTION

SECTION 05500

FABRICATED METAL

PART 1 GENERAL

1.1 WORK INCLUDED

A. Provide metals work for:

1. Steel channel and/or angle frames and thresholds with anchors

2. Walkways, handrails, and grating

3. Guard post assemblies for removable and stationary types

4. Miscellaneous iron and steel items indicated, specified, or required for completion of the Work, unless included under other Sections of the Specification

5. Miscellaneous connections, anchors, bolts, clips, spacers, nuts, washers, shapes and inserts, as required

6. Other miscellaneous metal work, complete as indicated, specified and required.

B. Galvanizing, shop primer finishes for work of this Section as specified or required, including field touchups.

C. All labor, materials, equipment, tools and incidentals necessary and required for the completion of the work

1.2 RELATED WORK

A. Section 03300 – Cast-In-Place Concrete

B. Section 03400 – Precast Concrete Structures

C. Section 03600 – Grout

D. Section 09900 – Painting

1.3 REFERENCES

A. Industry Codes and Standards

American Institute of Steel Construction (AISC)
Specification for the Design, Fabrication and Erection of Steel for Buildings
Code of Standard Practice for Steel Buildings and Bridges
American Society for Testing and Materials (ASTM)

American Welding Society (AWS)
AWS D 1.1 Structural Welding Code Steel

B. Government Regulations

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)
Cal/OSHA Standards

1.4 QUALITY ASSURANCE

A. Unless otherwise specified all work specified herein and shown on the Drawings shall conform to the applicable requirements of the following specifications and codes:

1. Fabricate and erect miscellaneous metal work in accordance with the latest edition of the AISC "Specification for the Design, Fabrication and Erection of Steel for Buildings," and "Code of Standard Practice for Steel Buildings and Bridges."

2. Inspections. Perform all field welding and field high strength bolting of structural steel assemblies under the inspection of the Engineer. Notify the Engineer at least 48 hours in advance of needed inspections. Provide copies of testing and inspection reports to the Engineer.

1.5 SUBMITTALS

A. Furnish submittals, samples and material data in conformance with Section 01300 – Submittal Procedures.

1. Shop Drawings and Erection Drawings. Show materials and specification list, construction and fabrication details, layout and erection diagrams and method of anchorage to adjacent construction. Give location, type, size and extent of welding and bolted connections and clearly distinguish between shop and field connections. Coordinate shop drawings with related trades to ensure proper mating of assemblies.

a. Catalog work sheets showing illustrated cuts of item to be furnished, scale details and dimensions may be submitted for standard manufactured items.

b. Where items must fit and coordinate with finished surfaces and/or constructed spaces, take measurements at site and not from Drawings. Where concrete, masonry or other materials must be set to exact locations to receive work, furnish assistance and direction necessary to permit other trades to properly locate their work. Where welded connectors, concrete, or masonry inserts are required to receive work, show on shop drawings exact locations required.

2. Shop Painting Data. Submit product list with product data sheets of intended shop coats. These products shall be compatible with the products

and manufacturers with those systems Specified in Section 09900 - Painting.

PART 2 PRODUCTS

2.1 MATERIALS – GENERAL

A. Provide materials that are new, sound and conforming to the following:

Item	ASTM Standard No.	Class, Grade Type or Alloy No.
Cast Iron		
Cast Iron	A 48	Class 40B
Steel		
Galvanized sheet iron or steel	A 653	Coating G90
Black steel, sheet or strip	A 569 A 570	--
Coil (plate)	A 635	--
Structural plate, bars, rolled shapes, and miscellaneous items (except W shapes)	A 36	--
Rolled W shapes	A 992	Grade 50
Standard bolts, nuts and washers	A 307	--
High strength bolts, nuts and hardened flat washers	A 325 A 490	--
Eyebolts	A 489	Type 1
Tubing, cold-formed	A 500	--
Tubing, hot-formed	A 501	--
Steel pipe	A 53	Grade B
Stainless steel		
Plate, sheet and strip	A 240	Type 304* or 316**
Bars and shapes	A 276	Type 304* or 316**

Aluminum		
Flashing sheet aluminum	B 209	Alloy 5005-H-14, 0.032 inches minimum thickness
Structural sheet aluminum	B 209	Alloy 6061-T6
Structural aluminum	B 209 B 308	Alloy 6061-T6
Extruded aluminum	B 221	Alloy 6063-T42

*Use Type 304L if material will be welded

**Use Type 316L if material will be welded

1. Anchor bolts:

   a. Anchorages for all locations unless otherwise indicated on Drawings: Stainless steel, Type 316, Hilti HVA adhesive anchors, or Engineer approved equivalent.

   b. Chemical bond or adhesive type DBDs, if approved by the manufacturer and the Engineer, are acceptable for anchorage of vibrating machinery or equipment.

2. Expansion Anchors. .

   a. Hilti Kwik-Bolt, Standard Type or Engineer approved equivalent.

3. Galvanizing.

   a. Iron and Steel. ASTM A123, with average weight per square foot of 2.0 ounces and not less than 1.8 ounces per square foot.

   b. Ferrous Metal Hardware Items. ASTM A153 with average coating weight of 1.3 ounces per sq. ft.

   c. Touch-up Material for Galvanized Coatings. Repair galvanized coatings marred or damaged during erection or fabrication by use of DRYGALV as manufactured by the American Solder and Flux Company, Galvalloy, Galvion, Rust-Oleum 7085 Cold Galvanizing Compound, or Engineer approved equivalent.

4. Welding Electrodes. Use welding electrodes conforming to AWS D1.1.

5. Shop Prime Paint. To assure compatibility with deferred field-applied paint or coating systems, for ferrous metals other than stainless steel, galvanized steel and cast iron, provide surface preparations and use shop prime paint product and manufacturer as painting or protective coating system intended for field application specified in Section 09900 - Painting.

   a. Do not shop prime portions of work immediately adjacent to intended field welds, or portions intended for embedment.

2.2 PRODUCTS

A. Bar grating: Bar grating shall be Model GW 175 or GAA 175, as manufactured by McNichols, or Engineer approved equivalent.

PART 3 EXECUTION

3.1 GENERAL FABRICATION AND INSTALLATION REQUIREMENTS

A. Standards: Thoroughly clean ferrous metals of all loose scale and rust before being fabricated. Provide finished members free of twists, bends or open joints, and that present a neat workmanlike appearance when completed. Perform steel work conforming to the best practices set forth in the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction.

1. Perform aluminum work conforming to the applicable requirements of "Specifications for Aluminum Structures, Aluminum Construction Manual" of the Aluminum Association.

B. Welding: Perform all welding in accordance with the "Structural Welding Code-Steel," AWS D1.1.

1. Use only welders qualified by tests in accordance with AWS B 3.0.

C. Expansion anchors shall be installed in conformity with the manufacturer's instructions and ICBO Evaluation Report recommendations for maximum holding power, but in no case shall the depth of hold be less than four (4) bolt-hole diameters. The minimum distance between the center of any expansion anchor and an edge or exterior corner of concrete shall be at least four and one half (4-1/2) times the diameter of the hole in which the anchor is installed. Unless otherwise indicated on the Plans, the minimum distance between the centers of the expansion anchors shall be at least eight (8) times the diameter of the hole in which the anchors are installed.

D. General Fabrication and Installation

1. Using new stock of sizes specified or detailed, fabricate in shop producing high grade metal work. Form and fabricate to meet required conditions. Include clips, straps, bolts, screws, and other fastenings necessary to secure the work. Accurately make and tightly fit joining and intersections in true planes with adequate secure fastenings. Erect all metal work plumb, true on line and in its designated location. Grind and finish smooth field welds on exposed surface. Bolt or weld connections as indicated on Drawings. After installation, leave all work in a neat and clean condition, ready for field painting or coating.

a. The maximum misalignment tolerance for railing shall be 1/8 inch in 12 feet. Bent, deformed or otherwise damaged railings shall be replaced.

2. Coordinate work of this Section with related trades. Particular attention is required for items to be embedded in concrete work. Provide all punching

and drillings indicated or required for attachment of other work to that of this Section.

3. Compliance with Safety Requirements: Dimensions required for the fabrication and installation of handrails, ladders, grating, plate, pipe hangers and etc. which are not shown on the Drawings, shall conform to the requirements of the Division of Occupational Health and Safety.

E. Protection

1. Provide protection and repair of adjacent surfaces and areas which may become damaged as a result of work of this Section. Protect work performed hereunder until completion and final acceptance of project by the Owner. Repair or replace all damaged or defective work to original specified condition, at no additional cost to the Owner.

F. Painting

1. Apply all products in strict conformance with manufacturer's printed instructions.

2. Provide one or more shop coats of paint on all ferrous metals, except cast-iron, ductile iron, stainless steel and galvanized metals. Before priming, thoroughly clean surfaces. Allow shop coats to dry before materials are loaded for delivery to the job site. After erection, paint all areas where the shop coats have been rubbed off or omitted.

   a. See Section 09900 - Painting of these specifications for surface preparation, prime coatings, finish painting and coatings.

3. Isolate aluminum members from contact with dissimilar metals, concrete and masonry to provide protection from electrolytic deterioration. Use non-absorptive tape or gaskets, heavy brush coat of approved zinc chromate primer made with a synthetic resin vehicle; or apply a heavy coat of approved alkali-resistant bituminous paint.

END OF SECTION

SECTION 05550

ANCHOR BOLTS AND EXPANSION ANCHORS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing and installing all materials and equipment and providing all labor necessary to complete the work shown on the drawings and/or listed below and all other work and miscellaneous items not specifically mentioned but reasonably inferred for a complete installation, including all accessories and appurtenances required for a completed system.

B. Cast-in-Place anchor bolts, anchor bolts and threaded rod anchors for epoxy grouting.

C. Expansion anchors to be installed in hardened concrete.

1.2 RELATED WORK

A. Section 03300 – Cast In Place Concrete

B. Section 03400 – Precast Concrete Structures

C. Section 03600 - Grout

D. Section 05500 – Fabricated Metal

1.3 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

1.4 GENERAL

A. Unless otherwise specified or indicated on the drawings, all anchor bolts shall be cast-in-place bolts, shall have a diameter of at least 3/4 inch, and shall be headed and shall include a square washer a minimum of 1/4 inch thick and 2 inches square.

B. Expansion anchors and threaded rod anchors indicated or accepted in lieu of cast-in-place anchor bolts for equipment or structural framing shall have a diameter of at least 3/4 inch and shall be ICBO Evaluation Report listed.

1. Unless otherwise specified or indicated on the drawings, or approved by the Engineer, all other expansion anchors shall have a diameter of at least 1/2 inch.

PART 2 MATERIALS

2.1 MATERIALS

A. Nuts and washers for anchor bolts and expansion anchors shall be the same material as the bolts or anchors they are used with.

Application	Reference
A. Anchor Bolts and Nuts	
1. Carbon Steel	ASTM A307
2. Stainless Steel	IFI-104, Grade 304 or 316
3. Galvanized Steel	Carbon steel bolts and nuts; hot-dip galvanized, ASTM A153 and A385.
B. Threaded Rod Anchors and Nuts	
1. Carbon Steel	ASTM A307 or A36
2. Stainless Steel	IFI-104, Grade 304 or 316
3. Galvanized Steel	Carbon steel bolts and nuts; hot-dip galvanized, ASTM A153 and A385
C. Flat Washers	ANSI B18.22.1; of the same material as anchor bolts and nuts.
D. Expansion Anchors	
1. For Concrete	Fed Spec FF-S-325; wedge type, Group II, Type 4, Class 1 or 2; self-drilling type, Group III, Type 1; or nondrilling type, Group VIII, Type 1 or 2; Hilti ICBO #3987 or 4627, ITW Ramset/Red Head ICBO #2391, Rawl Bolt ICBO #4514, or ICBO approved equivalent.

B. Anchor bolts and threaded rod anchors for buried service and in splash zones shall be stainless steel. Anchor bolts, threaded rod anchors, and expansion anchors for immersion service shall be stainless steel. Expansion anchors for buried service and in splash zones shall be stainless steel. All other anchor bolts, threaded rod anchors, and expansion anchors shall be galvanized steel unless otherwise specified or indicated on the Plans.

PART 3 EXECUTION

3.1 ANCHOR BOLTS

A. Anchor bolts shall be delivered in time to permit setting before the structural concrete is placed. Anchor bolts which are cast in place in concrete shall be provided with sufficient threads to permit a nut to be installed on the concrete side of the concrete form or supporting template.

B. Anchor bolts and threaded rod anchors which are to be epoxy grouted shall be clean and free of coatings that would weaken the bond with epoxy.

C. Two nuts, a jam nut, and a washer shall be furnished for anchor bolts and threaded rod anchors indicated on the drawings to have locknuts; two nuts and a washer shall be furnished for all other anchor bolts.

D. Anti-seize thread lubricant shall be liberally applied to projecting, threaded portions of stainless steel anchor bolts and threaded rod anchors immediately before final installation and tightening of the nuts.

3.2 EXPANSION ANCHORS

A. Expansion anchors shall be installed in conformity with the manufacturer's instructions and ICBO Evaluation Report recommendations for maximum holding power, but in no case shall the depth of hold be less than four (4) bolt-hole diameters. The minimum distance between the center of any expansion anchor and an edge or exterior corner of concrete shall be at least four and one half (4-1/2) times the diameter of the hole in which the anchor is installed. Unless otherwise indicated on the Plans, the minimum distance between the centers of the expansion anchors shall be at least eight (8) times the diameter of the hole in which the anchors are installed.

B. Anti-seize thread lubricant shall be liberally applied to threaded stainless steel components immediately before assembly.

END OF SECTION

SECTION 07910

CAULKING AND SEALANTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Sealing and caulking at locations specified and indicated on the Plans.

B. All labor, materials, equipment, tools and incidentals necessary and required for the completion of the work.

1.2 RELATED WORK

A. Section 03300 – Cast In Place Concrete

B. Section 03400 – Precast Concrete Structures

C. Section 09900 – Painting

1.3 REFERENCES

A. American National Standards Institute/National Sanitation Foundation.
1. ANSI/NSF Standard 61 - Drinking Water System Components - Health Effects.

B. American Society for Testing Materials (ASTM):
1. C 920 - Specification for Elastomeric Joint Sealants.

C. Federal Specification (FS):
1. FS TT-S-00227e - Sealing Compound, Elastomeric Type, Multi-Component.

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Proceedures.

B. Shop Drawings:

1. Shop Drawings, Product Data, and Samples.

2. Applicator’s qualifications.

3. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.

b. Manufacturer’s installation instructions.

c. Manufacturer's recommendations for joint cleaner, primer, backer rod, tooling and bond breaker.

4. Certification from sealant manufacturer stating product being used is recommended for and is best suited for joint in which it is being applied.

5. Warranty.

C. Samples:

1. Cured sample of each color for Engineer's color selection. Color chart not acceptable.

PART 2 PRODUCTS

2.1 MATERIALS

A. Polyurethane Compounds

1. Exterior Applications: One or two component polysulfide liquid polymer base rubber compounds, which cure at normal temperature to a flexible firm rubber, tack-free, paintable, in gun grade or knife or trowel consistency, conforming to ASA Specification A116.1, Class A or B as required.

a. DAP "Flexiseal", Presstite #1176 "Strucsureseal", Sika "Sikaflex1a or 2c", or Engineer approved equivalent.

2. Color of caulking and sealants shall match color of adjacent work.

3. Interior Applications: Butyl based compound, smooth flowing, single component, architectural grade, synthetic, general purpose caulking compound, composed of 80-100% solids, butyl, non-oily, non-hardening, curing to a tack-free surface, paintable, in gun grade or knife or trowel consistency.

a. DAP "Butyl-Flex ", Presstite #432 "Butyl Caulk", Sika "Sikaflex 1a" or Engineer approved equivalent.

4. Color of caulking and sealants shall match color of adjacent work.

B. Silicone Sealants

1. Where silicone sealant is shown or noted on Plans or noted in the Specifications, it shall be a one part, type S, in gun grade consistency.

a. General Electrical "1200 Series", Dow Corning "Number 795". or Engineer approved equivalent.

2. Color of sealant shall match the color of adjacent work.

C. Acrylic- Latex Sealants

1. Permanently flexible, non-staining, and non-bleeding latex modified acrylic sealant compound.

a. Tremco “Mono”. Pecora Corp. “Number AC-20” .Sonneborn “Sonolac” or Engineer approved equivalent.

2. Color of sealant shall match the color of adjacent work.

D. Primers

1. Primers shall be quick drying, colorless, non-staining sealer of type and consistency recommended by the manufacturer of the sealant material for the surfaces to be caulked and sealed.

E. Packing and Fillers

1. Closed-cell expanded sponge rubber manufactured from synthetic polymer neoprene base, or resilient polyethylene foam backer rod, compatible with the caulking compound used.

a. Presstite “Number 750.3 Ropax Rod Stock”, Rubatex Corp. “Rubatex-Cord” or Engineer approved equivalent.

2. Size: Minimum 25 percent greater than nominal joint width.

PART 3 EXECUTION

3.1 EXECUTION

A. Schedule

1. Synthetic Rubber Sealing Compound (Polyurethane), Non-Sag:

a. Use where indicated on the Drawings.

b. Water-bearing and earth-bearing concrete structures.

c. Joints in masonry, concrete vertical surfaces, and metal-faced panels in vertical surfaces.

d. Joints between sheet metal flashing and trim.

e. Joints between sheet metal flashing and trim, and vertical wall surfaces.

f. Small voids between materials requiring filling for weather tight performance in vertical surfaces.

g. Surfaces in contact with bituminous materials in vertical surfaces.

h. Perimeters of frames of doors, windows, louvers, pipe penetrations.

2. Synthetic Rubber Sealing Compound (Polyurethane), Self-Leveling:

a. Use where indicated on the Drawings

b. Expansion and control joints in masonry, concrete horizontal surfaces, and metal panels in horizontal surfaces

c. Small voids between materials requiring filling for weather tight performance in horizontal surfaces

d. Surfaces in contact with bituminous materials

e. Perimeters of frames, louvers, pipe penetrations in horizontal surfaces.

3. Silicone:

a. Use where indicated on the Drawings.

b. Joints and recesses formed where window, door, louver and vent frames, and sill adjoin masonry, concrete, stucco, or metal surfaces.

c. Door threshold bedding.

d. Moist or wet locations, including joints around plumbing fixtures.

e. Plenum joints.

4. Acrylic Latex:

a. Use where indicated on the Drawings.

b. Interior joints with movement less than 7.5 percent and not subject to wet conditions.

B. Storage and Handeling

1. Deliver, store, and handle products in accordance with manufacturer's recommendations.

2. Do not use material older than 6 months old. Store materials at temperatures lower than 80 degrees Fahrenheit

C. Application and Workmanship

1. Surface Preparation:

   a. Allow concrete to cure at least 14 days prior to applying caulking

   b. Joints and spaces to be caulked or sealed shall be completely cleaned of all dirt, dust, mortar, oil and other foreign materials which might adversely affect the caulking work. Where necessary, degrease with an approved solvent or commercial degreasing agent. Surfaces shall be thoroughly dry before application of caulking compounds.

      1) Preparation of surfaces to receive caulking compound shall conform to the caulking manufacturer's specifications.

   c. All joints shall be enclosed on three sides. Where adequate grooves for caulking have not been provided, suitable grooves shall be provided to the depth required or as indicated on Drawings and without damage to the adjoining work. No grinding shall be required on metal surfaces.

2. Application:

   a. General: Do not apply sealant on wet or frosty surfaces or when surface temperature is higher than 120 degrees Fahrenheit or lower than recommended by the manufacturer. Caulking and sealants shall be applied by experienced mechanics using specified materials and proper tools.

   b. Priming: Concrete, masonry, and other porous surfaces, and any other surfaces if recommended by the manufacturer, shall be primed before applying caulking and sealants.

   c. Packing: Joints and spaces deeper than 1/2" shall be filled with packing to within 1/2" of the surface. Then the joints shall be filed with caulking compound. There shall be a minimum of 3/8" in depth of caulking compound in all joints 1/2" in depth or deeper.

   d. Caulking and Sealant Compounds: Compounds shall not be used when they become too jelled to be discharged in a continuous flow from the gun. Modification of compounds by addition of liquids, solvents, or powders will not be permitted.

   e. Tools and Workmanship: Compounds shall be applied with guns, knives or trowels as required. Fill all voids and joints solid. Caulk around entire perimeter of each opening, unless shown or specified otherwise.

   f. Finishing: Caulked and sealed joints shall be neatly pointed on flush surfaces, and internal corners. Excess material shall be cleanly removed. Caulking where exposed, shall be free of wrinkles and

uniformly smooth. Caulking and sealing shall be complete before final coats of paint are applied.

3. Cleaning: Clean surfaces of all materials adjoining caulked and sealed joints of any smears of compound or other soiling due to caulking applications.

D. Miscellaneous Caulking and Sealing Work: The entire extent of caulking and sealing work is not necessarily fully or individually described here. Caulking shall be provided wherever required to prevent light leakage as well as moisture leakage.

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.1 WORK INCLUDED

A. Field painting including surface preparation, surface protection, clean up, and/or other appurtenant work as indicated in the Contract Documents.

B. All labor, materials, tools and equipment, and incidentals necessary and required for their completion.

1.2 RELATED WORK

A. Section 03300 – Cast-in-Place Concrete

B. Section 03400 – Precast Concrete Structures

C. Section 05500 – Fabricated Metals

D. Division 11 – Equipment

E. Division 16 - Electrical

1.3 SUBMITTALS

A. Shop Drawings, Product Data, and Samples: as specific in Section 01300 – Submittal Procedures.

1. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.

b. Performance criteria as required by the Engineer to determine quality.

c. Manufacturer's installation instructions and environmental parameters.

d. Material Safety Data Sheets.

e. Color samples.

1.4 AIR QUALITY REGULATORY COMPLIANCE

A. All paint shall conform to the applicable air quality regulations at the point of application. Any paint material which cannot be guaranteed by the manufacturer to comply, whether specified by product designation or not, shall not be used.

B. The volatile organic compound (VOC) of coatings materials limits set forth in Rule 460.1 of the San Joaquin Valley Unified Air Pollution Control District shall apply to this project. The manufacturers' products listed in paragraphs 09900-3.01 and 3.02 have been selected on the basis of their apparent compliance with Rule 460.1; however, it shall remain the Contractor's responsibility to ensure that all coatings materials furnished are in compliance with all regulatory agencies.

C. The product listed may meet the VOC requirement in the unthinned (as shipped) condition, but may exceed the VOC requirement if thinned to the manufacturer's allowable recommendations. In this situation, the product is not to be thinned beyond the limit indicated in Rule 460.1, and if the product cannot be suitably thinned for the intended application method or temperature requirements, it will be necessary to use another manufacturer's product subject to acceptance by the Engineer.

D. It shall be the responsibility of the Contractor to ensure the compatibility of the field painting products which will be in contact with each other or which will be applied over shop painted or previously painted surfaces. Paint used in successive field coats shall be produced by the same manufacturer. Paint used in the first field coat over shop or field primed surfaces, or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint.

E. All paint shall be lead-free and mercury-free.

1.5 QUALITY OF WORK

A. All finishes shall be applied by skilled workmen in accordance with the best practices and standards of the painting trade. Brushes, rollers, all equipment, and the techniques used in applying finishes shall be of sufficient quality to assure the specified results. Work not conforming to this Specification shall be corrected by touching up or refinishing as directed by the Engineer.

B. It is the purpose and intent of this Specification to cover the complete paint finishing of all exterior and interior surfaces as scheduled or specified and all surfaces which normally require a paint finish for corrosion resistance, weather protection, finished appearance or utility. Finished surfaces shall be of the type of finish, color sheen film thickness and quality specified.

1.6 DELIVERY AND STORAGE

A. Painting materials shall be delivered to site in manufacturer's original containers with labels intact and seals unbroken. Painting materials and equipment shall be stored and protected against freezing and mixed in rooms assigned for that

purpose. No chemicals, unauthorized thinners, or other materials, not included in the paint formulation shall be added to the paint for any purpose. All necessary precautions shall be taken to prevent fire. Rags or waste soiled with paint shall be removed from premises at end of each day's work, or shall be stored in covered metal containers.

1.7 EQUIVALENT PRODUCTS

A. Whenever a coating is specified using the name of a proprietary product or the name of a particular manufacturer or vendor, the specified coating shall be understood as establishing the type and quality of coating desired.

B. Other manufacturers' products will be accepted provided sufficient information is submitted to allow the Engineer to determine that the coatings proposed are equivalent to those named. Proposed coatings shall be submitted for review in accordance with the Section 01300 – Submittal Procedures.

C. Requests for review of equivalency will not be accepted from anyone except the Contractor, and such requests will not be considered until after the contract has been awarded.

D. Specific products for various applications shall be as specified in Part 2. In addition to the products named in Part 2, equivalent products of the following manufacturers will also be acceptable:

Ameron
Carboline
Devoe
PPG (Pittsburgh)
Sherwin Williams Co.
Sinclair
Tnemec
Valspar

E. Contractor shall provide verification that equivalent products are acceptable for the desired application.

1.8 REFERENCE STANDARDS

A. SSPC – Society of Protective Coatings, Pittsburgh, PA

B. ASTM – American Society For Testing And Materials, West Conshohocken, PA

PART 2 PRODUCTS

2.1 GENERAL

A. All paint shall be the product of a recognized manufacturer exclusively engaged in the manufacture of painting material. All paints for wood and metal surfaces shall be well-ground and shall not skin, liver, curdle, or body excessively in the containers.

B. The paint shall not show laps or unevenness of color or texture. When applied to vertical surfaces, it shall not sag.

C. All exposed surfaces, including sides and edges, shall be painted. Hangers, brackets, fastenings and other miscellaneous items shall be painted with the same system as the adjacent material. Paint systems shall be in addition to shop primers.

D. Paint shall be stored inside and shall be protected against freezing. No adulterant, unauthorized thinner, or other material not included in the paint formation shall be added to the paint for any purpose.

E. Paint used in successive field coats shall be produced by the same manufacturer. Paint used in the first field coat over shop painted or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint. Any paint system shall be the product of a single manufacturer.

F. All paint used for intermediate and finish coats shall be guaranteed by the paint manufacturer to be lead-free, mercury-free, and fumeproof. Where paint materials are referenced to Federal or military specifications, the reference shall define general type and quality required but is not intended to limit acceptable materials to an exact formulation.

G. For each paint, the Contractor shall follow the paint manufacturer's specific application instructions. Upon the Engineer's request, the Contractor shall furnish the following application instructions.

1. Surface preparation recommendations.

2. Type of primer to be used.

3. Maximum dry and wet mil thickness per coat.

4. Minimum and maximum curing times between coats.

5. Thinner to be used with each paint.

6. Ventilation requirements.

7. Atmospheric conditions during which the paint shall not be applied.

8. Allowable methods of application.

9. Maximum allowable moisture content and minimum age of plaster, concrete and wood surfaces at time of paint application.

10. Curing time before submergence in water.

H. The minimum number of coats and minimum total dry mil thickness of the system for each surface shall be as specified in the paint schedule.

2.2 PAINTING SCHEDULE

A. A schedule is appended to this section listing the surface preparation, primer, finish and dry mil thickness to be used on each surface to be coated.

2.3 PRIMERS AND PRETREATMENT

A. P-1 Epoxy Primer - Minimum dry thickness 4 mils. Devoe "Bar Rust 235H", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600”, or Tnemec 69-1211 "Hi-Build Expoxoline."

B. P-2 Rust Inhibitive, non-submerged - Minimum dry thickness 3 mils. Devoe "Devran 203 Waterborne Epoxy Primer", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600” or Tnemec 135 "Chem Build."

C. P-3 Rust inhibitive, submerged - Minimum dry thickness 4.0 mils. Devoe "Bar Rust 235H", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600” or Tnemec 136 "Chem Build.”

D. P-4 Primer for Wood – Maximum of 400 sq. ft/gal. Devoe 2010-1200 "Ultra- Hide Durus Exterior Acrylic Primecoat", Sherwin Williams “A-100 Wood Primer B42W41” or Tnemec 151 “Elaso-Grip.”

E. P-5 Wallboard Primer – Maximum of 400 sq. ft/gal. Devoe1060-1200 "Ultra- Hide Latex Primer- Sealer", Sherwin Williams “Preprite 200 Interior Latex Primer B28W200”, or Tnemec 51-792 "PVA Sealer."

F. P-6 High Build Acrylic – Maximum of 100 sq. ft/gal., Tnemec 180 WB Tneme-Crete, Sherwin Williams “Heavy Duty Block Filler B42W46”.

2.4 INTERMEDIATE AND FINISH PAINTS

A. F-1 Epoxy Resin - Minimum dry thickness 5 mils. Devoe "Bar Rust 235H", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600”, or Tnemec 69 "Hi-Build" epoxy.

B. F-2 Gloss Acrylic Emulsion - Minimum dry thickness 2.0 mils Devoe “ Devflex 4208 Waterbone Acrylic Enamel”, Sherwin Williams “Shercryl Hi Performance Acrylic Gloss B66-300”, or Tnemec 1028.

C. F-3 Semi-gloss Acrylic Emulsion - Minimum dry thickness 2.5 mils Devoe “Devvflex 4216 HP Waterborne”, Sherwin Williams “Shercryl Hi Performance Acrylic Semi-Gloss B66-350”, or Tnemec 1029 “Tuf Cryl”.

D. F-4 High Build Epoxy (Substitute for Coal Tar) - Minimum dry thickness 6 mils. Devoe “Devtar 5A HS”, Sherwin Williams “Targuard Coal Tar Epoxy B69B60”, or Tnemec “V69F Black"

E. F-5 Polyurethane O - Minimum dry thickness 2 mils. Devoe “Devthane 379H Aliphatic Urethane Gloss Enamel”, Sherwin Williams “Hi Solids Polyurethane CA B65j-300”, or Tnemec 1075 "Endurasheild."

F. F-6 Acrylic Epoxy – Minimum dry film thickness 4 mils. Tnemec 113 Tneme-Tufcoat, Sherwin Williams “ Waterbased Tile Clad Epoxy B73-100”.

G. F-7 High Build Acrylic – Maximum of 100 sq. ft./gal.Tnemec 180 WB Tneme-Crete, Sherwin Williams “Heavy Duty Block Filler B42W46”.

2.5 ALUMINUM SURFACES

A. All aluminum in contact with steel or concrete: Sherwin Williams “Macropoxy 646 FC Epoxy B58-600 series or approved equivalent..

2.6 SURFACES NOT TO BE PAINTED

A. Except as otherwise required or directed, the following surfaces are to be left unpainted:

1. Exposed surfaces of aluminum.

2. Polished or finished stainless steel. Unfinished stainless steel shall be painted.

3. Nickel or chromium.

4. Galvanized surfaces, except piping, and conduit.

5. Rubber and plastics, including fiberglass reinforced plastics.

6. Precast concrete.

2.7 SYSTEM IDENTIFICATION

A. Above Grade Piping: Provide markers on piping which is either exposed or concealed in accessible spaces. For piping systems, other than drain and vent lines, indicate the fluid conveyed or its abbreviation, either by preprinted marker or stenciled marking, and include arrows to show the direction of flow. Comply with ANSI A13.1 for colors. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through floor, walls or ceilings or otherwise pass into inaccessible spaces, and at 50' maximum

intervals along exposed portion of lines. Marking of short branches and repetitive branches for equipment connections is not required.

B. Equipment: All equipment shall be identified with a plastic laminated, engraved nameplate which bears the unit mark number as indicated on the drawings (e.g. AC-4). Provide 1/2" high lettering, white on black background. Nameplates shall be permanently secured to the unit.

C. Valves: Provide valve tags on all valves of each piping system, excluding check valves, valves within equipment, faucets, stops and shut-off valves at fixtures and other repetitive terminal units. Provide brass tags or plastic laminate tags. Prepare and submit a tagged valve schedule, listing each valve by tag number, location and piping service. Mount in glazed frame where directed.

2.8 PIPING IDENTIFICATION

A. Pipe shall be color coded according to the following schedule. Bands shall be 6 inches wide spaced along the pipe at 5-foot intervals. Depth of water gauges shall be painted as indicated on the Plans.

LETTERS	COLOR OF PIPE	COLOR OF LETTERS
Potable water	Light Blue	Black
Non-Potable water	Light Blue with Black Bands	Black
Grit	Dark Blue with Orange Bands	White
Air	Light Green	Black
Sludge	Light Brown	White
Scum	Dark Brown	White
Drain	Dark Gray	White
Reclaimed water	Purple	Black

B. Electrical conduit shall be painted to match adjacent ceiling or wall surfaces as directed by the Engineer.

C.

Item	Paint Color
Valve hand wheels and levers	Red

PART 3 EXECUTION

3.1 PRELIMINARY EXAMINIATION

A. Notify the Engineer in writing of any uncorrected defects in surfaces to be painted. Do not proceed with the finishing of surfaces in question until any discrepancies are corrected. No work on any surface shall be started, unless the surface has been inspected and approved for painting by the Engineer.

3.2 SURFACE PREPARATION

A. The Contractor shall prepare the surfaces to be coated as specified under the paint schedule. Any surfaces to be coated which are not listed under the paint schedule shall be prepared in accordance with the manufacturer's instructions for the material to be applied.

B. All grease, oil, dirt, and other contaminants which may affect the bond between the coating and the surface shall be removed by a cleaning agent which will leave the surface clean and dry.

C. Cleaning and painting operations shall be performed in a manner which will prevent dust or other contaminants from getting on freshly painted surfaces.

D. Surfaces shall be free of cracks, pits, projections, or other imperfections which would prevent the formation of smooth, unbroken paint film, except for concrete block construction where a rough surface is an inherent characteristic.

E. When applying touch-up paint, or repairing previously painted surfaces, the surfaces to be painted shall be cleaned and sanded or wire brushed in such a manner that the edges of adjacent paint are feathered or otherwise smoothed so that they will not be noticeable when painted. All paint made brittle or otherwise damaged by heat or welding shall be completely removed.

F. Hardware items such as bolts, screws, washers, springs, and grease fittings need not be cleaned prior to painting if there is no evidence of dirt, corrosion, or foreign material.

G. All galvanized surfaces shall have a metal conditioner applied prior to the first prime coat.

H. All surfaces to be finished shall be clean and dry before any materials are applied. Use a moisture meter to determine moisture content as follows. The moisture content shall be less than 18% for wood; 8% for concrete or plaster.

1. Metal Surfaces - Where noted, the surface preparation for steel and other metals refer to the specifications for surface preparation by the latest revision of the Steel Structures Painting Council. All metal work shall be cleaned of grease, oil and dirt by solvent cleaning (SSPC-SP1). Do not use hydrocarbon based solvents for cleaning prior to use of acrylic materials.

    a. Method SP-2: Surface shall be wire brushed where required to remove loose rust and dirt, etc. (SSPC-SP2)

    b. Method SP-3: Removal of loose rust, loose mill scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders. (SSPC-SP3)

    c. Method SP-6: Blast cleaning until at least two-thirds of each element of surface area is free of all visible residues. (SSPC-SP6)

d. Method SP-10: Sandblast to near white condition. This method shall remove all rust and scale, but streaks and shadows in the metal will be acceptable. (SSPC-SP10)

2. Wood Surfaces

a. Method W-1: All unprimed millwork delivered to the jobsite shall be given the specified first coat on all surfaces immediately upon arrival. Give all unprimed woodwork the specified first coat as soon as possible following installation. Prime any wood surface that is to be in contact with concrete, or a caulking material, with the specified first coat material before installation. Unless specified otherwise, all casings and trim, and all woodwork shall be free of oil, dirt, loose fibers, etc., sealed with a sanding sealer recommended by the coating manufacturer, and sanded smooth and dusted thoroughly before application of the priming coat. Give all knots, pitch pockets and sappy areas a preliminary coat of Dutch Boy Knot Sealer, or approved equivalent, prior to application of the prime coat.

3. Galvanized Surfaces

a. Method G-1: All galvanized surfaces shall be prepared for painting in strict conformity with the instructions of the manufacturer. All galvanized shall be cleaned per SSPC-SP7.

4. PVC Pipe

a. Method V-1: All wax and oil shall be removed from PVC plastic surfaces by wiping with a solvent of the type used for the specified primer.

3.3 PAINT APPLICATION

A. Apply all finishes evenly, free from sags, runs, crawls, brush marks, skips or other defects. Apply products at the proper consistency and do not thin or otherwise alter them except in accordance with the manufacturer's printed directions. All coats shall be applied in such manner as to produce an even film of uniform thickness completely coating all corners and crevices. All painting shall be done by thoroughly experienced workmen.

B. Care shall be exercised during spraying to hold the nozzle sufficiently close to the surfaces being painted to avoid excessive evaporation of the volatile constituents and loss of material into the air, or the bridging over of crevices and corners. Spray equipment shall be equipped with mechanical agitators, pressure gauges, and pressure regulators. Nozzles shall be of proper size. Floors, roofs, and other adjacent areas and installations shall be satisfactorily protected by drop cloths or other precautionary measures. All over-spray shall be removed by approved methods or the affected surface repainted. Care shall be exercised to avoid lapping of paint on hardware of other unscheduled surfaces.

C. Each coat of material shall be thoroughly dry before the application of a succeeding coat. In no case shall paint be applied at a rate of coverage per gallon which is greater than the maximum rate recommended by the manufacturer. Paint films showing sags, checks, blisters, teardrops, or fat edges will not be accepted. Paint containing any of these defects shall be entirely removed and the surface repainted.

D. Sandpaper enamels and varnishes lightly between coats and dust thoroughly before the application of a succeeding coat.

E. If the finish coat is to be colored, the prime coat and the intermediate coat shall be tinted to have a slight variation in color from each other and from the finish coat.

3.4 PRIMING

A. Edges, corners, crevices, welds, and bolts shall be given a brush coat of primer before the specified spot or touch-up painting of metal surfaces. Special attention shall be given to filling all crevices with paint.

B. Abraded and otherwise damaged portions of shop applied paint shall be repainted. Welded seams and other uncoated surfaces, heads and nuts of field installed bolts, and surfaces where paint has been damaged by heat, shall be given a coat of the specified primer. This patch, spot, or touch-up painting shall be completed, and shall be dry and hard, before additional paint is applied.

3.5 LATEX PAINT

A. Latex paint shall be applied by brushing or rolling; spraying is not permitted. Latex paint shall not be thinned excessively.

3.6 MIXING AND THINNING

A. Paint shall be thoroughly mixed each time any is withdrawn from the container. Paint containers shall be kept tightly closed except while paint is being withdrawn.

B. Unless otherwise authorized, all paint shall be factory mixed to proper consistency and viscosity for hot weather application without thinning. Thinning will be permitted only as necessary to obtain recommended coverage at lower application temperatures. In no case shall the wet film thickness of applied paint be reduced, by addition of paint thinner or otherwise, below that represented by the recommended coverage rate.

3.7 FILM THICKNESS FOR FERROUS METALS

A. It is intended that the dry film thickness and the continuity of painted ferrous metal surfaces be subject to continual field check by the Engineer. Dry film thickness shall be measured by the Contractor, using an approved Thickness Gauge, at locations selected by Engineer. Testing equipment provided shall be provided by Contractor and kept on site.

B. Measurement of Dry Coating Thickness shall conform with paint application Standard SSPC-PA2

C. Thickness and Holiday Checking - Thickness of coatings and paint shall be checked with a non-destructive, magnetic type thickness gauge.

D. Holiday Checking of all interior coated surfaces shall be tested with an approved holiday detection device. Non-destructive holiday detectors shall not exceed 100 volts nor shall destructive holiday detectors exceed the voltage recommended by the manufacturer of the coating system. For thicknesses between 10 and 20 mils (0.25mm and 0.50mm) a non-sudsing type wetting agent such as Kodak Photo-Flo, shall be added to the water prior to wetting the detector sponge. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and re-tested. No pinholes or other irregularities will be permitted in the final coating. Holiday detection devices shall be operated in the presence of the Engineer.

E. Continuity shall be tested by a low voltage-wet sponge per RPO 188. Contractor shall perform continuity tests as required by the Engineer on surfaces that will be submerged.

3.8 ATMOSPHERIC CONDITIONS

A. Apply all material to dry and properly prepared surfaces when weather conditions are favorable for painting. No materials shall be applied when the temperature of the materials is below 50 degrees F, or when the temperature of the air, surface to be painted or substrate, is below (or likely to fall below) 50 degrees F. Final ruling on the favorability of weather conditions shall be in accordance with the recommendations of the manufacturer and/or the Engineer.

3.9 REPAIRING DAMAGED PAINT ON EQUIPMENT

A. Painted surfaces on equipment, which have become damaged prior to acceptance by the Owner, shall be repainted with the same or equivalent paint used in the original application.

3.10 PROTECTION OF SURFACES

A. Throughout the work the Contractor shall use drop cloths, masking tapes, and other suitable measures to protect all surfaces from accidental spraying, splattering, or spilling of paint. Contractor shall be liable for and shall correct and repair any damaged condition resulting from its operations or from the operations of all those who are responsible to the Contractor during the time its work is in progress and until the work is accepted. In case bituminous paints are spilled or dropped on any material except metals, the spots shall, after surface cleaning, be spot painted with aluminum paint prior to applying the specified paint. Any exposed concrete or masonry not specified to be painted which is damaged by paint shall be either removed and rebuilt or, where so authorized by the Owner, painted with two coats of masonry paint.

3.11 CLEANUP

A. All cloths and cotton waste which might constitute a fire hazard shall be placed in metal containers or destroyed at the end of each work day. Upon completion of the work all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer.

3.12 PAINTING SCHEDULE

		FINISH			
SYSTEM	SURFACE	SURF. PREP.	PRIME COAT	2ND COAT	3RD COAT
1.	New ferrous metal in submerged or damp environment including all submerged mechanical components.	SP-10	P-1	F-1	F-1
2.	All exterior exposed new structural and miscellaneous steel. All exterior exposed surfaces of new piping, pumps, motors, electrical equipment and other unsubmerged mechanical and structural items.	SP-2 or 3	P-2	F-2	F-2
3.	All surfaces of new structural and miscellaneous steel pipe, pumps, motors and electrical equipment panels exposed inside building.	SP-6	P-2	F-3	F-3
4.	All interior exposed new galvanized metalwork including electrical conduit inside buildings, including fittings, boxes, supports and accessories.	G-1	P-3	F-3	F-3
5.	All exterior exposed new galvanized metalwork including roof flashings ad other architectural items.	G-1	P-3	F-2	F-2
6.	Exposed new PVC piping	V-1	F-5	F-5	

7.	All new buried valves and flanged joints and other buried miscellaneous ferrous piping and metal surfaces (excluding case iron pipe). All exterior surfaces of new cast iron and steel piping exposed in manholes, wet wells and similar locations, including valves, fittings, flanges, bolts, supports, and accessories. Miscellaneous new castings, including manhole rings and covers and manhole steps. (One coat, if not foundry dipped.)	SP-10	F-4	F-4
8.	Interior wood	P-4	F-2	F-2
9.	Exterior wood	P-4	F-3	F-3
10.	Interior dry wall	P-5	F-6	
11.	Exterior concrete block	P-6	F-7	
12.	Concrete	P-6	F-7	

END OF SECTION

SECTION 11000

GENERAL EQUIPMENT STIPULATIONS

PART 1 GENERAL

1.1 SCOPE

A. All equipment furnished and installed under this Contract shall conform to the general stipulations set forth in this section except as otherwise specified in other sections.

1.2 COORDINATION

A. Contractor shall coordinate all details of the equipment with other related parts of the Work, including verification that all structures, piping, wiring, and equipment components are compatible. Contractor shall be responsible for all structural and other alterations in the Work required to accommodate equipment differing in dimensions or other characteristics from that contemplated in the Contract Drawings or Specifications.

1.3 MANUFACTURER'S EXPERIENCE

A. Unless specifically named in the Specifications, a manufacturer furnishing equipment of the type and size specified shall have been in successful operation for not less than the past 5 years.

1.4 WORKMANSHIP AND MATERIALS

A. Contractor shall guarantee all equipment against faulty or inadequate design, improper assembly or erection, defective workmanship or materials, and leakage, breakage, or other failure. Materials shall be suitable for service conditions.

B. All equipment shall be designed, fabricated, and assembled in accordance with recognized and acceptable engineering and shop practice. Individual parts shall be manufactured to standard sizes and gages so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.

C. Except where otherwise specified, structural and miscellaneous fabricated steel used in equipment shall conform to AISC standards. All structural members shall be designed for shock or vibratory loads. Unless otherwise specified, all steel which will be submerged, all or in part, during normal operation of the equipment shall be at least 1/4 inch thick.

1.5 LUBRICATION

A. Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation. Lubrication systems

shall not require attention during start up or shutdown and shall not waste lubricants.

B. Lubricants of the type recommended by the equipment manufacturer shall be provided in sufficient quantity to fill all lubricant reservoirs and to replace all consumption during testing, startup, and operation prior to acceptance of equipment by Owner. Unless otherwise specified or permitted, the use of synthetic lubricants will not be acceptable.

C. Lubrication facilities shall be convenient and accessible. Oil drains and fill openings shall be easily accessible from the normal operating area or platform. Drains shall allow for convenient collection of waste oil in containers from the normal operating area or platform without removing the unit from its normal installed position.

PART 2 PRODUCTS

2.1 SAFETY GUARDS

A. All belt or chain drives, fan blades, couplings, and other moving or rotating parts shall be covered on all sides by a safety guard. Safety guards shall be fabricated from 16 USS gage or heavier galvanized or aluminum-clad sheet steel or 1/2 inch mesh galvanized expanded metal. Each guard shall be designed for easy installation and removal. All necessary supports and accessories shall be provided for each guard. Supports and accessories, including bolts, shall be galvanized. All safety guards in outdoor locations shall be designed to prevent the entrance of rain and dripping water.

2.2 ANCHOR BOLTS

A. Equipment suppliers shall furnish suitable anchor bolts for each item of equipment. Anchor bolts, together with templates or setting drawings, shall be delivered sufficiently early to permit setting the anchor bolts when the structural concrete is placed. Anchor bolts shall comply with the anchor bolts and expansion anchors section and, unless otherwise specified, shall have a minimum diameter of 1/2 inch.

B. Unless otherwise indicated or specified, anchor bolts for items of equipment mounted on base plates shall be long enough to permit 1-1/2 inches of grout beneath the base plate and to provide adequate anchorage into structural concrete.

2.3 EQUIPMENT BASES

A. Unless otherwise indicated or specified, all equipment shall be installed on concrete bases at least 6 inches high. Cast iron or welded steel base plates shall be provided for pumps, compressors, and other equipment. Each unit and its drive assembly shall be supported on a single base plate of neat design. Base plates shall have pads for anchoring all components and adequate grout holes. Base

plates for pumps shall have a means for collecting leakage and a threaded drain connection. Base plates shall be anchored to the concrete base with suitable anchor bolts and the space beneath filled with grout as specified in the grout section.

2.4 SPECIAL TOOLS AND ACCESSORIES

A. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments, and accessories required for proper maintenance. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.

PART 3 EXECUTION

3.1 PREPARATION FOR SHIPMENT

A. All equipment shall be suitably packaged to facilitate handling and protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept dry at all times.

B. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of Engineer.

C. Grease and lubricating oil shall be applied to all bearings and similar items.

D. Each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

3.2 STORAGE

A. Upon delivery, all equipment and materials shall immediately be stored and protected until installed in the Work.

B. Pumps, motors, electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weather tight structures maintained at a temperature above 60º F. Equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.

C. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.

3.3 INSTALLATION AND OPERATION

A. Equipment shall not be installed or operated except by, or with the guidance of, qualified personnel having the knowledge and experience necessary to obtain

proper results. When so specified, or when employees of Contractor or his Subcontractors are not qualified, such personnel shall be field representatives of the manufacturer of the equipment or materials being installed.

B. Qualified field representatives shall be provided by the equipment manufacturers as required to perform all manufacturer's field services called for in the Specifications. Manufacturer's field representatives shall observe, instruct, guide, and direct Contractor's erection or installation procedures, or perform an installation check, as required. The field representative shall revisit the site as often as necessary to attain installation satisfactory to Engineer.

C. All equipment installed under this Contract shall be placed into successful operation according to the written instructions of the manufacturer or the instructions of the manufacturer's field representative. All required adjustments, tests, operation checks, and other startup activity shall be provided.

D. Acceptance of Work in connection with the installation of equipment furnished by others will be subject to approval of the field representative. Contractor shall be responsible for planning, supervising, and executing the installation of Work, and the approval or acceptance of Engineer or the field representative will not relieve Contractor of responsibility for defective Work.

3.4 OBSERVATION OF PERFORMANCE TESTS

A. Where the Specifications require the presence of Engineer, initial tests shall be observed or witnessed by Engineer. Owner shall be reimbursed by Contractor for all costs of subsequent visits by Engineer to witness or observe incomplete tests, retesting, or subsequent tests.

3.5 WARRANTY

A. A written manufacturer’s warranty shall be provided for equipment supplied under this contract. The warranty shall be for a minimum of one (1) year or as specified in accordance with other Sections of the contract documents, after the date the equipment is accepted for use by the Owner by filing of the notice of completion, unless otherwise agreed in writing by Owner. The warranty shall cover all defects or failures of materials, design, or workmanship that occur as the result of normal operation and service.

END OF SECTION

SECTION 11287

WATER CONTROL GATES

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work required under this section consists of related items necessary and required to install the water control gates as detailed in the Plans and Specifications. The Contractor shall provide all items, and operations, including all labor, materials, equipment, and incidentals necessary for completion of work.

B. Furnish and install Canal Gates, in the concrete control structures, as follows:

1. Project Turnout Structure:

a. (1) 54” Diameter Model 101C, as manufactured by Fresno Valves & Castings or engineer approved equivalent.

2. Project Distribution Structure:

a. (3) 42” Diameter Model 101c, as manufactured by Fresno Valves & Castings or engineer approved equivalent

1.2 RELATED WORK

A. Section 03300 – Cast In Place Concrete

B. Section 03400 – Precast Concrete Structures

C. Section 11000 – General Equipment Stipulations

1.3 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Acknowledgment that products submitted meet the requirements of standards referenced.

C. Installation instructions provided by the manufacturer.

D. Operation and Maintenance Manuals provided by the manufacturer.

1.4 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society for Testing Materials (ASTM):

a. A126, Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

b. A276, Stainless and Heat-Resisting Steel Bars and Shapes.

c. D4020 UH MWP

d. B139, Phosphor Bronze Rod, Bar and Shapes

e. B209, Aluminum and Aluminum Alloy Sheet and Plate.

2. American Water Works Association (AWWA):

a. C513-05, Open Channel, Fabricated-Metal Slide Gates and Open-Channel, Fabricated-Metal Weir Gates.

b. C560-00, Cast Iron Slide Gates.

3. Powered Gates

a. National Electrical Manufacturers Association (NEMA):

1) 250, Enclosures for Electrical Equipment.

2) ICS 6, Enclosures for Industrial Control and System.

4. NFPA Style MF1.

PART 2 PRODUCTS

2.1 CANAL SLIDE GATES

A. Slide gates shall be Model 101C, flat back, as manufactured by Fresno Valves & Castings or Engineer approved equivalent.

B. Gate rails shall be carbon steel with hot dip galvanized finish. Gate stem shall be stainless steel, rising type. Gate slide and seating surface shall be cast iron.

C. Provide gates, including lift, designed with a minimum safety factor of five. Provide rising stems on all gates.

2.2 GATE OPERATORS AND LIFTS

A. General

1. Refer to Drawings for sizes, operator type, and other requirements

2. All gates shown on the plans to be manually operated shall be designed with adequate stem length and frame hardware, to accept electric actuators in the future.

PART 3 EXECUTION

3.1 INSTALLATION

A. Canal slide gates shall be installed as shown on the Plans and as detailed in the manufacturer's specifications and installation instructions.

1. Gate frames shall be bolted to concrete structures so that the frames are plumb and the slides operate properly.

2. Gate frames shall be secured within 12 inches of the top of the headwall.

B. All gate operators, manual or electric, shall be installed so that the operating nut is located three (3) feet above finished grade, or 1 foot above top of structure, whichever is the higher elevation.

3.2 TESTING

A. All gates shall be tested for proper operation after installation

1. All tests shall be performed under both manual and electrical (where applicable) operation.

2. All tests shall be performed in the presence of the Engineer.

B. The above tests will be repeated by the District after water has been returned to the system, and the Contractor will be informed of the results.

END OF SECTION

CONSOLIDATED IRRIGATION DISTRICT

CONTRACT DOCUMENTS

AND

SPECIFICATIONS

FOR THE

SOUTH & HIGHLAND BASIN PROJECT
RECOVERY WELLS CONTRACT

December 2013

Prepared for:

Prepared by:

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SECTION 00100

INSTRUCTIONS TO BIDDERS

1. The Contract Documents include the Contract Agreement, the Request For Bids, the Instructions to Bidders, Bidding and Contract Documents - Division 0, General Requirements - Division 1, Technical Specifications - Division 2 through 16, the Bidder's Proposal as accepted (including the Bid Schedule), the Indemnity Agreement, the Non-collusion Affidavit, the required Bonds, Wage Scale (prevailing wages) the Plans, Profiles and Drawings, and any Addenda or Change Orders. Bidders must examine each of the Contract Documents, must visit the location of the Work and inform themselves of the conditions and make their own estimates of the facilities and difficulties attending the execution of the Work.

2. All Bids must be presented under sealed cover on the blank proposal form attached hereto. Bids shall be submitted in a sealed envelope with the name of the bidder, the name of the project and the statement **"Do Not Open Until The Time of Bid Opening."** Bids are required for the entire work described herein. Bids will be compared on the basis of the total of all Base Bid items in the Bid Schedule. Award, if made, will be based upon the lowest responsible bid submitted.

3. The party to whom the Contract is awarded must, at the time the Contract is awarded, possess a Class C57 Contractor's license valid in the State of California.

4. The Bidder shall include all of the items listed in Section 00305 – Bidder's Checklist in the Bid.

5. Each Bid must be accompanied by a Bid Security payable to the Owner for ten percent (10%) of the total amount of the base Bid. Bidders may provide the Bid Security in one of the following forms: A Bid Bond from an admitted California Surety, a cashier's check made payable to the Owner, a certified check made payable to the Owner, or cash. In no event will security submitted by unsuccessful Bidders be held by the Owner for more than 60 days from the time of award of the Contract. The Bid Security of the successful Bidder will be retained until the Performance Bond and the Payment Bond have been executed and approved, after which the Bid Security will be returned.

6. A Performance Bond and a Payment Bond in the amount of One Hundred percent (100%) each of the Contract Price, with a Corporate Surety approved by the Owner and the Engineer, will be required for the faithful performance of the Contract. The Bidder shall state in the proposal the name and address of the Surety or Sureties, with Certificate Numbers, who will sign the Bonds in case the Contract is awarded to him.

7. The party to whom the Contract is awarded will be required to execute the Contract Agreement, Performance Bond, and Payment Bond within ten (10) calendar days from the date when the written notice of the award of the Contract is mailed to the Bidder at the address given by him. In case of failure to do so, the Owner may at its option, consider that the Bidder has abandoned the Contract, in which case, the Bid Security accompanying the proposal shall become the property of the Owner and award may be made to another party. Corporations must furnish a certificate attesting to corporate existence and authority of officers to sign contracts and other documents.

8. **The Contractor shall begin Work within ten (10) calendar days** after receiving the Notice to Proceed by the Owner. The Notice to Proceed is anticipated to be issued on January 20, 2014. The Contractor shall **complete all Work within One Hundred (100) calendar days following the date of the Notice to Proceed.** Time is of the essence and time of completion as specified will be enforced.

9. The Contractor's attention is called to Section 01013, addressing Liquidated Damages. It is agreed that the Contractor shall be liable for and shall pay to the Owner, as liquidated damages and not as a penalty, the listed sum per day for each calendar day of delay in completion of the Work from the date of completion as specified herein or in any written extension of time granted by the Owner. Liquidated damages will be deducted from final payments.

10. Before the award of the Contract, any Bidder may be required to furnish evidence satisfactory to the Owner and to the Engineer of the necessary facilities, ability, and pecuniary resources to fulfill the conditions of the Contract.

11. Prior to signing the Contract, the successful Bidder shall submit, on a form acceptable to the Owner and Engineer, an overall construction schedule for the project. This schedule shall start with the proposed date of signing the Contract, and the completion date shall be no later than the date specified in the Contract.

12. Bidders must satisfy themselves by personal examination of the location of the proposed work, and by examination of the Plans and Specifications as to the requirements of the Work and the accuracy of the estimate of the quantities of the work to be done, and shall not at any time after the submission of the Bid dispute or complain of such estimate nor assert that there was any misunderstanding in regard to the nature or amount of work to be done.

13. The Contract and the Specifications contain the provisions required for the construction of the project. No information obtained from any officer, agent, consultant, or employee of the Owner on any such matters shall in any way affect the risk or obligation assumed by the successful Bidder or relieve him from fulfilling any of the conditions of the Contract.

14. Proposals which are incomplete, unbalanced, conditional or obscure or which contain additions not called for, erasures, alterations or irregularities of any kind or which do not comply with the Notice to Bidders and Instruction to Bidders may be rejected at the option of the Owner.

15. A Bidder may withdraw any proposal he has submitted at any time prior to the hour set for the closing of the Bids provided the request for withdrawal is signed in a manner identical with the proposal being withdrawn. No withdrawal or modification will be permitted after the hour designated for closing the Bids. The Bidder's Proposal shall then hold firm for thirty (30) days to enable the Owner to complete preconstruction arrangements prior to issuing any Notice of Award.

16. Computation of quantities that will be the basis for payment estimates, both monthly and final, will be made by the Engineer.

17. If any person contemplating submitting a Bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans and Specifications or other Contract Documents, or finds discrepancies in, or omissions from the Plans and Specifications, he may submit to the

Owner a written Request For Interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the Contract Documents will be made only by Addendum duly issued and a copy of such Addendum will be mailed or delivered to each Bidder receiving a set of such Contract Documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents. No oral interpretations of any provision in the Contract Documents will be made to any Bidder.

18. No substitution of subcontractors by the Bidder will be allowed or permitted except in accordance with the provisions of Public Contract Code Sections 4107 and 4107.5.

19. The award of the contract, if made, will be within **thirty (30) calendar days** after the opening of bids, and satisfactory submittal of materials required prior to the formal award.

20. The Owner reserves the right to accept or reject any or all bids, to evaluate the bids submitted, and to award the Contract according to the proposal which best serves the interests of the Owner.

SECTION 00101

REQUEST FOR BIDS

In general, the Work consists of constructing South & Highland Basin groundwater banking facility Recovery Wells. The work shall include construction of two new water wells. The Work is part of the Owner's South & Highland Basin Project.

1. Sealed bids will be received by the Consolidated Irrigation District at the office of Provost & Pritchard Consulting Group prior to **2:00 pm on [DAY], [DATE]**, at 286 West Cromwell Avenue, Fresno, CA 93711, and following said deadline all bids will be publicly opened and read. Bids shall be submitted in a sealed envelope with the name of the bidder, the name of the project and the statement **"Do Not Open Until the Time of Bid Opening."** Bids received after said deadline will be returned unopened to the bidder.

2. A **non-mandatory pre-bid meeting and project site tour** will be held **[DAY], [DATE]**, **at 10:00 AM** beginning at the northeast corner of Leonard and South Avenues. Contractors shall personally examine the project site prior to bidding.

3. A full set of Bidding Documents is available for examination at the office of Provost & Pritchard Consulting Group, 286 West Cromwell Avenue, Fresno, CA 93711. Charges for documents will be as follows:

Complete base set of full-size Bidding Documents (specifications and full-size drawings)	$ 45.00
Mailing, if required	$ 15.00
PDF copy of Bidding Documents for download (Specifications and full-size drawings)	$ 15.00

Charges are not refundable, whether the documents are returned or not.

Bidding Documents may also be examined at 2255 Chandler Street, Selma, CA 93662.

4. Prevailing Wage Rates: Pursuant to Section 1770, California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of California Department of Industrial Relations. A copy of such prevailing rate is on file at the offices of the County of Fresno, which will be made available for examination during business hours to any party on request, or information is available on the Internet website for the California Department of Industrial Relations for the appropriate prevailing wage rates. The website address is: www.dir.ca.gov/DLSR/PWD.

5. Bidders shall furnish a Bid Security with their Bidder's Proposal in the amount of 10% of the base bid amount.

6. OWNER reserves the right after opening Bids to reject any or all Bids, to waive any informality or non-responsiveness in a Bid, or to make award to the lowest responsive, responsible Bidder and reject all other Bids, as it may best serve the interest of the OWNER.

7. Contractor's License Classification: In accordance with the provisions of California Public Contract Code, Section 3300, Consolidated Irrigation District has determined that CONTRACTOR shall possess a valid **Class C57 Contractor's License** at the time of Bid opening and for the duration of the contract. Failure to possess the specified license shall render the Bid as non-responsive and shall act as a bar to award of the contract to any Bidder not possessing said license at the time of Bid opening.

8. The Contractors' State License Board may be contacted at 9821 Business Park, Sacramento, CA 95827; PO Box 26000, Sacramento, CA 95826; (800) 321-2752.

THE CONSOLIDATED IRRIGATION DISTRICT

_____ _____

Phillip Desatoff, General Manager Date

SECTION 00305

BIDDER'S CHECKLIST

SUBMIT THIS BIDDER'S CHECKLIST WITH YOUR BID DOCUMENTS.

Bidders shall complete and submit all of the following documents for bids to be considered responsive.

REQUIRED

1. Section 00310 - Bidder's Proposal
2. Section 00313 - List of Subcontractors
3. Section 00314 - Material Suppliers Information
4. Section 00315 - Preliminary Construction Schedule
5. Section 00316 - Non-Collusion Affidavit
6. Section 00317 - Public Contract Code Section 10162 Questionnaire on Disqualification
7. Section 00318 - Public Contract Code 10232 Statement on Contempt
8. Section 00324 – Workers Compensation Certificate
9. Section 00329 – Labor and Other Code Requirements Certificate
10. Section 00340 - Pre-Qualification Statement
11. All issued Addenda
12. Bid Security attached to front of Proposal in the form of (check one):

☐ Certified Check ☐ Bidder's Bond (Section 00601)
☐ Cashier's Check ☐ Cash

SUBMITTED BY:

Name of Company _____
Contact Name _____
Address _____
City _____ State _____ Zip _____
Phone No. _____ Fax No. _____
Contractor's License No. _____ Class: _____

Documents required on the checklist but not included with your bid may render your bid non-responsive and ineligible for award. Bids received by the scheduled bid opening time will be opened and publicly read but are subject to verification that all required documents have been submitted.

END OF SECTION

SECTION 00310

BIDDER'S PROPOSAL

Consolidated Irrigation District, hereinafter called the Owner**.**

The work to be done and referred herein is in the Consolidated Irrigation District and in Fresno County, State of California.

The work is to be constructed in accordance with the Specifications and contract annexed hereto and also in accordance with the Standard Plans and Standard Specifications, 2006 Edition, of the State of California, Business and Transportation Agency, Department of Transportation.

The work to be done is shown on a set of Plans, entitled: "**ADAMS & ACADEMY BASIN PROJECT RECOVERY WELLS CONTRACT**".

The undersigned, as bidder, declares that the only persons, or parties interested in this proposal as principals are those named herein, that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, in the annexed proposed form of contract, and the Plans therein referred to; and he proposes and agrees if this proposal is accepted, that he will contract with the Owner to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following unit prices, to-wit:

In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	**Addendum Date**
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and became familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

CONSOLIDATED IRRIGATION DISTRICT
ADAMS & ACADEMY BASIN PROJECT
RECOVERY WELLS CONTRACT

BID SCHEDULE

Well RW-101

Item	Description	Quantity	Unit	Unit Price	Total
1	Mobilization/Demobilization, Bonds, Insurance, Miscellaneous Facilities, Operations, and Worker Protection	1	LS	$_____	$_____
2	F&I 36-inch Diameter Conductor Casing	50	LF	$_____	$_____
3	Drill Pilot Hole (to 500 feet total depth)	450	LF	$_____	$_____
4	Perform Electric and Deviation Logs	1	LS	$_____	$_____
5	Open Hole to 30-inch Diameter (to 500 feet total depth)	450	LF	$_____	$_____
6	F&I 18-inch Diameter Blank Casing	180	LF	$_____	$_____
7	F&I 18-inch Diameter Perforated Casing	310	LF	$_____	$_____
8	F&I 2-inch Diameter Sounding Tube	395	LF	$_____	$_____
9	F&I 3-inch Diameter Gravel Fill Pipe	125	LF	$_____	$_____
10	F&I Gravel Pack	380	LF	$_____	$_____
11	F&I Annular Seal	120	LF	$_____	$_____
12	Preliminary Development	36	HR	$_____	$_____
13	Mob/Demob Development Pump and Pump up to 40 Hours	1	LS	$_____	$_____
14	Additional Pump Development and Test Pumping	20	HR	$_____	$_____
15	Perform Video Log	1	LS	$_____	$_____
16	Construct Well Pump Foundation	1	LS	$_____	$_____
				Well RW-101 Subtotal (Items 1-16)	$_____

Well RW-102

Item	Description	Quantity	Unit	Unit Price	Total
17	F&I 36-inch Diameter Conductor Casing	50	LF	$_____	$_____
18	Drill Pilot Hole (to 500 feet total depth)	450	LF	$_____	$_____
19	Perform Electric and Deviation Logs	1	LS	$_____	$_____
20	Open Hole to 30-inch Diameter (to 500 feet total depth)	450	LF	$_____	$_____
21	F&I 18-inch Diameter Blank Casing	180	LF	$_____	$_____
22	F&I 18-inch Diameter Perforated Casing	310	LF	$_____	$_____
23	F&I 2-inch Diameter Sounding Tube	395	LF	$_____	$_____
24	F&I 3-inch Diameter Gravel Fill Pipe	125	LF	$_____	$_____
25	F&I Gravel Pack	380	LF	$_____	$_____
26	F&I Annular Seal	120	LF	$_____	$_____
27	Preliminary Development	36	HR	$_____	$_____
28	Mob/Demob Development Pump and Pump up to 40 Hours	1	LS	$_____	$_____
29	Additional Pump Development and Test Pumping	20	HR	$_____	$_____
30	Perform Video Log	1	LS	$_____	$_____
31	Construct Well Pump Foundation	1	LS	$_____	$_____
				Well RW-102 Subtotal (Items 17-31)	$_____

TOTAL BASE BID (Items 1-31)	$_____

ABBREVIATIONS USED IN ENGINEER'S ESTIMATE AND PROPOSAL SHEETS

CF	-	Cubic Foot (Feet)	SACK(S)	-	Sack(s)
CY	-	Cubic Yard(s)	STAYD	-	Station Yard(s)
EA	-	Each	SF	-	Square Foot (Feet)
LB(s)	-	Pound(s)	SY	-	Square Yard(s)
LF	-	Linear Foot (Feet)	TN	-	Ton(s)
LS	-	Lump Sum	MGAL	-	Million Gallon(s)
(F)	-	Final Pay Quantity*	(S)	-	Specialty Item
(S-F)	-	Specialty Item and Final Pay Quantity*	(F&I)	-	Furnish and Install

Bids are required for the entire work. Bids will be compared on the basis indicated in the Notice to Bidders. The project will be awarded to the lowest responsible bidder.

The bidder shall set forth for each item of work, in clearly legible figures, total for the item in the respective spaces provided for this purpose. The "Total" column shall be the sum of all unit prices bid. If the total cost of any item, or the total bid, is inconsistent with the Unit Cost, or the sum of the Unit Costs, the Unit Costs shall prevail.

If this proposal shall be accepted and the undersigned shall fail to contract, as aforesaid, and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the Owner, within ten (10) days not including Sundays and legal holidays, after the bidder has received notice of award of the contract, the Owner, at its option, may determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of the Owner.

Accompanying this proposal is security * in amount equal to at least ten percent (10%) of the total amount of the base bid.

BIDDER: _____

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

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, 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 name in full.

_____

_____

_____

Licensed in accordance with an act providing for the registration of Contractors,
Class _____ License No._____

By_____ _____
Signature of Bidder Dated

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the seal and signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS:_____

MAILING ADDRESS:_____

BUSINESS PHONE:_____

CONTACT NAME: _____

CONTACT EMAIL: _____

END OF SECTION

SECTION 00313

LIST OF SUBCONTRACTORS

The bidder shall hereby designate the names and business addresses of each subcontractor who will perform work or labor on the Project. Please fill out as completely as possible when submitting your bid. Use subcontractor's business name as registered with the License Board.

1. State the name and place of business of each subcontractor licensed by the State who will (i) perform work or labor or render service to the Bidder for the Project contemplated in the Plans and Specifications or (ii) specially fabricate and install a portion of the work or improvement according to the detailed Drawings contained in the Plans and Specifications, in an amount in excess of one-half of one percent of the Bidder's total Bid.

2. State the portion of the Work that will be done by each subcontractor. List only one subcontractor for each portion as defined by the Bid.

3. Work not listed as subcontracted shall be performed by Bidder.

4. Subcontractors may not be substituted without cause. Subcontractor substitution procedure will be in accordance with State Contracts Code Section 4100, et seq.

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SECTION 00314

MATERIAL SUPPLIERS INFORMATION

The Bidder shall indicate opposite each item of equipment or material listed below the name of the manufacturer or supplier of the equipment or material proposed to be furnished under the Bid.

	Equipment/Material	Manufacturer/Supplier
1.	Well Casing	
2.	Gravel Pack	
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		

Awarding of a contract under this bid will not imply approval by the Owner of the manufacturers of suppliers listed by the Bidder. No substitution will be permitted after award of contract unless equipment of material of the listed manufacturer of supplier cannot meet the specifications.

SECTION 00315

PRELIMINARY CONSTRUCTION SCHEDULE

The Contractor shall submit with his Bid a preliminary construction schedule for the Owner's review, including important milestones, assuming the Notice to Proceed is issued on [DATE]. The Preliminary Construction Schedule shall be in sufficient detail to show the chronological relationship of all activities of the project, including, but not limited to, estimated starting and completion dates of various activities, procurement of materials and scheduling of equipment. The Preliminary Construction Schedule shall reflect completion of all work under the contract within the specified time and in accordance with the Specifications. The Preliminary Construction Schedule will be used by the Owner in helping determine award of the contract.

DATE(S)	WORK ITEM
[DATE]	**Notice to Proceed**

SECTION 00316

NON-COLLUSION AFFIDAVIT

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

PROJECT: CONSOLIDATED IRRIGATION DISTRICT

SOUTH & HIGHLAND BASIN PROJECT, RECOVERY WELLS CONTRACT

TO: The Board of Directors, Consolidated Irrigation District

_____
(Name)

being first duly sworn, deposes and says that he or she is

_____
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

of _____ .
(Bidding Entity)

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.

(Title 23 United States Code Section 112)

(Calif. Public Contract Code Section 7106; Stats. 1988, c. 1548, Section 1.)

Signed: _____

_____ _____
Name Date

SECTION 00317

PUBLIC CONTRACT CODE SECTION 10162
QUESTIONNAIRE ON DISQUALIFICATION

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is Yes, explain the circumstances in the space below:

_____

_____

_____

NOTE: The above Questionnaire is part of the Proposal.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

By_____ _____
Signature of Bidder Date

SECTION 00318

PUBLIC CONTRACT SECTION 10232
STATEMENT ON CONTEMPT

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

In accordance with Public Contract Code Section 10232, the Contractor, hereby states, under penalty of perjury, that no more than one final un-appealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

By_____ _____
Signature of Bidder Date

SECTION 00324

WORKER'S COMPENSATION CERTIFICATION

STATE OF CALIFORNIA)
(SS
COUNTY OF FRESNO)

The undersigned is aware of the provisions of Section 3700 of the Labor Code of the State of California which require every employer to be insured against liability of worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and the undersigned will comply with such provisions, and will require all subcontractors to comply with such provisions, before commencing the performance of the work of this Contract.

_____
Date:

_____
Contractor Signature

END OF SECTION

SECTION 00329

LABOR AND OTHER CODE REQUIREMENTS CERTIFICATE

In accordance with California Labor Code 1771.5, this project includes a Labor Compliance Program (LCP) that authorizes the establishment of an LCP to enforce prevailing wage requirements on public works construction projects. For questions or assistance concerning the Program, contact the District's Labor Compliance Officer, Richard Perez, Labor Consultants of California, P. O. Box 1875 Hanford, CA. 93232; telephone number: (559) 584-7499 or by email at laborc@cnetech.com. A copy of the approved LCP is included in the Appendix. The project is located in Fresno County.

1 - STATE WAGE RATE CLAUSES

Pursuant to Sections 1720 et seq., and 1770 et seq., of the California Labor Code, the successful bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Prevailing wage schedules for Fresno County are available from the Department of Industrial Relations - Division of Labor Statistics and Research via the Internet at www.dir.ca.gov. A prevailing wage scale is also on file in the office of the Consolidated Irrigation District and copies may be obtained upon request.

The successful bidder intending to use a craft or classification not shown on the prevailing rate determinations may be required to pay the rate of the craft or classification most closely related to it.

Pursuant to the provisions of California Labor Code, section 1773, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate of holiday and overtime work in the locality in which the Work is to be performed for each craft, classification or type of worker needed to execute the Work. Copies of the prevailing rate of per diem wages are on file at the Owner's principal office and shall be made available to any interested party on request. The Contractor shall cause a copy of the Director's determination of the prevailing rate of per diem wages to be posted at a prominent place at the site of the Work. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid and will not under any circumstances be considered as the basis of claim against the Owner. The Contractor shall comply with Labor Code section 1774 and 1775. In accordance with Labor Code section 1775, the Contractor shall forfeit as a penalty to the Owner not more than $50 for each Day or portion thereof for each worker paid less than the prevailing rates as determined by the director for the Work or craft in which the worker is employed for any Work or by any subcontractor under the Contractor. The amount of this penalty shall be determined by the Director based on the factors set forth in section 1775. In addition to such penalty, the difference between such prevailing wage rates and the amount paid to each workman for each Day or portion thereof for each workman was paid less than the prevailing wage rate shall be paid to each worker by the Contractor.

2 - LABOR CODE SECTION 1776 COMPLETE PAYROLL RECORDS; CERTIFIED AND AVAILABLE

(A) Each contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked

each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct.

(2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

(B) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public may not be given access to the records at the principal office of the contractor.

(C) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.

(D) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

(E) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address, and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (29 U.S.C. Sec. 175a) shall be marked or obliterated only to prevent disclosure of an individual's name and social security number. A joint labor management committee may maintain an action in a court of competent jurisdiction against an

employer who fails to comply with Section 1774. The court may award restitution to an employee for unpaid wages and may award the joint labor management committee reasonable attorney's fees and costs incurred in maintaining the action. An action under this subdivision may not be based on the employer's misclassification of the craft of a worker on its certified payroll records. Nothing in this subdivision limits any other available remedies for a violation of this chapter.

(F) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city, and county, and shall, within five working days, provide a notice of a change of location and address.

(G) The contractor or subcontractor has 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

(H) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section.

(I) The director shall adopt rules consistent with the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code) and the Information Practices Act of 1977 (Title 1.8 (commencing with Section 1798) of Part 4 of Division 3 of the Civil Code) governing the release of these records, including the establishment of reasonable fees to be charged for reproducing copies of records required by this section.

3 - LABOR CODE SECTION 1777.5
EMPLOYMENT OF PROPERLY REGISTERED APPRENTICES

(A) Nothing in this chapter shall prevent the employment of properly registered apprentices upon public works.

(B) Every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered.

(C) Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public works. The employment and training of each apprentice shall be in accordance with either of the following:

(1) The apprenticeship standards and apprentice agreements under which he or she is training.

(2) The rules and regulations of the California Apprenticeship Council.

(D) When the contractor to whom the contract is awarded by the state or any political subdivision, in performing any of the work under the contract, employs workers in any apprenticeable craft or trade, the contractor shall employ apprentices in at least the ratio set forth in this section and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the contractor, shall arrange for the dispatch of apprentices to the contractor. A contractor covered by an apprenticeship program's standards shall not be required to submit any additional application in order to include additional public works contracts under that program. "Apprenticeable craft or trade," as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the California Apprenticeship Council. As used in this section, "contractor" includes any subcontractor under a contractor who performs any public works not excluded by subdivision (o).

(E) Prior to commencing work on a contract for public works, every contractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the public work. The information submitted shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the awarding body if requested by the awarding body. Within 60 days after concluding work on the contract, each contractor and subcontractor shall submit to the awarding body, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the contract. The information under this subdivision shall be public. The apprenticeship programs shall retain this information for 12 months.

(F) The apprenticeship program that can supply apprentices to the area of the site of the public work shall ensure equal employment and affirmative action in apprenticeship for women and minorities.

(G) The ratio of work performed by apprentices to journeymen employed in a particular craft or trade on the public work may be no higher than the ratio stipulated in the apprenticeship standards under which the apprenticeship program operates where the contractor agrees to be bound by those standards, but, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentice work for every five hours of journeyman work.

(H) This ratio of apprentice work to journeyman work shall apply during any day or portion of a day when any journeyman is employed at the jobsite and shall be computed on the basis of the hours worked during the day by journeymen so employed. Any work performed by a journeyman in excess of eight hours per day or 40 hours per week shall not be used to calculate the ratio. The contractor shall employ apprentices for the number of hours computed as above before the end of the contract or, in the case of a subcontractor, before the end of the subcontract. However, the contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are

employed at the jobsite. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Chief of the Division of Apprenticeship Standards, upon application of an apprenticeship program, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification.

(I) A contractor covered by this section that has agreed to be covered by an apprenticeship program's standards upon the issuance of the approval certificate, or that has been previously approved for an apprenticeship program in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the applicable apprenticeship standards, but in no event less than the 1-to-5 ratio required by subdivision (g).

(J) Upon proper showing by a contractor that he or she employs apprentices in a particular craft or trade in the state on all of his or her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by journeymen, the Chief of the Division of Apprenticeship Standards may grant a certificate exempting the contractor from the 1-to-5 hourly ratio, as set forth in this section for that craft or trade.

(K) An apprenticeship program has the discretion to grant to a participating contractor or contractor association a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:

(1) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.

(2) The number of apprentices in training in the area exceeds a ratio of 1 to 5.

(3) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis.

(4) Assignment of an apprentice to any work performed under a public works contract would create a condition that would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large, or the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.

(L) When an exemption is granted pursuant to subdivision (k) to an organization that represents contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member contractors shall not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.

(M)(1) A contractor to whom a contract is awarded, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the public works site. A contractor may take as a credit for payments to the council any amounts paid by the contractor to an approved apprenticeship program that can supply apprentices to

the site of the public works project. The contractor may add the amount of the contributions in computing his or her bid for the contract.

(2) At the conclusion of the 2002-03 fiscal year and each fiscal year thereafter, the California Apprenticeship Council shall distribute training contributions received by the council under this subdivision, less the expenses of the Division of Apprenticeship Standards for administering this subdivision, by making grants to approved apprenticeship programs for the purpose of training apprentices. The funds shall be distributed as follows:

(a) If there is an approved multiemployer apprenticeship program serving the same craft or trade and geographic area for which the training contributions were made to the council, a grant to that program shall be made.

(b) If there are two or more approved multiemployer apprenticeship programs serving the same craft or trade and geographic area for which the training contributions were made to the council, the grant shall be divided among those programs based on the number of apprentices registered in each program.

(c) All training contributions not distributed under subparagraphs (A) and (B) shall be used to defray the future expenses of the Division of Apprenticeship Standards.

4 - LABOR CODE SECTION 1810
DEFINITION: A LEGAL DAY'S WORK

Eight hours labor constitutes a legal day's work in all cases where the same is performed under the authority of any law of this State, or under the direction, or control, or by the authority of any officer of this State acting in his official capacity, or under the direction, or control or by the authority of any municipal corporation, or of any officer thereof. A stipulation to that effect shall be made a part of all contracts to which the State or any municipal corporation therein is a party.

5 - LABOR CODE SECTION 1813
PENALTY FOR OVERTIME ON ANY PUBLIC WORK CONTRACT

The contractor or subcontractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of this article. In awarding any contract for public work, the awarding body shall cause to be inserted in the contract a stipulation to this effect. The awarding body shall take cognizance of all violations of this article committed in the course of the execution of the contract, and shall report them to the Division of Labor Standards Enforcement.

6 - LABOR CODE SECTION 1815
MINIMUM OVERTIME PAY

Notwithstanding the provisions of Sections 1810 to 1814, inclusive, of the Labor code, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40

hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 1/2 times the basic rate of pay.

7 - LABOR CODE SECTION 1860
CONTRACT PROVISION

The awarding body shall cause to be inserted in every public works contract a clause providing that, in accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees.

8 - LABOR CODE SECTION 1861
CONTRACTOR CERTIFICATION TO LABOR CODE SECTION 3700

Each contractor to whom a public works contract is awarded shall sign and file with the awarding body the following certification prior to performing the work of the contract: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

9 - LABOR CODE SECTION 6500 AND 6705
TRENCH EXCAVATION SAFETY PLANS

1. The Contractor's attention is directed to the provisions of Labor Code section 6705 concerning trench excavation safety plans. Labor code section 6705 provides in relevant part:

a. No contract for public works involving an estimated expenditure in excess of twenty-five thousand dollars ($25,000), for the excavation of any trench or trenches five feet or more in depth, shall be awarded unless it contains a clause requiring submission by the contractor and acceptance by the awarding body or by a registered civil or structural engineer, employed by the awarding body, to whom authority to accept has been delegated, in advance of excavation, of a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.

b. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders.

2. Before execution of the contract by the Owner, the Contractor shall submit to the Owner a copy of his permit for the project issued by Cal-OSHA.

If there is any non-compliance with said detailed plans, the Contractor shall stop forthwith all affected work until there is compliance in the opinion of the State Division of Industrial Safety. The Owner, Engineer, officers, employees, consultants, and agents of the aforementioned, shall not be liable for costs incurred by the Contractor due to work stoppage, and the Contractor will not be given nor is entitled to an extension of time to complete the Work within the time set forth in this contract due to the work stoppage.

10 - NONDISCRIMINATION CLAUSE

1. During the performance of the Contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Contractors and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900, set forth in Chapter 5 of Division 4 of Title 2 or the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractor shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

2. Contractor's attention is also directed to Section 1735 of the Labor Code, which provides: "A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter."

3. Contractor's attention is further directed to Section 1777.6 of the Labor Code, which provides:
An employer or a labor union shall not refuse to accept otherwise qualified employees as registered apprentices on any public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as provided in Section 3077 of this code and Section 12940 of the Government Code.

4. This contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Contract.

11 - DRUG-FREE WORKPLACE CERTIFICATION

CONTRACTOR:

The contractor named below hereby certifies compliance with The Drug-Free Workplace Act of 1990 (Government Code 8350 et seq.) in matters relating to providing a drug-free workplace. The below named contractor or applicant will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).

2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:

(a) The dangers of drug abuse in the workplace,

(b) The person's or organization's policy of maintaining a drug-free workplace,

(c) Any available counseling, rehabilitation and employee assistance programs, and

(d) Penalties that may be imposed upon employees for drug abuse violations.

3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract:

(a) Will receive a copy of the company's drug-free policy statement, and

(b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract.

12- DEBARRED SUBCONTRACTOR PROHIBITION

(A) A public entity, as defined in Section 1100, may not permit a contractor or subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code to bid on, be awarded, or perform work as a subcontractor on, a public works project. Every public works project shall contain a provision prohibiting a contractor from performing work on a public works project with a subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

(B) Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract, and any public money that may have been paid to a debarred subcontractor by a contractor on the project shall be returned to the awarding body. The contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

THE UNDERSIGNED CERTIFIES THAT, IN PERFORMANCE OF THE CONTRACT, THE CONTRACTOR WILL COMPLY WITH THE ABOVE REQUIREMENTS IN ADDITION TO OTHER LEGAL REQUIREMENTS.

CONTRACTOR OR
SUBCONTRACTOR NAME: _____

CERTIFIED BY:

NAME:_____ TITLE:_____

SIGNATURE:_____ DATE:_____

END OF SECTION

SECTION 00340

PRE-QUALIFICATION STATEMENT

PROJECT: CONSOLIDATED IRRIGATION DISTRICT
ADAMS & ACADEMY BASIN PROJECT
RECOVERY WELLS CONTRACT

TO: The Board of Directors, CONSOLIDATED IRRIGATION DISTRICT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

_____
(Name of Organization)

_____
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

_____
(Address and Telephone Number)

1) EXPERIENCE AND REFERENCES

List three (3) or more past or current projects of similar size and scope to this project by completing the table below:

Past or current project name and location	Project description	Owner	Contract amount ($) and completion date	Reference contact person name and phone number

2) CONTRACTOR FINANCIAL INFORMATION

a) List name, address, and phone number of bonding company used by your organization.

b) List name, address, and phone number of a banking institution familiar with your organization.

c) State whether your organization has been subject of bankruptcy, failed business, or failed to complete a contract.

Signed: _____

_____ _____

Name Date

SECTION 00501

CONTRACT

THIS CONTRACT is made at **Consolidated Irrigation District** in Fresno County, California, by and between_____ hereinafter called the "Contractor," and the **Consolidated Irrigation District**, a California Irrigation District, hereinafter called the "Owner".

Contractor and the Owner, for the consideration hereinafter named, agree as follows:

ARTICLE I. SCOPE OF WORK. The Work to be constructed is a project entitled ADAMS & ACADEMY Basin Project – Recovery Wells Contract, located in Fresno County, State of California.

The Contractor shall furnish all labor and materials, including tools, implements, and appliances required to construct the Work and shall perform and construct all Work in a good and workmanlike manner, free from any and all liens and claims including those of mechanics, materialmen, sub-contractors, artisans, machinists, teamsters, draymen and laborers required for the construction of the Work.

Contractor shall comply with and construct the Work in strict conformity with the Contract Documents, including that set of Plans, entitled: "ADAMS & ACADEMY Basin Project – Recovery Wells Contract," all other Plans, Drawings, Specifications; and the provisions of this Contract.

ARTICLE II. CONTRACT DOCUMENTS. The Contract Documents shall consist of the following documents, each of which is on file in the office of the Owner and all of which are incorporated herein and made a part hereof by reference thereto: this Contract and Specifications, including, Division 00 – Bidding and Contract Requirements, Division 01 - General Requirements, Division 02 through Division 16 - Technical Specifications, any Standard Specifications referenced, Plans, Profiles and Drawings, Addenda or Change Orders (if any), and Appendices. In the event of conflict between portions of the Contract Documents, refer to Section 01005 – Specifications to resolve priority.

ARTICLE III. PAYMENT. In the manner, at the time and upon the conditions stated in the Contract Documents, Owner agrees to pay the Contractor in current funds for the performance of the Contract the sum of:

_____

(Figures in Words)

_____

(Figures in Numbers)

It is understood that said price is based upon the estimated quantities of materials to be used as set forth in the Bidder's Proposal, except where provisions are made in the Contract Documents whereby the estimated quantities shall constitute the final quantity.

Contractor is responsible for payment of prevailing wages in accordance with the provisions of Section 1770, et seq. of the Labor Code. Prevailing wage schedules for Fresno County are

available from the Department of Industrial Relations-Division of Labor Statistics & Research via the Internet at www.dir.ca.gov. A prevailing wage scale is also on file in the office of the Consolidated Irrigation District, 2255 Chandler Street, Selma, CA 93662, and copies may be obtained upon request.

ARTICLE IV. TERMINATION. If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his sub-contractors should violate any of the provisions, including, but not limited to, failure to meet the time of commencement and time of completion requirements in Section 01011, of the Contract Documents, or if he should refuse or fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to sub-contractors or for material or labor, or disregard laws, ordinances or the instructions of the Engineer, then the Owner may serve written notice upon the Contractor and his surety of material breach and its intention to terminate the Contract, such notice to contain the reasons for such intention to terminate the contract, and unless, within seven (7) days after the serving of such notice, Contractor performs as required by the Contract Documents or makes valid objection to termination, the contract shall, upon the expiration of said seven days, cease and terminate. If Contractor does not perform or make valid objection in response to such notice, then it waives all rights to perform the contract, to submit a claim for costs caused by the Owner's performance of the contract, or to object to the Owner withholding its costs in performing the contract.

In the event of any such termination, the Owner may immediately take over performance of the contract and prosecute the work to completion as provided below, if immediate action is required because exigent circumstances are reasonably determined to exist by the Owner, or serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety within seven (7) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within the seven (7) days stated above from the date of the serving of such notice, the Owner may take over the work and prosecute the same to completion by force account, either with its own forces or with a contractor of its choice, or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for doing so, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the Work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the Work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If the expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided and damage incurred through the Contractor's default, shall be certified by the Engineer.

When the contract has been terminated as provided above or elsewhere in the Contract Documents, such termination shall not affect any rights of the Owner against the Contractor then existing or which may thereafter accrue.

ARTICLE V. WORKERS' COMPENSATION. Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the

State of California and during the performance of the Work will so to comply with the said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in triplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-Insure should be provided the Owner.

ARTICLE VI. JOB SITE CONDITIONS. Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project Work, including safety of all persons and property; and that this requirement shall apply continuously and not be limited to normal working hours.

ARTICLE VII. CHANGES IN THE WORK. New and unforeseen work will be classed as extra work when determined by the Owner that such work is not covered by any of the various items or combination of such items for which there is a bid price. In the event that portions of such work are determined by the Owner to be covered by some of the various items or combinations of such items for which there is a bid price, the remaining portion of such work will be classified as extra work. Extra work also includes work specifically designated as extra work in the Plans and Specifications. Refer to Section 01022 – Changes to the Work.

ARTICLE VIII. COMPLETION. Upon receipt of written notice that the Work is ready for final review, the Engineer and Owner will promptly make such review, and when the Owner finds the Work satisfactory under the Contract and the Contract fully performed, the Owner will promptly issue a Notice of Completion stating that the Work required by this Contract has been completed. Within 10 days of acceptance, the Owner shall cause the Notice of Completion to be recorded. Final payment shall become due thirty-five (35) days after the date of the recording of the Notice of Completion.

Before issuance of final payment, the Contractor shall submit Conditional Releases as specified in Section 01026 – Waiver and Release Submittals, except that, in the case of disputed indebtedness or liens, the Contractor may submit, in lieu of evidence of payment, a Surety Bond satisfactory to the Owner guaranteeing payment of all such disputed amounts when adjudicated.

ARTICLE IX. TIME OF PERFORMANCE. The Notice to Proceed is specified in Section 00680 – Notice to Proceed. Beginning of Work and Time of Completion are specified in Section 01011 – Description of Work and Schedule Constraints. Liquidated Damages are those specified in Section 01013 – Liquidated Damages. All time limits stated in the Contract Documents are of the essence.

ARTICLE X. INDEMNITY AND INSURANCE. Before commencing Work, the Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, the insurance described in Section 00502 - Indemnity Agreement. The Contractor shall furnish evidence of the required insurance coverages to the Owner prior to execution of the Contract Documents.

ARTICLE XI. ASSIGNMENT OF CLAYTON ACT AND CARTWRIGHT ACT RIGHTS.
Per Government Code Section 4552, in submitting its Bid and entering into the Contract or a subcontract to supply goods, services, or materials pursuant to the Contract, the Contractor or subcontractor offers and agrees to assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under

the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or any subcontract. This assignment shall be made and become effective at the time the Owner tenders final payment to the Contractor, without further acknowledgment by the parties.

ARTICLE XII. ASSIGNMENT AND TRANSFER OF CONTRACT. The Contractor shall not assign or transfer this Contract or any part thereof or any interest therein without consent in writing of the Owner and the Contractor's Surety, and any such assignment or transfer without such written consent shall be null and void.

ARTICLE XIII. CLAIMS AND DISPUTE RESOLUTION. To the extent required by applicable law, claims arising between the Contractor and the Owner under or in connection with this Contract shall be resolved in accordance with the provisions of Public Contract Code Section 20104, incorporated herein by this reference.

ARTICLE XIV. HEADINGS AND INTERPRETATION. The headings in the Contract Documents are solely for the convenience of the parties, and are not intended to and shall not be construed to in any way limit Contractor's duties with respect to the performance of the Work as provided in the Contract Documents. Any uncertainty or ambiguity in the language of this Contract or the Contract Documents shall not be construed against the party drafting the same, but shall be construed as if both parties prepared the same and any provision to the contrary in Civil Code § 1654 is waived by the parties.

ARTICLE XV. REMEDIES . The remedies given to Owner in the Contract Documents shall not be exclusive, but shall be cumulative and in addition to all remedies now or hereafter allowed by law.

If any provision of the Contract Documents is void or unenforceable, the same shall in no way affect the validity or enforceability of any other provision of the Contract Documents or the validity or enforceability of this Contract as a whole.

This Contract shall be binding upon and shall inure to the benefit of the parties hereto, as well as their respective heirs, successors and assigns.

IN WITNESS WHEREOF, they had executed this Contract this _____ day of _____, 2014.

_____	Consolidated Irrigation District
Contractor	Owner
By _____	By _____
	Phillip Desatoff, General Manager
ATTEST: _____	By _____

END OF SECTION

SECTION 00502

INDEMNITY AGREEMENT

The undersigned Contractor (or supplier) by reason of contracts or purchase orders (and addenda and riders thereto) which have or may be entered into with the designated certificate holder, agrees the following conditions shall apply with respect to any and all work performed for or materials or equipment supplied to designated certificate holder.

The Contractor agrees to indemnify and save harmless, the Consolidated Irrigation District, the State of California, Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants from and against all loss or expense, (including costs and attorney fees) on account of injury or death of persons employed by the Contractor, or his sub-contractors, his or their agents or employees; injury to or death of any person; or injury to, damage or destruction of property, real or personal, including loss of use thereof. Upon demand, the Contractor shall defend any suits or actions covered by the terms of this Agreement.

Pursuant to Civil Code 2782 (A), Contractor shall have no obligation to indemnify or save harmless Indemnitees against loss or expense due to the sole negligence or willful misconduct of Owner, Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants, ,nor due to defects in design furnished by those persons.

Pursuant to Civil Code 2782 (B), Contractor shall have no obligation to indemnify or save harmless Indemnitees against loss or expense due to the active negligence of Owner.

Before commencing work, Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, insurance coverages as set forth in Section 00505, Insurance Requirements.

DATE: _____ ACCEPTED:_____
Owner, Partner or Officer

Witness-If Corp., Attest & Seal COMPANY: _____

_____

END OF SECTION

SECTION 00503

GUARANTY

The Contractor shall remain responsible for all defects in the Work, for a period of one (1) year following completion and acceptance of the Work by the Owner. Should any of the materials or equipment prove defective or should the Work as a whole prove defective, due to faulty techniques, material furnished or methods of installation, or should the Work or any part thereof fail to operate properly as originally intended and in accordance with the Plans and Specifications, the undersigned agrees to, upon demand by the Owner, replace any such materials and repair said work completely and without cost to the Owner, so that said work will function successfully as originally contemplated, or, upon demand, reimburse the Owner for its expenses incurred in restoring said Work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after receipt of demand from the Owner. If the undersigned shall fail or refuse to comply with his obligations under this guaranty, the Owner shall be entitled to all costs and expenses, including attorney's fees, reasonably incurred by reason of the said failure or refusal.

Prior to Owner exercising the option to have such repair or replacement performed by others, Owner shall notify undersigned of Owner's intent. Undersigned shall have 10 days to inspect the defective Work, materials and/or equipment and ascertain its condition.

Full compensation for furnishing the guaranty will be considered as included in the contract price or prices paid for the items of work involved and no additional compensation will be allowed therefore.

Date: _____ _____

Contractor

END OF SECTION

SECTION 00505

INSURANCE REQUIREMENTS

Before commencing work, Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, the following insurance coverages issued by a company or companies acceptable to the Owner. All insurance, excepting Workers' Compensation and Occupational Disease Insurance, shall include as additional insured: the Owner, the County of Fresno, the State of California, Provost & Pritchard Consulting Group, and their officers, directors, agents, employees and consultants.

1) Worker's Compensation and Occupational Disease Insurance meeting the statutory requirements of the State of California; and Employer's Liability Insurance in an amount of at least $1,000,000.00.

2) Comprehensive Liability Insurance with limits of:

   Bodily Injury, Property Damage and Personal Injury - $1,000,000.00 each occurrence, $1,000,000.00 aggregate.

   This insurance shall be on an occurrence basis and shall protect the Contractor against liability arising from: his operations, operations by sub-contractors, elevators, products, completed operations and contractual liability assumed under the indemnity provisions above insurance.

3) Automobile Liability on occurrence basis covering all owned, non-owned, and hired automobiles for limits of liability of:

   Bodily Injury and Property Damage - $1,000,000.00 each occurrence.

4) Builder's Risk Insurance is not required.

Contractor’s Property Damage Liability insurance shall include coverage for property damage caused by blasting, collapse, structural injuries or damage to underground utilities. The policy shall not contain the so-called “x,” “c,” or “u” exclusions.

The certificate of insurance shall further provide that ten days notice of cancellation or reduction in coverage shall be given the Owner.

An Additional Insured Endorsement to Contractor’s Liability insurance policy naming the County, the Owner, the State of California, and other participating public agencies (if applicable) and all officers and employees of the above, shall also be furnished.

Provided however, that the limits of such insurance shall not limit the extent of such assumed responsibility and liability.

END OF SECTION

SECTION 00600

BOND REQUIREMENTS

PART 1 GENERAL

1.1 GENERAL

A. All bonds required, whether Bid bonds, Performance, Payment, or other bonds, shall be issued by an admitted surety insurer. The payment and performance bonds required by these specifications will neither be accepted nor approved by the Owner unless the bonds are underwritten by an admitted surety and the requirements of California Code of Civil Procedure Section 995.630 are met. The Owner further reserves the right to satisfy itself as to the acceptability of the surety and the form of bond**. Upon request of the Owner, the bidder shall submit the following documents**:

1. The original, or a certified copy, of the unrevoked appointment, power of attorney, bylaws, or other instrument authorizing the person who executed the bond to do so.
2. A certified copy of the certificate of authority of the insurer issued by the California Insurance Commissioner.
3. A certificate from the county clerk that the certificate of authority has not been surrendered, revoked, canceled, annulled, or suspended, or in the event that it has, that renewed authority has been granted.
4. A certified copy of the certificate of the listing status from the United States Department of the Treasury circular 570, as amended.
5. A financial statement of the assets and liabilities of the insurer to the end of the quarter calendar year prior to 30 days next preceding the date of the execution of the bond, in the form of an officers' certificate as defined in Corporations Code □ 173.

B. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a SURETY on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of surety companies accepted on Federal Bonds, CONTRACTOR shall within twenty (20) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other SURETY or SURETIES as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payment shall be deemed due nor shall be made until the new SURETY or SURETIES shall have furnished an acceptable BOND to the OWNER.

END OF SECTION

SECTION 00601

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

_____

as Principal, and _____ as Surety, are hereby held and firmly bound unto Consolidated Irrigation District, as OWNER, in the penal sum of

_____

_____Dollars ($_____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20___.

The Condition of the above obligation is such that whereas the Principal has submitted to a certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for the ADAMS & ACADEMY BASIN PROJECT – RECOVERY WELLS CONTRACT;

NOW, THEREFORE,

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said bid) and shall furnish bonds for his faithful performance of said contract and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extension of the time within which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ (L.S.)
Principal

_____
Surety

_____
California Surety Number

IMPORTANT – Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state of California.

END OF SECTION

SECTION 00603

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal, and
Corporation, Partnership, or Individual)

_____
(Name of Surety)

an admitted California Surety, California Certificate No.:_____

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto Consolidated Irrigation District, hereinafter called Owner, in the penal sum of _____
_____Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20__, a copy of which is hereto attached and made a part hereof for the construction of:

Adams & Academy Basin Project – Recovery Wells Contract

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder of the Specifications accompanying the same shall release or otherwise affect its obligation on this Bond, and it does hereby notice of any such change,

extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the _____day of_____, 20__.

_____
Principal

By _____ (s)

_____
Address

ATTEST:

_____
(Principal) Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

_____
Surety

By _____(s)
Attorney-in-Fact

_____
Address

ATTEST:

_____
(Surety) Secretary

(SEAL)

_____
Witness as to Surety

_____
Address

NOTES: Date of bond must not be prior to date of Contract.
If Contractor is a partnership, all partners must execute Bond.

END OF SECTION

SECTION 00604

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____
(Name of Surety)

an admitted California Surety, California Certificate No.:,_____

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto Consolidated Irrigation District, hereinafter called Owner, in the penal sum of _____ _____ Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 2014, a copy of which is hereto attached and made a part hereof for the construction of:

Adams & Academy Basin Project – Recovery Wells Contract

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor performed in such work, whether by subcontractor or otherwise, then this obligation shall be void, otherwise, to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time alternation or addition to the terms of the Contract or to work to be performed thereunder of the Specifications accompanying the same shall release or otherwise affect its obligation on this Bond, and it does hereby waive notice of any such

change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the _____day of_____, 20__.

_____
Principal

By _____ (s)

_____
Address

ATTEST:

_____
(Principal) Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

_____
Surety

By _____(s)
Attorney-in-Fact

_____
Address

ATTEST:

_____
(Surety) Secretary

(SEAL)

_____
Witness as to Surety

_____
Address

NOTES: Date of bond must not be prior to date of Contract.
If Contractor is a partnership, all partners must execute Bond.

END OF SECTION

SECTION 00675

NOTICE OF AWARD

TO: _____

_____

_____

PROJECT: Consolidated Irrigation District

Adams & Academy Basin Project – Recovery Wells Contract

The Owner has considered the bid submitted by you for the above described Work in response to its Notice Inviting Bids dated _____, and the Instructions to Bidders.

You are hereby notified that your bid has been accepted, and the sum of the items amounts to $_____.

You are required by the Instructions to Bidders to execute the Contract and provide the necessary bonds and insurance certificates within ten (10) calendar days from the date of this Notice.

If you fail to execute said Contract within ten (10) days from the date of this Notice, Owner will be entitled to consider all your rights arising out of Owner's acceptance of your bid as abandoned. Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to Owner.

Dated this _____day of _____, 20__.

Agency

OWNER

By: _____

Agency Representative

Title: _____

Representative Title

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice of Award is hereby acknowledged

By: _____

this the _____ Day of _____, 20__

By: _____

Title _____

END OF SECTION

SECTION 00680

NOTICE TO PROCEED

TO:

PROJECT: Consolidated Irrigation District
Adams & Academy Basin Project – Recovery Wells Contract

DATE: DRAFT

You are hereby notified to commence work in accordance with the Contract dated _____ _____and Contract Change Order (1) One, on or before _____ _____. You are to complete the WORK by_____.

OWNER – Consolidated Irrigation District

By: _____
Phillip Desatoff, General Manager

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____ this _____ day of_____, 20__.

By: _____

Title: _____

END OF SECTION

SECTION 00680

NOTICE TO PROCEED

TO:

PROJECT: Consolidated Irrigation District
South & Highland Basin Project – Recovery Wells Contract

DATE:

You are hereby notified to commence work in accordance with the Contract dated _____ _____on or before _____. You are to complete the WORK by _____, 20 __.

OWNER – Consolidated Irrigation District

By: _____
Phillip Desatoff, General Manager

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____ this _____ day of_____, 20__.

By: _____

Title: _____

END OF SECTION

SECTION 00700

GENERAL CONDITIONS

PART 1 GENERAL

1.1 The General Conditions for this Project shall be Chapters 1 through 9, inclusive, of the Standard Specifications dated May 2006 of the California Department of Transportation insofar as the same may apply and in accordance with Divisions 0 and 1 of these Specifications.

1.2 In case of conflict between the General Conditions and these Specifications, the order of precedence set forth in paragraph 1.1 D of Section 01005, Specifications, of these Specifications.

END OF SECTION

SECTION 00900

CULTURAL RESOURCES

PART 1 GENERAL

1.1 CULTURAL RESOURCES

A. The California Public Resources Code Chapter 1.7, Section 5097.5 makes it a misdemeanor for anyone to knowingly disturb an archaeological historical feature. California Public Resources Code Sections 5097.98 and 5097.99 require protection of Native American remains which may be found and outlines procedures for handling any burials found.

B. The California Administrative Code, Title 14, Section 4308, requires that no person disfigure any object of historical interest or value. The California Penal Code, Title 14, Part 1, Section 622-1/2 makes it a misdemeanor to destroy anything of historical value within any public place.

C. Should human skeletal material or archaeological remains be found during construction activities, all work must be halted within thirty (30) meters of the find. The Contractor shall notify the Engineer immediately. Construction activities within thirty (30) meters of the find shall remain halted until the Contractor has been notified that construction in the vicinity of the find may resume. If, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with due to investigations made of the archaeological find, the District will compensate the Contractor for such delays to the extent provided in Section 8-1..09, "Right of Way Delays," of the State Standard Specifications.

END OF SECTION

SECTION 00910

THREATENED AND ENDANGERED SPECIES

PART 1 GENERAL

1.1 GENERAL

A. The Owner has retained a biological consultant to develop guidelines and precautions for the Contractor to follow during the Work to avoid negative impacts to threatened and endangered species.

1. A biological consultant reviewed the project site in June 2010, and found no evidence of threatened or endangered species on the project site (Provost & Pritchard Engineering Group, Reconnaissance Level Biological Survey Report, June 2010).

2. However, four different threatened or endangered plant or animal species are known to reside in the general area surrounding the project site. If any evidence of threatened and endangered species are observed during the course of construction, the Contractor shall notify the Engineer, and the Engineer shall coordinate with a biological consultant as needed for compliance.

B. If any threatened or endangered species are observed, the Owner shall notify the Contractor of the specific guidelines or precautions issued by the Owner's biologist. The Contractor shall promptly submit a written request to the Owner if such guidelines or precautions are anticipated to cause any change to the Contractor's Work Schedule or Contract as a result of the Contractor's responsibility for compliance with the biological consultants' guidelines and precautions. If, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with, the District will compensate the Contractor for such delays to the extent provided in Section 8-1.09, "Right of Way Delays," of the State Standard Specifications.

END OF SECTION

SECTION 01005

SPECIFICATIONS

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall keep on the job a copy of the Plans and Specifications and shall at all times give the Owner and Engineer access thereto.

B. Anything mentioned in the Specifications and not shown on the Plans or shown on the Plans and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.

C. The Contractor shall not take advantage of any errors, discrepancies or omissions which may exist in the Plans and Specifications but shall immediately call them to the attention of the Engineer whose interpretation or correction thereof shall be conclusive.

D. In case of conflict between portions of the Contract Documents, the order of precedence of Contract Documents shall be:

First:	Permits from other agencies as may be required by law.
Second:	Addenda
Third:	Bid Documents, Division 0
Fourth:	Technical Specifications, Division 2 through Division16
Fifth:	Plans
Sixth:	General Requirements, Division 1
Seventh:	State Standard Specifications
Eighth:	Reference Documents

E. Change Orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over documents listed above. Detailed Plans shall have precedence over general Plans.

F. Whenever any conflict appears in any portions of the Contract Documents, it shall be resolved by application of the order of precedence.

1.2 GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS

A. For definitions of the Specifications categorized as General Requirements (Division 1) and Technical Specifications (Division 2 through Division 16) refer to Section 01090 – Definitions and Abbreviations.

1.3 REFERENCE DOCUMENTS

A. For a definition of Reference Documents and State Standard Specifications refer to Section 01090 – Definitions and Abbreviations.

B. Throughout the following Specification sections, references are made to various widely published, standard and commercial specifications, manuals, or codes of technical societies, organizations, or associations. These specifications are intended to amplify the descriptions of materials, equipment, and construction systems. The Contractor shall caution each of his Subcontractors to become familiar with the contents of the pertinent portions of these Reference Documents. The following Reference Documents are the most widely used, and are cited or referred to in each of the following sections of these Specifications:

1. American Society of Testing Materials (ASTM)

2. American National Standards Institute (ANSI)

3. American Standards Associations (ASA)

4. American Concrete Institute (ACI)

5. Federal Specifications, as applicable.

6. California Building Code

7. California Plumbing Code

8. National Electric Code

9. Construction Safety Orders of the Division of Industrial Relations latest edition.

C. Each citation of a Reference Document shall be construed to refer to the latest published revision of such specification as of the date of the invitation for bids and to such portions of it that relate and apply directly to the material or installation called for on this job. The Engineer will give no consideration to any claimed ignorance as to what a cited Reference Document contains, since such Subcontractor on a project of this scope is deemed to be experienced and familiar with his own trade and to be experienced and familiar with his own trade's generally accepted, published standards of quality.

D. Whenever references are made to any of the above-mentioned Reference Documents or testing methods in the governing Building Codes, the requirements of those Reference Documents shall govern, insofar as they are not in contravention with maxima or minima prescribed by documents designated in the Building Code.

1.4 LIST OF DRAWINGS

A. The Work shall conform to the following Drawings:

TITLE	SHEET NUMBERS
Cover Sheet	1
Project Site Plan	2
Well Site Plans	3
Well Construction Details	4

1.5 STATE STANDARD SPECIFICATIONS

A. For the purpose of this contract, the following terms or pronouns in place of them, used throughout the State Standard Specifications and defined in Section 1, Definition of Terms, of the State Standard Specifications, shall be as follows:

TERMS	INTERPRETATION
State	Consolidated Irrigation District
Department	Consolidated Irrigation District
Director	District Manager
Engineer	District Manager, Consolidated Irrigation District, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted them.
Department of Transportation	Consolidated Irrigation District
Contractor	The person or persons, co-partnership or corporation, private or municipal, who have entered into a contract with the Consolidated Irrigation District as party or parties of the second part, or his or her legal representative.

1.6 OCCUPATIONAL SAFETY AND HEALTH ACT

A. The applicable standards of the American National Standards Institute and the National Fire Protection Association that have been adopted are hereby made a part of these Specifications as a whole and as mentioned in the various sections.

B. Any errors, ambiguities, or inconsistencies of these standards with either the local codes, the Specifications, or the Drawings shall be brought to the attention of the Engineer.

1.7 COMPLIANCE WITH ALL LAWS AND CODES

A. Contractor shall conform to and abide by all local city, county, state and federal laws, rules, regulations, including industrial safety laws. Such laws shall be considered as essential parts of these Specifications and, in the absence of definite requirements herein, the provisions of such rules and regulations shall be observed by the Contractor. If the Drawings and/or Specifications are at variance therewith, Contractor shall so notify Engineer promptly. Should the Contractor perform any work contrary to such laws, ordinances, rules and regulations he shall bear all costs arising therefrom.

B. Where these Specifications, however, call for or describe materials workmanship or construction of a better quality, higher standard, or larger size than is required by said rules and regulations, the provisions of these Specifications shall take precedence over said rules and regulations. Contractor shall furnish, without any extra charge, all additional labor or materials, or both, when required for compliance with these rules and regulations.

END OF SECTION

SECTION 01011

DESCRIPTION OF WORK AND SCHEDULE CONSTRAINTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The Work consists of furnishing all labor, materials and equipment necessary to drill and construct two water wells, in accordance with the Plans and the Specifications.

B. Incidental items necessary to complete the work including mobilization, project closeout, temporary facilities, quality control and similar construction activities; bonds, insurance, permits, licenses and fees required to complete the project.

C. The project site is located in Fresno County near Fowler, California.

D. The primary components are generally described as follows:

1. Drill and construct two new water wells.

1.2 BEGINNING OF WORK

A. The Contractor shall begin work within ten (10) calendar days after receipt of official Notice to Proceed from the Owner. The Notice to Proceed is anticipated to be issued on January 20, 2014.

1.3 TIME OF COMPLETION

A. The Contractor shall complete all work within **one hundred (100) calendar days** following the date of the Notice to Proceed, unless the period for completion is extended otherwise by the Contract Documents. The Contractor shall diligently prosecute the work to completion on or before the completion date indicated on the Notice to Proceed.

1.4 TIME CONSTRAINTS

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

END OF SECTION

SECTION 01013

LIQUIDATED DAMAGES

PART 1 GENERAL

1.1 LIQUIDATED DAMAGES

A. The Contractor shall pay to the Owner the sum of

ONE THOUSAND DOLLARS ($ 1,000.00)

per day for each and every calendar day's delay in finishing the work beyond the completion date specified in the Notice to Proceed.

B. It is agreed by the parties to the contract that in case all the work called for under the contract in all parts and requirements is not finished or completed by the date specified as set forth above, damage will be sustained by the Consolidated Irrigation District, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Consolidated Irrigation District will sustain in the event of and by reason of the delay; and it is therefore agreed that the Contractor will pay to the Consolidated Irrigation District the sum set forth above per day for each and every calendar day's delay in finishing the work beyond the completion date specified; and the Contractor agrees to pay the liquidated damages herein provided for, and further agrees that the Consolidated Irrigation District may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

C. It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements by the date specified, the Engineer shall have the right to extend the specified completion date, as the Engineer may deem best to serve the interest of the Consolidated Irrigation District and if the Engineer decides to specified completion date, the Engineer shall further have the right to charge to the Contractor, or the Contractor's heirs, assigns or sureties and to deduct from the final payment for the work all or any part, as the Engineer may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the contract, and which accrue during the period of the extension, except that cost of final surveys and preparation of final estimate shall not be included in the charges.

D. The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering and inspection for any portion of the delay in completion of the work beyond the time named above for the completion of the work caused by acts of God or of the public enemy, fire, floods, tsunamis, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, shortage of materials and freight embargoes, provided that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of that delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

E. No extension of time will be granted for a delay caused by a shortage of materials unless the Contractor furnishes to the Engineer documentary proof that the Contractor has made every effort to obtain the materials from all known sources within reasonable reach of the work in a diligent and timely manner, and further proof in the form of supplementary progress schedules that the inability to obtain the materials when originally planned did in fact cause a delay in final completion of the entire work which could not be compensated for by revising the sequence of the Contractor's operations. The term "shortage of materials," as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and are to be incorporated in the work. The term "shortage of materials," shall not apply to materials, parts, articles or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the contract. Only physical shortage of material will be considered as a cause for extension of time. Delays in obtaining materials due to priority in filling orders will not constitute a shortage of materials.

F. If the Contractor is delayed in completion of the work by reason of changes made by Consolidated Irrigation District or by failure of the Consolidated Irrigation District to acquire or clear right of way, or by any act of the Engineer or of the Consolidated Irrigation District not contemplated by the contract, an extension of time commensurate with the delay in completion of the work thus caused will be granted, and the Contractor shall be relieved from any claim for liquidated damages, or engineering and inspection charges or other penalties for the period covered by that extension of time; provided that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of the delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

END OF SECTION

SECTION 01017

MATERIALS AND SUBSTITUTIONS

PART 1 GENERAL

1.1 GENERAL

A. The materials furnished and used shall be new, except as may be provided elsewhere in these Specifications, or on the Plans.

B. All materials required to complete the work under this contract shall be furnished by the Contractor, unless otherwise stated.

C. It shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instruction before proceeding with the Work. The Engineer may, by appropriate instructions, correct said apparent errors and omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

1.2 DEFINITIONS

A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor.

B. Revisions: Changes to Contract Documents requested by Owner or Engineer.

C. Options: Specified options of products and construction methods included in Contract Documents.

1.3 TRADE NAMES AND ALTERNATIVES

A. Wherever an article, or any class of materials, is specified by the trade name or by the name of any particular patentee, manufacturer or dealer, or by reference to the catalog of any such manufacturer or dealer, it shall be taken as intending to mean and specify the article or material described or any other equal thereto in quality, finish and durability, and equally as serviceable for the purpose for which it is or they are intended. The intent of the Plans and Specifications is to specify highest grade standard equipment, and it is not the intent of these Plans and Specifications to exclude or omit the products of any responsible manufacturer, if such products are equal in every practical respect to those mentioned herein, as determined by the Engineer.

1.4 SAMPLES

A. At the option of the Engineer, the source of supply of materials for the Work shall be subject to tests and inspection before the delivery is started and before such materials are used in the Work. Samples representative of the character and quality of materials shall be submitted by the Contractor. Samples shall be of sufficient quantities or amounts for testing or examination.

B. All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national technical organizations, and such special methods and tests as are prescribed in the Contract Documents.

C. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. Samples and test specimens prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer, or his designated representative, in the presence and with the assistance of the Contractor.

1.5 SUBMITTALS

A. Material Submittals shall be made in accordance with Section 001300 – Submittals.

1.6 INSPECTION OF MATERIALS BY THE CONTRACTOR

A. Contractor shall make a close inspection of all materials as delivered, and shall promptly return all defective materials without waiting for their rejection by the Engineer.

1.7 CERTIFICATES OF COMPLIANCE

A. A Certificate of Compliance may be required for certain materials and equipment that become final products of the completed Work. Certificates of Compliance shall be furnished prior to the use of any materials for which these Specifications require that such a certificate be furnished. In addition, when so authorized in these Specifications, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.

B. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.

C. A Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the certificate.

D. All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis 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 Plans and Specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

E. The Consolidated Irrigation District reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

1. The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

1.8 MANUFACTURER TESTING

A. At the option of the Engineer, materials and equipment to be supplied under this Contract will be tested and inspected either at their place of origin or at the site of the Work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials and equipment to be tested and inspected at point of origin.

1. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or re-inspection at the site of the Work.

2. Materials and equipment which will require testing and inspection at the place of origin shall not be shipped prior to such testing and inspection.

1.9 MANUFACTURERS' RECOMMENDATIONS

A. All equipment specified and used in the project shall be installed in accordance with the approved manufacturer's current written recommendations.

B. All such equipment, material, etc., shall be of the manufacturer's latest system or line.

1.10 SUBSTITUTIONS

A. Conditions: Contractor's substitutions shall be considered when one or more conditions are satisfied, as determined by the Engineer. (The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.)

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of the Contract Documents.

3. Request is timely, fully documented and properly submitted.

4. Request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request shall not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by governing authority, and the requested substitution can.

7. Substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear.

    a. Additional responsibilities for the Owner may include additional compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

    b. Contractor shall provide all data in support of any proposed substitute or “or-equal” at Contractor’s expense.

8. Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. Specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. Specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

1.11 SUBSTITUTION REQUEST FORM

A. Use Substitution Request Form in on page 01017-5.

B. Submit one form (4 copies) for each request.

END OF SECTION

SUBSTITUTION REQUEST FORM

TO: Herb Simmons – Provost & Pritchard Consulting Group

PROJECT: CONSOLIDATED IRRIGATION DISTRICT, ADAMS & ACADEMY BASIN, RECOVERY WELLS CONTRACT

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION:	PARAGRAPH:	SPECIFIED ITEM:

Proposed Substitution:

Attach: 1) Complete technical data, including laboratory tests, if applicable.

2) Complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

A. Does the substitution affect dimensions on Drawings?

B. Will the undersigned pay for changes to the project design, including engineering and detailing costs caused by the requested substitution?

C. What affect does substitution have on other trades?

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of the proposed and specified items are:

____Same _____ Different (explain on attached sheet)

SUBSTITUTION REQUEST FORM

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By:

Signature _____

Firm _____

Address _____

Date _____

Telephone _____

For Use by Design Consultant
Accepted Accepted as Noted Not Accepted Received Late By_____ Date_____ Remarks_____

SECTION 01018

CONTRACTOR'S RESPONSIBILITIES

PART 1 GENERAL

1.1 SUPERVISION AND SUPERINTENDENCE

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent thereto who shall not be replaced without written notice to Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

1.2 MAINTAINING TRAFFIC

A. Traffic and Access: The Contractor's operations shall cause no unnecessary inconvenience. The access rights of the public shall be considered at all times. Unless otherwise authorized, traffic shall be permitted to pass through the Work, otherwise a detour, approved by the Engineer, shall be provided. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, whether public or private, Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when Contractor has obtained written permission from the owner and tenant of private property involved, to obstruct traffic at the designated point.

B. In making open cut street crossings, Contractor shall not block more than one-half of the street at a time.

C. Contractor shall construct substantial bridges (trench plates when adequate) at all points where it is necessary to maintain traffic across pipeline construction. Bridges in public streets shall be acceptable to the Owner. Bridges erected in private roads and driveways shall be adequate for the service to which they will be subjected. Bridges shall be maintained in place as long as the conditions of the work require their use for safety of the public, except that when necessary for the proper prosecution of the Work in the immediate vicinity of a bridge, the bridge may be relocated or temporarily removed for such period as Engineer may permit.

D. The type and location of signs, lights, flags, flagmen and other traffic control and safety devices shall be in accordance with the "Manual of Traffic Controls -

Warning Signs, Lights, and Other Devices for Use in performance of Work Upon Highways," latest edition, issued by the State of California, Department of Transportation. Copies of the Manual may be obtained from the Permits Engineer, State Department of Transportation, or on the internet at www.dot.ca.gov .

E. Reflectivity of construction signs shall conform to the State Standard Specifications.

F. Based on all the above, Contractor shall determine the need for any signs, lights, flags, flagmen and any other traffic control and traffic safety devices and shall include all such costs in the Miscellaneous Facilities and Operationsitem of Contractor's Bid. No other compensation will be made.

1.3 OBSTRUCTIONS

A. Attention is directed to the possible existence of underground utility facilities not indicated on the plans and to the possibility that utility lines may be in a location different from that which is indicated on the plans. The Contractor shall ascertain the exact location of underground utilities whose presence is indicated on the plans, the location of their service laterals or other appurtenances, and of existing service lateral or appurtenances of any other underground facilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes, prior to doing work that may damage any of the facilities or interfere with their service.

B. If the Contractor cannot locate an underground facility whose presence is indicated on the plans, the Contractor shall so notify the Engineer in writing. If the facility for which the notice is given is in a substantially different location from that indicated on the plans or in the special provisions, the additional cost of locating the facility will be paid for as extra work as provided in the General Conditions.

C. If the Contractor discovers underground utilities not indicated on the Plans, the Contractor shall immediately give the Engineer and the Utility Company written notification of the existence of those facilities. The utilities shall be located and protected from damage as directed by the Engineer, and the cost of that work will be paid for as extra work as provided in the General Conditions. The Contractor shall, if directed by the Engineer, repair any damage which may occur to the utilities. The cost of that repair work, not due to the failure of the Contractor to exercise reasonable care, will be paid for as extra work as provided in the General Conditions. Damage due to the Contractor's failure to exercise reasonable care shall be repaired at the Contractor's cost and expense.

D. Where it is determined by the Engineer that the rearrangement of an underground facility is essential in order to accommodate the project improvements and the plans do not provide that the facility is to be rearranged, the Engineer will provide for the rearrangement of the facility by other forces or the rearrangement shall be performed by the Contractor and will be paid for as extra work.

E. When ordered by the Engineer in writing, the Contractor shall rearrange any utility or other non highway facility necessary to be rearranged as a part of the project improvements, and that work will be paid for as extra work.

F. Should the Contractor desire to have any rearrangement made in any utility facility, or other improvement, for the Contractor's convenience in order to facilitate the Contractor's construction operations, which rearrangement is in addition to, or different from, the rearrangements indicated on the Plans, the Contractor shall make whatever arrangements are necessary with the owners of the utility or other facility for the rearrangement and bear all expenses in connection therewith.

G. The Contractor shall immediately notify the Engineer of any delays to the Contractor's operations as a direct result of utility facilities which were not indicated on the Plans or were located in a position substantially different from that indicated on the Plans, or as a direct result of utility or other non highway facilities not being rearranged as herein provided (other than delays in connection with rearrangements made to facilitate the Contractor's construction operations or delays due to a strike or labor dispute). These delays will be considered right of way delays within the meaning of Section 8 1.09, "Right of Way Delays" of the State Standard Specifications, and compensation for the delay will be determined in conformance with the provisions in Section 8 1.09. The Contractor shall be entitled to no other compensation for that delay.

H. Any delays to the Contractor's operations as a direct result of utility or other non highway facilities not being rearranged as provided in this Section, due to a strike or labor dispute, will entitle the Contractor to an extension of time as provided in Section 01013 - Beginning of Work, Time of Completion & Liquidated Damages. The Contractor shall be entitled to no other compensation for that delay.

I. Full compensation for conforming to the requirements of this article shall be considered as included in the various contract items of work and no separate payment will be made therefore.

1.4 PRE-CONSTRUCTION MEETING

A. The Contractor and its job superintendent, the Contractor's subcontractors and their job superintendents will be required to attend the pre-construction conference scheduled by the Owner as specified in Section 01200 – Project Meetings. A project schedule shall be submitted by the Contractor at this meeting.

1.5 SAFETY REPRESENTATIVE

A. The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the Work. The Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with the performance of the Work, whether on or adjacent to the site, with cause of death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injury or serious damage to the property are caused, the accident shall be reported immediately by telephone or messenger to the Engineer. If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

1.6 SAFETY AND PROTECTION

A. Safety and Protection*:* The Contractor shall have at the work site, copies or suitable extracts of Construction Safety Orders, issued by Cal-OSHA. He shall comply with provisions of these and all other applicable laws, ordinances and regulations.

1. Contractors must comply with provisions of the safety and health regulations for construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29 C.F.R.

2. In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the Contract.

3. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his facilities, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.

4. The Contractor agrees that it shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner, and Provost & Pritchard Engineering Group, Inc. harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting for liability arising from the sole active negligence of the Owner or the Engineer.

5. In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

6. The duty of the Engineer to conduct construction review of the Contractor's performance and the undertaking of inspections by the Engineer or the giving of instructions as authorized herein is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site and shall not be construed as supervision of the actual construction nor make the Engineer or the Owner responsible for providing a safe place for the performance of work by the Contractor, subcontractors, or suppliers; or for access, visits, use, work, travel or occupancy by any person.

7. The Owner, the Engineer, and their respective employees' site responsibilities are limited solely to the activities of the Owner's and Engineer's employees on site. These responsibilities shall not be inferred by any party to mean that the Owner or Engineer has responsibility for site safety. Safety in, on, or about the site is the sole and exclusive responsibility of the Contractor alone. The contractor's methods of work performance, superintendence and the Contractor's employees, and sequencing of construction are also the sole and exclusive responsibilities of the Contractor alone.

B. Contractor shall comply with Public Contract Code Section 7104

1. The Contractor's attention is directed to the provisions of Public Contract Code Section 7104. This section requires that any public works contract which involves digging trenches or other excavations that extend deeper than four feet below ground level contain provisions requiring that (i) the Contractor must notify the local agency of certain specified conditions relating to hazardous waste, unexpected subsurface or latent conditions, or unknown physical conditions, (ii) the local agency must promptly investigate any such conditions reported to it and issue a change order if it makes certain findings regarding those conditions, and (iii) in the event of a dispute between the local agency and the Contractor as to whether hazardous waste exists or whether the conditions encountered differ from those expected, the Contractor is not excused from performance, but must proceed with all Work to be performed under the contract.

2. Full compensation for all costs involved in locating, verifying, protecting, exposing, bracing, and otherwise providing for utilities and compliance with Public Contract Code Section 7104 shall be included in the amounts bid for Miscellaneous Facilities and Operations or the various items of Work, and no separate payment shall be made therefor.

C. The Contractor shall include all costs for the above items in the various bid items, and no separate payment will be made therefore.

1.7 ACCIDENT PREVENTION

A. Precaution shall be exercised by the Contractor at all times for the protection of persons (including Owner, Engineer, and Regulatory Agency employees) and property. The safety provisions of applicable laws, and of building and construction codes shall be observed. Machinery, equipment and other hazards shall be guarded or eliminated.

B. First aid facilities and information posters conforming at least to the minimum requirements of the Occupational Safety and Health Administration shall be provided in a readily accessible location or locations.

C. The Contractor shall make all reports as are, or may be, required by any authority having jurisdiction, and permit all safety inspections of the work being performed under this Contract. Before proceeding with any construction work, the Contractor

shall take the necessary action to comply with all provisions for safety and accident prevention.

1.8 PROTECTION OF EXISTING ITEMS

A. The Contractor shall protect all existing utilities, structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.

B. Contractor will be held responsible for any damage to existing utilities, structures, roadways and walkways, Work; materials; or equipment because of his operations and shall repair or replace any damaged utilities, structures, roadways, and walkways, work, materials, or equipment to the satisfaction of, and at no additional cost to, the Owner.

1.9 PROJECT SECURITY

A. The Contractor shall make adequate provision for the protection of the Work area against fire, theft, and vandalism, and for the protection of the public against exposure to injury.

B. Sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities, shall be provided in readily accessible locations.

1.10 PERMITS AND LICENSES

A. The Contractor shall procure all permits and licenses, pay all charges and fees, as required, and give all notices necessary and incidental to the due and lawful prosecution of the work.

1.11 PROJECT SITE MAINTENANCE

A. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work site clean and free from rubbish and debris.

B. Materials and equipment shall be removed from the site as soon as they are no longer necessary; and upon completion of the work and before final inspection, the entire work site shall be cleared of equipment, unused materials and rubbish so as to present a satisfactory clean and neat appearance. All cleanup and project site maintenance costs shall be included in the Contractor's Bid.

1.12 DEWATERING

A. Comply with Section 02200 – Earthwork and 02202 – Trenching and Backfilling.

1.13 STORM WATER CONTROL

A. Contractor shall be responsible for managing storm water runoff during the construction period. See Section 02503 of these Specifications. Contractor’s full

range of responsibilities is set forth in that section, but includes the following non-exhaustive list of duties:

1. Contractor shall prepare and submit a Storm Water Pollution Prevention Plan for the project. See Section 02503 of these Specifications. This plan must be prepared by a Qualified SWPPP Developer (QSD) as recognized by the State of California.

2. Contractor shall retain and provide the services of a Qualified SWPPP Practitioner (QSP) as recognized by the State of California, who shall perform or oversee all necessary monitoring, testing and reporting prescribed by the SWPPP and the State of California Construction General Permit. The QSP duties may be performed by the QSD.

3. Contractor shall prepare and post to SMARTS all required testing and reporting as mandated by the SWPPP and the Construction General Permit, including periodic inspection reports, quarterly reports, reports of non-storm water discharge, and annual reports. The City, as the Legally Responsible Party, will certify these reports after they are posted to SMARTS.

4. All Water Board fees for SWPPP-related tasks and posts shall be included in the Contractor's bid for this item of work,.

1.14 USE OF SITE AND OTHER AREAS

A. The Contractor shall effectively secure and protect adjacent property and structures, crops and other vegetation.

B. Contractor shall repair all fences damaged during the work.

C. In all cases where the Contractor removes fences to obtain room to work, he shall provide and install temporary fencing as required. Prior to completion of construction, the Contractor shall restore all original fences to the satisfaction of the Engineer. All costs of providing, work required for site maintenance and maintaining and restoring gates and fencing shall be borne by the Contractor.

D. The Contractor shall use extreme care during construction to prevent damage from dust to crops and adjacent property. The Contractor shall also abate dust nuisance by cleaning, sweeping and sprinkling with water or other means as necessary. Dust control shall conform to the applicable provisions of Section 10 of the State Standard Specifications. All cleanup, dust control, and project site maintenance costs shall be absorbed in the Contractor's Bid.

E. Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned. Likewise, the Contractor shall not allow dust generated from the construction activities to obscure the vision of vehicular traffic on County roads or State Highways. The Contractor, at his own expense, shall provide adequate dust control for the right of way and take other preventive measures as directed by the Engineer.

F. The Contractor shall be responsible for all damage to any property resulting from trespass by the Contractor or his employees in the course of their employment, whether such trespass was committed with or without the consent or knowledge of the Contractor.

G. The Contractor shall provide and maintain enclosed toilets for the use of employees engaged in the Work. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps.

H. All traffic signs and street signs within the limits of the improvement shall be removed, salvaged and stockpiled at locations designated by the Engineer. Traffic control signs and street signs will be replaced upon the completion of the Work and the cost of removal and replacement will be included in various bid items, and no separate payment will be made as such.

I. Compensation for any necessary work required for site maintenance shall be considered as included in the prices paid for the various bid items and no additional compensation will be made therefore.

1.15 EMERGENCIES

A. In the event of an emergency or unusual conditions endangering life, the Work, or adjacent property, the Contractor may, without special instructions or authorization, act at his discretion to prevent or eliminate such danger. If the Engineer determines that a change in the Contract Documents is required due to the action taken by the Contractor in response to such an emergency, a change order will be issued.

1.16 AIR POLLUTION CONTROL

A. The Contractor shall not discharge smoke, dust or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.

B. Contractor shall comply with the San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. Dust control shall be as specified in Section 02504 – Dust Control.

C. Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Acts of 1970 and Cal OSHA.

1.17 PROJECT SITE SECURITY

A. The Contractor shall secure the project site at all times when work is not in progress. It shall be his responsibility to protect existing and newly construction facilities from damage due to his construction operations and shall be responsible for the repair or replacement of any facilities which are damaged due to his failure to secure the project site.

B. Contractor shall make his own arrangements, pay for and assume all responsibility for acquiring, using and disposing of additional work areas and facilities temporarily required by him. He shall indemnify and hold the Owner harmless from all claims for damages occasioned by such actions.

1.18 NOTIFICATION

A. The Owner shall be supplied at all times with the names and telephone numbers of at least two (2) persons in charge of or responsible for the work, who can be reached for emergency work twenty-four (24) hours a day, seven (7) days a week.

An Emergency Contact List with contract numbers and addresses for the Sheriff, Police, Fire Department, the names and telephone numbers of at least two (2) medical doctors practicing in the vicinity and the local ambulance service shall be prominently displayed adjacent to telephones.

B. The Contractor shall notify the Owner at least forty-eight (48) hours prior to commencing work.

C. Contractor shall notify. USA Underground Service Alert Organization for utility underground permits per Section 4216 of the government Code. The Contractor shall obtain all identification numbers and certifications required for underground utility locations prior to starting excavation within the project limits of work. The Underground Service Alert Phone Number is 800-227-2600. The Contractor shall immediately notify the District and the utility owner if he/she disturbs, disconnects, or damages any utility.

1.19 LABOR

A. No person whose age or physical condition is such as to make his employment dangerous to his health and safety or to the health and safety of others shall be employed on the Work, and in no event shall any person under the age of sixteen (16) years be employed.

END OF SECTION

SECTION 01019

CONSTRUCTION STAKES, LINES, AND GRADES

PART 1 GENERAL

1.1 LINES AND GRADE

A. The Work shall be executed in accordance with the lines and grades indicated in the Contract Documents. Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes.

1.2 OWNER'S SURVEY SERVICES

A. Construction surveying and staking for construction will be done by the Engineer or Engineer's representative at the Owner's expense. The Engineer will provide the following stakes:

Description	**Interval**
Location of Wells (2)	n/a

B. Additional detail staking layout will be the responsibility of the Contractor.

C. The Contractor shall be responsible for preserving construction survey stakes, permanent survey monuments and bench marks for the duration of their usefulness. If any construction survey stakes permanent survey monuments or benchmarks are lost or disturbed and need to be replaced, such replacement shall be made by the Engineer at the expense of the Contractor.

D. The Contractor shall notify the Engineer at least three (3) working days before he will require survey services in connection with laying out of any portion of the Work. The Contractor at his own expense shall dig all holes necessary for line and grade stakes prior to requesting survey services that depend on such digging.

END OF SECTION

SECTION 01022

CHANGES TO THE WORK

PART 1 GENERAL

1.1 GENERAL

A. The provisions of Caltrans Standard Specifications section 9-1.03 are deleted and replaced by this section.

1.2 COST OF CHANGED WORK

A. When extra work is to be paid for on a force account basis, the labor, materials and equipment used in the performance of that work shall be subject to the approval of the Engineer and compensation will be determined as follows:

1. To actual wages paid, a Labor Surcharge as specified in the California Department of Transportation publication entitled “Labor Surcharge and Equipment Rental Rates.”

2. To actual wages paid, including the Labor Surcharge, a fee of 15%.

3. To the costs incurred for materials purchased and equipment rental, a fee of 15%.

    a. Equipment rental rates shall be computed on the basis of “Labor Surcharge and Equipment Rental Rates” referenced above.

4. To the costs incurred for subcontracted work, a fee of 5%.

    a. Basis of cost shall be the subcontractor’s written quote.

B. For changes that result in a decrease in cost, the Contractor shall not be entitled to any compensation for loss of expected profit.

1.3 AUTHORIZATION REQUIRED

A. Contractor shall not proceed with work outside the scope, lines or grades shown on the Plans or other documents without proper authorization. Necessary authorization shall be a Work Change Directive or Change Order, properly signed by the Engineer and/or the Owner.

B. Work done without proper or timely authorization will not be paid.

END OF SECTION

SECTION 01025

MEASUREMENT & PAYMENT

PART 1 GENERAL

1.1 MEASUREMENT

A. Unless otherwise specified in the Contract Documents, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures and shall be measured on the basis of “in-place” quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be measured. Compensation for such incidental work is considered to be included in the various items of work bid.

1.2 INCREASED OR DECREASED QUANTITIES

A. Increases or decreases in quantities shall be governed by the General Conditions.

B. All written requests for adjustment shall be made no later than five working days after notification by the Engineer that the item of work is complete.

1.3 FINAL PAY QUANTITIES

A. Final pay quantities shall be in accordance with the General Conditions except as modified below.

B. Final pay quantities will be designated only in the Bid Schedule and in Section 01900 – Explanation of Bid Items, and are not shown on the Plans.

C. When an item of work is designated as a Final Pay Quantity on the Bid Schedule and/or in the Explanation of Bid Items, the estimated quantity for that item of work shall be the final pay quantity, unless the dimensions of any portion of that item are revised by the Engineer, or the item or any portion of the item is eliminated.

If the dimensions of any portion of the item are revised, and the revisions result in an increase or decrease in the estimated quantity of that item of work, the final pay quantity for the item will be revised in the amount represented by the changes in the dimensions.

If a final pay item is eliminated, the estimated quantity for the item will be eliminated.

If a portion of a final pay item is eliminated, the final pay quantity will be revised in proportion to the bid quantity represented by the eliminated portion of the item of work.

D. The estimated quantity for each item of work designated as a Final Pay Quantity on the Bid Schedule and/or in the Explanation of Bid Items shall be considered as approximate only, and no guarantee is made that the quantity which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations does not equal the estimated quantity.

E. In case of discrepancy between the quantity shown on the Bid Schedule for a final pay item and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity shown on the Bid Schedule.

1.4 PARTIAL PAYMENT

A. Attention is directed to Section 9-1.06 of the State Standard Specifications which, except as modified herein, shall apply in its entirety.

1. The local agency shall withhold not less than 5 percent of the contract price until final completion and acceptance of the project.

2. Partial payments for materials on hand shall not exceed one hundred percent (100%) of the value of material delivered on site, properly stored in a secured fenced area subject to, or under the control of, the owner and local agency, and unused. Contractor shall submit copies of invoices of materials to support values. Materials stored shall be installed within 60 days of delivery for payment eligibility.

B. Payment shall not relieve the Contractor from its obligations under the Contact; nor shall such payment be construed as acceptance of any of the Work. Payment shall not be construed as transfer of ownership of any equipment or materials to the Owner. Responsibility of ownership shall remain with the Contractor who shall obligated to protect any fully or partially completed work or structure for which payment has been made; or replace any materials or equipment to be provided under the Contract which may be damaged, lost, stolen or otherwise degraded in

any way prior to acceptance of the Work, except as provided in Section 7-1.15 of the State Standard Specifications.

1.5 FINAL PAYMENT

A. Notice of Completion will be filed in the normal course of business following the first regular meeting of Consolidated Irrigation District Board of Directors which occurs far enough after Final Completion to allow for agendizing Consolidated Irrigation District Board of Directors approval of the Notice.

B. Final payment will be due thirty-five (35) days after the recording of the Notice of Completion by the Owner.

C. Upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Bidder's Proposal hereto attached. Payments on account thereof will be made as set forth in these Specifications.

D. The Contractor shall comply with Section 1026 -- Waiver and Release Submittals.

1.6 SECURITIES IN LIEU OF RETENTION AND ESCROW AGREEMENT

A. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with Owner, or with a state or federally chartered bank in California as the escrow agent, who shall then pay those withheld moneys to Contractor. Upon satisfactory completion of the contract, the securities shall be returned to Contractor.

B. Alternatively, Contractor may request and the owner shall make payment of retentions earned directly to the escrow agent at the expense of Contractor. At the expense of Contractor, Contractor may direct the investment of the payments into securities and Contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by Contractor. Upon satisfactory completion of the contract, Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from Owner, pursuant to the terms of this section. Contractor shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of Contractor.

C. Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Contractor and Owner.

D. Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between _____ _____ whose address is _____ _____ herein after called "Owner," _____ _____ whose address is _____ _____ hereinafter called "Contractor" and _____ _____ whose address is _____ _____ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for _____ in the amount of _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the escrow agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of _____, and shall designate the Contractor as the beneficial owner.

(2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to

the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:	On behalf of Contractor:	On behalf of Escrow Agent:
_____	_____	_____
Title	Title	Title
_____	_____	_____
Name	Name	Name
_____	_____	_____
Signature	Signature	Signature
_____	_____	_____
Address	Address	Address

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

Owner	Contractor
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature

END OF SECTION

SECTION 01026

WAIVER AND RELEASE SUBMITTALS

1.1 GENERAL INSTRUCTIONS FOR WAIVER AND RELEASE (LIEN WAIVER) SUBMITTALS

A. Waivers and Releases must be submitted, on forms provided by Owner or on equivalent forms supplied by Contractor. Copies of said forms, which comply with Civil Code Sections 8132 though 8138, are attached at the end of this Section.

B. Comply with Section 1025 - Measurement and Payment.

C. Waiver and Release submittal sequence:

1. Upon initial submittal for progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Progress Payment"**. If initial submittal is also a final submittal for any or all subcontractors, material or equipment suppliers, submit a **"Conditional Waiver And Release Upon Final Payment"** for those suppliers or subcontractors.

2. Upon each subsequent submittal for progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Progress Payment"** for the total amount through the current progress payment. Also submit an **"Unconditional Waiver And Release Upon Progress Payment"** reflecting the previous progress payment aggregate sum.

3. Upon submittal for final progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Final Payment"**. Also submit an **"Unconditional Waiver And Release Upon Progress Payment"** reflecting the previous progress payment aggregate sum.

4. Prior to final payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Final Payment"**.

5. Upon receipt of final payment, Contractor shall submit an **"Unconditional Waiver And Release Upon Final Payment"**.

END OF SECTION

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: $ _____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: _____

Amount(s) of unpaid progress payment(s): $ _____

(4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Through Date:_____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: $_____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: $ _____

Check Payable to: _____

Exception

This document does not affect any of the following:

Disputed claims for extras in the amount of: $ _____

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Maker of Check:_____

Amount of Check: $_____

Check Payable to:_____

Exception

This document does not affect any of the following:

Disputed claims for extras in the amount of: $ _____

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

SECTION 01040

COORDINATION OF WORK

PART 1 GENERAL

1.1 RESPONSIBILITY OF CONTRACTOR

A. If any part of the Work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the Work by the Contractor.

1.2 WORK INVOLVED WITH EXISTING SYSTEM

A. Existing materials and equipment removed not designated to be salvaged for Owner in the execution of the Work shall become the property of the Contractor and shall be removed from, and disposed of, off the site by the Contractor in an acceptable and lawful manner.

1.3 COORDINATION OF WORK

A. The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with these Specifications, he shall obtain from each of his subcontractors a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

END OF SECTION

SECTION 01052

ENGINEER'S STATUS DURING CONSTRUCTION

PART 1 GENERAL

1.1 OWNER'S REPRESENTATIVE

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in these Specifications and will not be changed without written consent of Owner and Engineer.

1.2 VISITS TO SITE

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Section 1.5, below. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

C. Review of the Work by the Engineer shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

D. No oral or telephonic agreement or conversation with any officer, agent or employee of the Owner or the Engineer, or with the Engineer, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the Contract Documents.

E. The Contractor shall pay the Owner for all overtime review in accordance with existing resolutions or fee schedules of the Owner, unless the charges for such inspection have been specifically waived in the Contract Documents. Overtime

charges will be made for all reviews on Saturdays, Sundays and State holidays, and hours worked by the reviewer other than those of the normal working day.

1.3 AUTHORIZED VARIATIONS IN WORK

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided within the Contract Documents.

1.4 REJECTING DEFECTIVE WORK

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed. Neither this authority nor the Engineer's good faith judgment to reject or not reject any work shall subject the Engineer to any liability or cause of action by the Contractor, subcontractors, or any other suppliers or persons performing work on the Contract.

1.5 LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES

A. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

B. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

C. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

D. The limitations upon authority and responsibility shall also apply to, the Engineer's field representative, known as the Resident Project Representative, if any, and assistants, if any.

END OF SECTION

SECTION 01090

DEFINITIONS AND ABBREVIATIONS

PART 1 GENERAL

1.1 DEFINITIONS AND TERMS

A. Whenever in these Specifications, or in other Contract Documents, the following terms are used, the intent and meaning shall be interpreted as follows:

1. Board: Board of Directors, Consolidated Irrigation District.

2. Calendar Day: Every day shown on the calendar.

3. Contractor: The word "Contractor" means the person, firm or corporation to whom the award is made. Subcontractors as such will not be recognized.

4. Contract Unit Price: The Contractor's original bid for a single unit of an item of work in the Proposal.

5. Contract Time: The number of calendar days for completion of the Work, including authorized time extensions. In the event a calendar date is specified for Project completion in lieu of a number of calendar days, the Work shall be completed by that calendar date. The Contract Time shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

6. Engineer: Provost & Pritchard Consulting Group, 2505 Alluvial Avenue, Clovis, California 93611-9166, (559) 326-1100.

7. Equipment: (Construction) - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of work. (Installed) - All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

8. General Conditions: As specified in Section 00700 – General Conditions.

9. General Requirements: All specifications contained in Division 1.

10. Notice: Any notice allowed or required to be given by the Owner may be given by the Engineer.

11. Owner: Consolidated Irrigation District.

12. Person: Any individual, association, partnership, corporation, trust, joint venture or other legal entity.

13. Plans: The drawings, profiles, cross-sections, working drawings and supplemental drawings, or reproduction thereof, approved by the Engineer, which show the location, character, dimensions or details of the work.

14. Proposal: The offer of a Bidder when submitted on the Proposal form; properly signed and guaranteed.

15. Reference Documents: Bulletins, Rules, Methods of Analysis or Test, Codes, Standards, and Specifications of public or private agencies, Engineer Societies, or Industrial Associations. Reference shall be to the latest edition thereof, including Amendments, which are in effect and published at the time the Request for Bids is issued, unless a specific edition is identified, in which case reference shall be to such specific edition. Reference Documents are intended to amplify the descriptions of materials, equipment, and construction systems and are to be considered a part of the Contract Documents insofar as the various sections thereof are referred to hereinafter. Examples of Reference Documents are Federal Specifications, State Standard Specifications, and those of American Society of Testing Materials (ASTM), American National Standards Institute (ANSI), American Standards Associations (ASA), and American Concrete Institute (ACI).

16. Salvage: The protection storage, and/or removal of specified existing equipment, parts or materials during the work for retention and later use by the Owner.

17. Sanitary Sewer: Any conduit and appurtenances intended for the reception and transfer of sewage.

18. State: The State of California.

19. State Standard Plans: State of California, Business and Transportation Agency, Department of Transportation, Caltrans, Standard Plans, latest revision.

20. State Standard Specifications: Standard Specifications for the project are those entitled "Standard Specifications, State of California, Business and Transportation Agency, Department of Transportation", 2006 edition, hereinafter referred to as the State Standard Specifications. These Specifications are to be considered a part of the Contract Documents insofar as they are not superseded by other provisions contained in Divisions 0 through 16 of these Specifications.

21. Storm Sewer: Any conduit and appurtenances intended for the reception and transfer of storm water.

22. Street: Any public road, highway, parkway, freeway, alley, walk or right-of-way.

23. Surety: Any individual, firm or corporation bound with and for the Contractor for the acceptable performance, execution and completion of the Work, and for the satisfaction of all obligations incurred.

24. Utility: Tracks, overhead of underground wires, pipelines, conduits, ducts or structures, sewers of storm drains owned, operated or maintained in or across a public right-of-way or private easement.

25. Water Main: Any conduit and appurtenances intended for the distribution of water.

26. Working Day: Any weekday (Monday through Friday), not a designated national holiday, during which weather allows the Contractor to work four or more hours consecutively, starting no later than 10:00 AM.

1.2 REFERENCED STANDARDS

A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the Owner. The Engineer will furnish, upon request, information as to how copies may be obtained.

1.3 LIST OF ABBREVIATIONS

A. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ARI	American Refrigeration Institute

ASA	(now U.S.A.S.I., USA Standards Institute) Association & its Standard Specifications
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America (formerly SCPI)
CAL/OSHA	California Occupational Safety and Health Administration
CALTRANS	California Department of Transportation
CBC	California Building Code
CCR	California Codes of Regulations
CDA	Copper Development Association
CEC	California Electrical Code
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CMC	California Mechanical Code
CPC	California Plumbing Code
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
DHI	Door and Hardware Institute
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EJCDC	Engineers' Joint Contract Documents Committee
EPA	Environmental Protection Agency
FED SPEC	Federal Specification
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual
FSA	Fluid Sealing Association
FTI	Facing Tile Institute
HEI	Heat Exchange Institute
HMI	Hoist Manufacturers Institute
HPMA	Hardwood Plywood Manufacturers Association
HTI	Hand Tools Institute
ICBO	International Conference of Building Officials
I-B-R	Institute of Boiler and Radiator Manufacturers

IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IFI	Industrial Fasteners Institute
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
JIC	Joint International Conference (Hydraulic Institute)
MHI	Materials Handling Institute
MIL	Military Specification
MMA	Monorail Manufacturers Association
MSS	Manufacturers' Standardization Society
NAAMM	National Association of Architectural Metals Manufacturers
NACE	National Association of Corrosion Engineers.
MBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NBHA	National Builders Hardware Association
NCSPA	National Corrugated Steel Pipe Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NEMI	National Elevator Manufacturing Industry
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NLA	National Lime Association
NPC	National Plumbing Code
NPT	National Pipe Thread
NRCA	National Roofing Contractors' Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PFI	Pipe Fabrication Institute
PS	Product Standard
RTI	Resilient Tile Institute (formerly AVATI)
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SI	International Systems of Units (Metric)
SIGMA	Sealed Insulating Glass Manufacturers Association
SFPA	Southern Forest Products Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPFA	Steel Plate Fabricators Association
SPI	Society of the Plastics Industry
SPTA	Southern Pressure Treaters Association

SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction (Greenbook)
UL	Underwriters' Laboratories
UPC	Uniform Plumbing Code
USBR	U.S. Bureau of Reclamation
USGS	United States Geological Survey
WCLA	West Coast Lumbermen's Association (Std. Grading and Dressing Rule)
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

END OF SECTION

SECTION 01300

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 GENERAL SUBMITTAL REQUIREMENTS

A. The Contractor shall submit to the Engineer such schedules, reports, drawings, lists, literature samples, instructions, directions, and guarantees as are specified or reasonably required for construction, operation, and maintenance of the Work. The Contractor's attention is directed to the individual Specification sections in these Contract Documents that may contain additional and special submittal requirements.

1.2 REVISIONS TO CONSTRUCTION SCHEDULE

A. Attention is directed to the provisions of Section 01011 – Description of Work and Schedule Constraints and Section 01013 - Liquidated Damages.

B. The Contractor shall submit a revised Construction Schedule within five (5) days of the occurrence of any of the following:

1. When delay in completion of any activity or group of activities indicates an overrun of the Contract time or control point requirement, by 5 calendar days or ten percent (10 percent) of the remaining duration, whichever is less.

2. Delays in submittals, deliveries, or work stoppage are encountered which make re-planning or rescheduling of the work necessary.

3. The schedule does not represent the actual prosecution and progress of the project as being performed in the field.

C. Acceptance of the revised Construction Schedule and all supporting data is contingent upon compliance with other related requirements specified elsewhere in this Division 1 – General Requirements and in any other Contract Documents, or requirements by the Engineer.

D. The cost of revisions to the Construction Schedule resulting from Contract changes will be included in the cost for the change in the Work, and will be based on the complexity of the revision or Change Order, man-hours expended in analyzing the change, and the total cost of the change.

E. The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.

1.3 ADMINISTRATIVE SUBMITTALS

A. The Contractor is reminded of his obligation, as required by law, to make required submittals to applicable Federal, State or local agencies. Failure to comply with

this requirement may result in the withholding of progress payments and make the Contractor liable for other prescribed action and sanctions.

B. The Contractor shall submit for information to the Engineer a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, certified payrolls, etc. submitted directly to a federal, state, or other governing agency.

C. During the performance of the Contract, the Contractor shall maintain on a daily basis, and submit to the Engineer as requested, full and correct information as to the number of persons employed in connection with each subdivision of the work, the classification, cost, source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the work.

1.4 TECHNICAL SUBMITTALS (SHOP DRAWINGS)

A. Submittals are required for each item listed in Section 01301, Master List of Submittals. Contractor may submit additional materials and/or equipment at his option.

B. Requirements in this Section are in addition to any specific requirements for submittals specified in other divisions and sections of these Contract Documents.

C. Each submittal shall contain material pertaining to no more than one equipment or material item, and shall have the specification section and applicable paragraph number clearly identified. Each submittal shall be sequentially numbered starting with the first one delivered. Re-submittals shall include the number of the original submittal plus the suffix ".1" for the first re-submittal, ".2" for the second re-submittal, etc. (e.g. submittal 3.0, 3.1, 3.2, etc.) Submittals not conforming to these requirements will be rejected.

D. Designation of work "by others," if shown on shop drawings, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who has prepared the shop drawings.

E. Submittals will be promptly acted upon by the Engineer, and returned to the contractor not later than the time allowed for in B.1. below. The Contractor shall provide in his Construction Schedule the time for this review. If the Contractor is required by the Engineer to resubmit data, then the time required for the Contractor to prepare and resubmit such data, and the required time for Engineer review, shall not be a cause for delay in contract completion or a cause for an extension of contract time. Delay shall be assigned solely to the Contractor.

F. Additional costs for the Engineer's review beyond the second submission shall be borne by the Contractor. This applies to all submittals including shop drawings.

G. After a submittal has been reviewed and accepted, no changes or substitutions to that submittal will be allowed.

H. Shop Drawings and submittals will be reviewed for general conformance with the drawings and specifications. The intent of the review is to determine if the

Contractor is submitting materials and equipment which are in general conformance with the Contract Documents. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed. Engineer's review of submittals shall not relieve Contractor from responsibility for errors, omissions, or deviations, nor responsibility for compliance with the Contract Documents. The Contractor shall indicate on the submittal transmittal form any deviation, the reasons, and how the submittal deviates from the contract requirements.

1.5 SUBMITTAL PROCEDURE:

A. The Contractor shall submit to the Engineer for his review four (4) copies of each submittal (shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items furnished under this Contract, etc.) Three (3) copies will be returned to the Contractor. (If Contractor needs more or less than three (3) copies returned, please submit more or less than four (4) copies. Engineer will retain one (1) copy of each submittal and return the rest.) Shop drawings shall be submitted in sufficient time to allow the Engineer not less than 10 regular working days for examining the shop drawings.

B. Shop drawings shall be accurate and complete, and shall contain all information required for Engineer to determine the suitability and conformance of each product submitted, including satisfactory identification of items in relation to the Contract Drawings and Specifications.

C. Shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the shop drawings that Contractor has checked and approved the shop drawings, that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved. Shop drawings which are incomplete or have not been checked by the Contractor will be returned to the Contractor for corrected resubmission.

D. After review by the Engineer, the requested number of submittal copies will be returned to the Contractor, appropriately stamped. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the Contractor with direction to make changes or corrections. The Contractor shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal. If changes are made by the Contractor on the resubmitted shop drawings in addition to those requested by the Engineer, such changes shall be clearly explained in an accompanying transmittal letter.

E. The review of shop drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of dimensions, fabrication details, coordination with other work, space requirements, or for deviations from the Contract Drawings or Specifications, unless the Contractor has called attention to such deviations by a letter accompanying the shop drawings and the Engineer approves the change or deviation in writing at the time of his review; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings.

F. The Contractor agrees that shop drawing submittals processed by the Engineer do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and to permit the Engineer to monitor the Contractor's progress and understanding of the design.

G. Review by Engineer:

Upon review by the Engineer of each of the Contractor's submissions, the material will be returned to the Contractor with actions defined as follows:

1. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.

2. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the Contractor. No re-submittal required.

3. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Engineer. Resubmittal required.

4. SUBMIT SPECIFIED ITEM: Minor item in submittal missing or incomplete. Submit data, specifications, drawings covering specified item only. Submittal shall be referenced to the main submittal under review.

5. REJECTED: Submitted material does not conform to Plans and Specifications in major respect, i.e.: wrong item, wrong size, model, capacity, or material. Re-submittal required.

1.6 SHOP DRAWING REQUIREMENTS:

A. General: Shop drawings referred to herein shall include shop drawings, catalog cuts, information schematic diagrams, and other submittals for both shop and field-fabricated items. The Contractor shall submit, as applicable, the following for all prefabricated or manufactured structural items, material, and equipment:

1. Complete manufacturer's specifications, including materials description and paint system.

2. Samples of finish colors for selection.

1.7 RECORD DRAWINGS:

A. The Contractor shall deliver to the Engineer one complete set of final Record Drawings before the contract will be considered complete by the Owner. The Record Drawings will consist of a drafted marked-up set of Contract Record Drawings. Sketch mark-up on drawings will not be acceptable.

B. The Contractor shall keep an up-to-date set of marked-up Contract Record Drawings on a full-size set of the Contract Drawings. During the progress of the work, the Contractor shall record and mark-up any changes from or additions to the work described in the Plans and Specifications. All information recorded on the Contract Record Drawings shall be clearly legible.

C. At the end of the work, prior to Project Closeout, the Contractor shall provide the Engineer with the Contract Record Drawings, showing all "as-built" conditions.

D. Final payment will not be made to the Contractor until such time as the Record Drawings are satisfactorily submitted.

1.8 REQUESTS FOR INFORMATION

A. Requests for Information about the Contract Documents shall be directed by Contractor to Engineer using a Request for Information (RFI) form. Such requests will not be accepted by the Engineer from a Subcontractor or Supplier.

B. A separate form shall be used for each specific item for which information is required. Requests for Information for more than one item using a single RFI form will be permitted only when the items are so functionally related that expediency indicates review of the group of items as a whole.

C. The Engineer will reply to the Contractor's Request for Information within five (5) regular business days following receipt by the Engineer.

PART 2 PRODUCTS

Not used.

PART 3 PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01301

MASTER LIST OF SUBMITTALS

PART 1 GENERAL

A. The following submittals are required for the Work. Other submittals may be required as requested by the Owner or Owner's Representative.

1. Post-Bid Pre-Award Construction Schedule

2. Post-Award Construction Schedule

3. Copies of all agency permits, including, but not limited to: Fresno County Well Drilling Permits

4. Well Casing as specified in Section 02670 – Water Well Drilling.

5. Well Gravel as specified in Section 02670 – Water Well Drilling.

6. Concrete mix designs, material certificates, admixtures, form release and curing compounds as specified in Section 03300 - Cast-In-Place Concrete.

7. All other administrative and conditional submittals as explained in this Section 01300 – Submittal Procedures.

END OF SECTION

SECTION 01400

QUALITY CONTROL AND TESTING

PART 1 GENERAL

1.1 NOTICE OF DEFECTS

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

B. All defective Work may be rejected, corrected, or accepted, at the discretion of the Owner and Engineer.

1.2 ACCESS TO WORK

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests shall have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith.

1.3 MATERIALS AND EQUIPMENT

A. Materials and equipment shall be subject to the requirements of Section 01017 – Materials and Substitutions.

1.4 PROJECT SITE TESTING

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Except for specified material suitability tests, all initial routine tests of materials shall be at the expense of the Owner and shall be performed by an independent certified laboratory designated by the Owner. Whenever a specified percent relative compaction test is required and the material or portion thereof so tested fails to meet or exceed the relative compaction specified, all subsequent retesting shall be performed at the expense of the Contractor.

C. All material suitability tests shall be at the expense of the Contractor. Testing shall be by an independent certified laboratory approved by the Engineer.

1.5 TEST STANDARDS

A. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.

B. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the ASTM, where applicable.

1.6 UNCOVERING WORK

A. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without concurrence of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and recovered at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be re-observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall promptly correct said defects, including all work involved in uncovering and recovering the work, at no cost to the Owner.

2. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

1.7 CORRECTION OR REMOVAL OF DEFECTIVE OR REJECTED WORK

A. Upon receipt of notice, Contractor shall correct all defective or rejected Work and replace it with Work that is not defective, at no cost to the Owner.

1.8 ACCEPTANCE OF DEFECTIVE WORK

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so.

1. If any such acceptance occurs, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted.

2. Engineer shall determine the reasonableness of the diminished value of Work so accepted and Contractor shall pay all costs involved in making such determination.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall provide all temporary facilities and utilities required for completion of the Work as well as safety precautions and programs. No attempt is made to set out in detail the Contractor's means or methods necessary to accomplish the tasks involved.

1.2 TEMPORARY UTILITIES

A. Water

1. The Contractor may make arrangements with the Owner to use municipal water where appropriate during construction. See Section 02233 -- Watering of these specifications for details.

2. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.

B. Sanitary Facilities

1. The Contractor shall provide suitable and adequate sanitary conveniences for the use his staff at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

2. With respect to sanitation facilities, the Contractor shall cooperate with and follow directions of representatives of the Public Health Service and the State. State and County Public Health Service representatives shall have access to the Work, whether it is in preparation or progress, and the Contractor shall provide facilities for such access and inspection.

1.3 TEMPORARY CONSTRUCTION FACILITIES

A. Construction hoists, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. The Contractor shall submit design calculations

prepared by a professional registered engineer for staging and shoring prior to application of loads.

C. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations from one hour before sunset each day to one hour after sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded in such a manner as to prevent person from falling, walking, or otherwise entering any excavation in any street, roadway, parking lot, treatment plant, or any other area, public or private.

D. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.

E. At such time or times any temporary construction facilities and utilities are no longer required for the work, the Contractor shall notify the Engineer of his intent and schedule for removal of the temporary facilities and utilities, and obtain the Engineer's approval before removing the same. As approved, the Contractor shall remove the temporary facilities and utilities from the site as his property and leave the site in such condition as specified, as directed by the Engineer, and/or as indicated on the Plans.

1.4 ACCESS ROADS AND STAGING AREA

A. Adequately access shall be maintained to all storage areas and other areas to which frequent access is required. The Contractor shall limit the location of his storage of equipment and materials outside of the project site. The Contractor shall make his own arrangements for space that may be required and bear all associated costs. The Contractor shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

B. Storage and protection:

1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with accordance with manufacturer’s recommendations to prevent corrosion.

2. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.

END OF SECTION

SECTION 01502

PROTECTION OF UNDERGROUND FACILITIES AND SURVEY MONUMENTS

PART 1 GENERAL

1.1 UNDERGROUND FACILITIES

A. Shown or Indicated*:* The information and data shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such underground facilities, including Owner, or by others.

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. Reviewing and checking all such information and data,

b. Locating all Underground Facilities shown or indicated in the Contract Documents,

c. Coordination of the Work with the owners of such underground facilities, including Owner, during construction, and

d. The safety and protection of all such underground facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated: If an underground facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated with reasonable accuracy in the Contract Documents, the provisions of Section 01018 shall apply.

1. Contractor shall develop and execute a work-plan, subject to Engineer's approval to protect underground facilities.

2. The Contractor shall expose, prior to staking and trenching, all existing utilities and existing facilities which may control proposed facility grades, and alignment. Two working days notice shall be given to the Engineer prior to commencing this work.

3. Full compensation for all costs involved in locating, verifying, protecting, exposing, and otherwise providing for utilities shall be included in the amounts bid for the various items of work, and no separate payment shall be made therefore.

1.2 PROTECTION

A. The Contractor shall not interrupt the service function or disturb the supporting base of any Utility by disrupting any facility identified in the Plans and Specifications without authority from the Owner or order from the Engineer. Where protection of such facilities is required to ensure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at the Contractor's expense.

B. The Contractor shall be prepared at all times with labor, equipment and materials to make repair on damaged mains or Utility facilities. The Contractor shall immediately notify the Engineer and the Utility owner if he disturbs, disconnects or damages any Utility. The Contractor shall bear the costs of repair or replacement of any Utility facility described with reasonable accuracy in the Plans and Specifications that is damaged by the Contractor. No extra compensation will be made for the repair of any services or mains damaged by the Contractor, nor for any damage incurred if the neglect or failure of providing protective barriers, lights and other devices or means required to protect such existing utilities or facilities described with reasonable accuracy in the Plans and Specifications.

1.3 SURVEY MARKERS AND PERMANENT REFERENCE POINTS

A. Surveying and Permanent Survey Markers

The Engineer will take measurements to assure the preservation of survey markers (monuments and bench marks). The Contractor shall not disturb permanent survey markers without the consent of Engineer and shall bear the expense of replacing any that may be disturbed without permission.

1. Replacement of survey markers shall be done only by the Engineer.

2. If disturbing of markers cannot be avoided, the Owner shall pay the cost of replacing said markers.

B. Lot Corner Monuments

The Contractor shall preserve property line and corner survey markers except where their destruction is unavoidable and the Contractor is proceeding in accordance with accepted practice. Markers that are lost or disturbed by his operations shall be replaced at the Contractor's expense by the Engineer.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 GENERAL

A. It is the intent of these Contract Documents that the Contractor shall deliver a complete and operable facility capable of performing its intended functions and ready for use.

1.2 CLEANING

A. Throughout the period of construction the Contractor shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris, excepting select material which may be required for refilling or grading.

1.3 FINAL SITE CLEAN-UP

A. Upon completion of the Work, and prior to final acceptance, the Contractor shall remove from the vicinity of the Work all paint, surplus material, and equipment belonging to him or used under his direction during construction.

1.4 WASTE DISPOSAL

A. The Contractor shall dispose of surplus materials, waste products, demolition materials, and debris. The Contractor shall transport and dispose of waste materials in accordance with applicable laws and regulations.

1.5 PROJECT RECORD DOCUMENTS

A. The Contractor shall maintain at the site, available to the Owner and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders, and other modifications in good order and marked to record all changes made during construction. These Documents shall be delivered to the Engineer upon completion of the Work.

B. Record documents shall be reviewed during progress meetings to ascertain that all changes have been recorded.

C. Store Record Documents separate from documents used for construction.

1.6 TOUCH-UP AND REPAIR

A. The Contractor shall touch-up or repair finished surfaces on structures, equipment, fixtures, or installations, that have been damaged prior to final acceptance. Surfaces on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items,

the item shall be replaced. Such items shall include, but not be limited to, the following:

1. Road surfaces

2. Exposed structure surfaces

3. Exposed equipment surfaces

4. Exposed piping surfaces

1.7 EQUIPMENT START-UP

A. After all acceptance tests have been completed by the Contractor and Owner but prior to final acceptance, the Contractor shall recheck all equipment for proper alignment and adjustment, check oil levels, re-lubricate all bearings and wearing points, and in general assure that all equipment is in proper condition for regular continuous operation.

1.8 OPERATION AND MAINTENANCE (O&M) MANUALS

A. Operation and maintenance instructions shall include, as a minimum, the following data for each item of mechanical, electrical, and instrumentation equipment: All equipment manufacturers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system.

1. An itemized list of all data provided.

2. Name and location of the manufacturer, the manufacturer's local representative, the nearest supplier, and spare parts warehouse.

3. Equipment function, normal operating characteristics, and limiting conditions.

4. Recommended maintenance procedures during storage of equipment prior to installation and after installation but prior to start-up.

5. Recommended installation, adjustment, start-up, calibration, and troubleshooting procedures.

6. Recommended lubrication, lubrication intervals, and an estimate of yearly quantity needed.

7. Recommended step-by-step procedures for all modes of operation. Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions. Instructions shall include keystrokes and procedures required for adjusting control setpoints for equipment operation.

8. Complete internal and connection wiring diagrams.

9. Electrical equipment maintenance

10. Test data and performance curves, where applicable

11. Recommended preventive maintenance procedures and schedule.

12. Complete parts lists, by generic title and identification number, with exploded views of each assembly.

13. Recommended spare parts and any special tools required.

14. Disassembly, overhaul, and reassembly instructions.

B. Following completion of an item, instructions and procedures shall be modified by the Contractor to reflect field changes. In addition, the O&M Manuals shall contain reproducible prints of the Contract record wiring diagrams, schematics, and installation drawings required under the Electrical and Instrumentation Specifications. Information not applicable to equipment installed in the work shall be excluded.

C. Individual Manuals shall be broken into sections and indexed. The sections shall include Mechanical Equipment, Automatic and Special Valves, Control Systems, Electrical, and others as necessary. Under each section there shall be a description of the operation and maintenance, lubrication schedules, and installation instructions of each item. Sections shall be labeled and each item shall be sub-labeled. No acceptance of equipment will be made until the individual manual has been approved. Contractor's copy of the individual manual shall be available at the site of the Work for use by field personnel and the Engineer during start-up and testing of the equipment.

1.9 MASTER SETS

A. Before final acceptance of the project, the Contractor shall provide five (5) master sets of operation and maintenance instructions each consisting of a collection of the individual manuals previously submitted and approved. The master sets shall be arranged in hard-leaf, 3-ring binders. Each volume of each master set shall contain only that materials which can be held between the rings.

B. Manuals and other data shall be printed on heavy, first quality paper, 8 ½ by 11 inch size with standard 3-hole punching. Drawings and diagrams shall be reduced to 8 ½ by 11 inches or 11 by 17 inches. Where reduction is not practicable, larger drawings shall be folded separately and placed in envelopes which are bound into the manuals. Each envelope shall bear suitable identification .

C. No progress payment in excess of ninety five percent (95%) of the Contract amount shall be made until all such materials have been received from the Contractor.

D. Each volume of each master set shall include the following:

1. Embossed title on the outside front leaf and the spine:

2. A plastic laminated (both sides) table of contents listing all items contained therein and their location.

3. Tabbed and labeled dividers separating the individual operation and maintenance manuals contained in the volume. Dividers shall be keyed to the table of contents.

4. A list of manufacturer's local representatives for the major equipment items contained in the volume.

5. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.

6. Submit final volumes revised, within ten days after final inspection.

1.10 FINAL EQUIPMENT CHECK

A. After test operation and before final acceptance, or acceptance for the final 7-day test run by the Owner, each piece of machinery shall be lubricated and all components and couplings checked for proper alignment and adjustment.

B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. Provide submittals to Owner that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.11 MANUFACTURER'S CERTIFICATES OF PROPER INSTALLATION

1. The Contractor shall submit manufacturers' certificates of proper installation for all items of equipment.

1.12 WARRANTIES

A. Provide notarized copies.

B. Execute and assemble documents from subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in binder with durable plastic cover.

D. Submit prior to Application for Final Payment

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

END OF SECTION

SECTION 01900

EXPLANATION OF BID ITEMS

PART 1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Specifications, quantities of work shall be determined per each, or from measurements or dimensions in a horizontal plane. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule.

B. Except as noted, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for. Compensation for such work and/or material shall be included in the prices paid for other items of work.

PART 2 BID ITEMS

BID ITEM No. 1 - Mobilization/Demobilization, Bonds, Insurance, Miscellaneous Facilities, Operations and Worker Protection:

Lump sum bid item shall include mobilization/demobilization, move-in and move-out, for both wells encompassed within the Work. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including traffic control, dust control, maintaining drainage, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all cost for miscellaneous work shown and described the in the Contract Documents, not included in other bid items.

BID ITEM No. 2 - Furnish and Install 36-inch Diameter Conductor Casing

This bid item is a unit price bid for furnishing and installing 36-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of the casing, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 3 - Drill Pilot Hole (to 500 feet total depth)

This bid item is a unit price bid for drilling a pilot hole from the bottom of the conductor casing to

the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 4 - Perform Electric and Deviation Logs
Lump sum bid item for performing an electric log and a deviation log of the completed pilot hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 5 - Open Hole to 30-inch Diameter (to 500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 30-inch diameter borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the performance of the caliper log, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 6 - Furnish and Install 18-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 18-inch diameter blank casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 7 - Furnish and Install 18-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 18-inch diameter mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 8 - Furnish and Install 2-inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 2-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 9 - Furnish and Install 3-inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 10 - Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with

no change in unit price.

BID ITEM No. 11 - Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 12 - Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 13 - Mob/Demob Development Pump and Pump up to 40 Hours
Lump sum bid item for mobilization and demobilization of up to 400 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 14 - Additional Pump Development and Test Pumping
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 15 - Perform Video Log
Lump sum bid item for performing an video log of the completed well, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 16 - Construct Well Pump Foundation
Lump sum bid item for constructing the well pump foundation, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 17 - Furnish and Install 36-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 36-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of the casing, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 18 - Drill Pilot Hole (to 500 feet total depth)
This bid item is a unit price bid for drilling a pilot hole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and

no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 19 - Perform Electric and Deviation Logs
Lump sum bid item for performing an electric log and a deviation log of the completed pilot hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 20 - Open Hole to 30-inch Diameter (to 500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 30-inch diameter borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the performance of the caliper log, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 21 - Furnish and Install 18-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 18-inch diameter blank casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 22 - Furnish and Install 18-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 18-inch diameter mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 23 - Furnish and Install 2-inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 2-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 24 - Furnish and Install 3-inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 25 - Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 26 - Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 27 - Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 28 - Mob/Demob Development Pump and Pump up to 40 Hours
Lump sum bid item for mobilization and demobilization of up to 400 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 29 - Additional Pump Development and Test Pumping
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 30 - Perform Video Log
Lump sum bid item for performing an video log of the completed well, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

BID ITEM No. 31 - Construct Well Pump Foundation
Lump sum bid item for constructing the well pump foundation, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made thereof.

END OF SECTION

SECTION 02670

WATER WELL DRILLING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work consists of constructing two (2) new water recovery wells at the South and Highland Basin site. The work will consist initially of drilling a pilot hole for each well to a depth of about 500 feet using the reverse circulation method of drilling. If, upon completion of each pilot hole and associated results, completion of a production well is authorized, the work will consist of reaming the pilot hole to the final bore hole diameter by the reverse circulation method of drilling, and constructing and developing a production well.

B. For the pilot holes, drill cuttings will be collected, bagged and properly labeled, and electric logs and deviation logs performed.

C. The exact depth and interval of perforation of the production wells will be based on the results of the pilot holes. The production wells are expected to be about 500 feet in depth.

D. Upon completion of construction of the production wells, the Contractor shall develop and test pump the wells as described in these Specifications. The Contractor shall supply equipment and labor including variable speed equipment for test pumping.

1.2 SUBMITTAL REQUIREMENTS

A. The Contractor shall prepare final written reports for each well containing, as a minimum, the following information for each production well:

1. For the pilot hole, drillers log and e-log (e-log to be performed by a logging subcontractor approved by the Engineer, and paid for by Contractor).

2. For the production well, Drillers Report submitted to State showing casing diameter and wall thickness, lengths and location of casing installed, type of perforation and aperture size, perforated intervals, bore hole diameter, cemented conductor casing, gradation of gravel envelope and location of cement seal.

3. Construction records showing quantity of gravel initially installed, quantity of gravel added during development operations, development time, and all other pertinent information.

4. Development and test records showing production rate, static water level, pumping water level, drawdown, production of sand, and all other pertinent information concerning development by pumping.

5. Manufacturer's or suppliers standard literature and certification that the following materials for the production well comply with this specification:

   Well casing
   Perforated well casing
   Gravel
   Cement Grout

6. Three copies of each written report shall be submitted to the Engineer prior to acceptance.

1.3 STANDARDS AND PERMITS

A. The well shall be constructed in accordance with the Fresno County Water Well Ordinance, the California Water Well Standards, and as described in these Specifications. The Contractor shall obtain, and pay for, a well drilling permit from Fresno County, and shall report the results of the drilling to the California Department of Water Resources.

1.4 EXPERIENCE AND LICENSE

A. The well shall be drilled by a qualified well driller with experience in construction of water supply wells.

B. The Contractor shall have at least 5 years experience in drilling large capacity water supply wells to a depth of at least 700 feet using the drilling, construction, development, and test pumping methods as specified. The Bidder shall submit to the Owner and Engineer three references for whom reverse rotary drilling of water supply wells, as described in these Specifications and to at least these depths, was performed, if so requested prior to contract award. In listing these references, the Bidder shall give the name of the person or firm for whom the work was performed, the address and telephone number at which that person or firm can be contacted, and a description of the work performed. Determination that the experience is inadequate shall be grounds for rejection of the bid.

C. Well driller must possess a C-57 Well Drillers License, valid in the State of California.

1.5 ORDER OF WORK

A. Upon completion of the borehole, Contractor shall furnish copies of the drilling log, and suitable bagged and labeled drill cutting samples for review of the Engineer.

B. Engineer shall be allowed up to two (2) days to review the borehole data and to determine final well design.

C. Construction of a production well shall not proceed until Engineer has made final recommendation of construction details.

D. Upon completion of a production well, development and pump test, Contractor shall furnish 3 copies of the pump test to the Engineer.

1.6 WORK TO BE PERFORMED BY THE CONTRACTOR

A. All drilling, casing, sealing, developing, test pumping, and other work incidental to the well shall be performed by the Contractor. The Contractor shall drill the production well using the reverse rotary method and shall provide all necessary equipment for development and test pumping of the wells. Contractor shall provide temporary pump equipment for test pumping.

B. The Contractor will prepare and maintain access to the work area as well as provide sufficient room for the efficient operation of his equipment. Contractor shall provide temporary fencing to enclose the work area and all stored equipment. The Contractor will be held as having examined the drilling site and access roads in order to acquaint himself with local conditions, as no allowance will be made after the bid has been accepted for any errors or omissions made by the Contractor due to site conditions.

C. The Contractor shall diligently pursue all work to completion. Upon completion of the well, the Contractor shall level the drill site, and remove all materials incidental to the drilling operations.

D. The Contractor shall, at his own expense, furnish all equipment, material (including lost circulation materials), supplies, and personnel necessary to perform the work (including, but not limited to, drilling rig, water truck, a crew comprised of experienced drillers, and helpers).

E. The Contractor shall pay any federal, local, or state taxes assessed or levied on account thereof, in accordance with the practices generally acceptable for the nature of work to be performed under this Contract.

F. The entire cost of furnishing, transporting, unloading, hauling, handling, sorting, and caring for all equipment, materials, tools, and supplies, and of removing same from the site of the work as hereinafter specified, shall be included in prices bid in the proposal for the work for which the materials are required. The drilling shall be done with well drilling equipment of proper type and size and in good working condition so that the work can be performed without interruption arising from defective or improper equipment. All materials that will become a part of the completed work shall be new. All equipment, materials, tools, and supplies not a part of the completed well shall remain the property of the Contractor and shall be removed from the site upon completion of the work. All materials to be stored shall be stored at the drilling site within a fenced enclosure.

1.7 SECURITY

A. The Contractor is responsible for all site safety and security. The actual work area, including the mud pit and drilling rig, shall be secured by the Contractor during drilling and well construction operations. The Contractor may, at his option, elect to install a temporary 6-feet-high chain link fence during drilling and well

construction operations. If installed, the fence shall be constructed and maintained in good condition throughout the course of the work so as to exclude unauthorized persons and animals from the well site. The fenced area shall be posted with "NO TRESPASSING" signs visible from all angles of approach. Installation of a temporary fence is at the Contractor's option and shall be included, if determined necessary by the Contractor, in the Bid Schedule submitted and no additional compensation for site security will be made after the bid has been accepted.

B. The Contractor shall provide, at all times during the duration of the Contract, suitable means of protecting the borehole and well casing from the entrance of foreign objects.

1.8 NOTIFICATION

A. The Contractor shall give notice to the Engineer of specific operations as follows:

1. At least 72 hours advance notice of start of drilling operations at the well site.

2. At least eight (8) hours advance notice of electric logging.

3. At least twenty-four (24) hours advance notice of installation of casing (including conductor), gravel, and annular seal.

4. At least twenty-four (24) hours advance notice of commencement of development of the completed production well.

5. At least twenty-four (24) hours advance notice of the pump test.

6. At least twenty-four (24) hours advance notice of video survey and casing alignment test.

B. Upon completion of the pilot hole, the Engineer shall have up to two (2) calendar days to review the results of the sieve analysis and geologic and e-logs, where after the Engineer shall instruct the Contractor whether to proceed with a production well or to abandon the pilot hole. If a production well is built, the exact casing schedule, slot size and gravel packed interval will be provided by the Engineer.

1.9 WELL ABANDONMENT

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Specifications and the Contractor is unable to correct the condition at his own expense or negotiate a mutually-acceptable cost reduction for deviations from the Plans and Specifications, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the old hole by filling with sand-cement grout completely from bottom to top and in

conformance with regulations of the Fresno County Water Well Ordinance. Contractor shall notify Fresno County Health Department and arrange for Health Department inspector to witness sealing.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2, with the following conditions:

1. The diameter shall be 36 inches (nominal), and the wall thickness shall be a minimum of 0.25 inch.

2.2 WELL CASING

A. Well casing shall be new, in “straight from the factory” condition, and shall be manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 18 inches (nominal) diameter. The wall thickness shall be 5/16 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed and associated test results are available.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of

these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, and shall be manufactured in accordance with the aforementioned casing requirements. Casing of 18 inches (nominal) diameter will be used, and wall thickness shall be a minimum of 5/16-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. The 18 inch casing shall be 78 row perforated. For bidding purposes assume 0.060 inch slots. Information obtained from the pilot hole will be used to determine the exact perforation slot size, depth of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 GRAVEL

A. The gravel shall be composed of sound, durable, naturally worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. For bidding purposes assume SRI No. 8 gravel.

2.5 SAND CEMENT GROUT

A. Sand cement grout shall be composed of not more than two parts by weight of sand and one part of Portland Type II cement to 4.5 to 6.5 gallons of clean water per sack of cement.

B. Concrete truck loads will be rejected unless placement begins within 90 minutes of the load being mixed and continues essentially continuously once placement begins.

2.6 DRILLING FLUID

A. Water alone shall be employed as a drilling fluid unless prior approval is given by the Engineer.

B. The Contractor shall dispose of surplus drilling fluid in a manner acceptable to the Owner and Engineer.

C. The Contractor may obtain water from a nearby 6-inch diameter domestic well. There is no pump installed in this well; the Contractor would need to install a temporary pump in the well to obtain water. Alternatively, the Contractor could arrange to obtain water from a nearby farmer north of the Project site.

2.7 VENT PIPE, GRAVEL FEED TUBE, AND PERMANENT SOUNDING TUBE

A. In accordance with the Plans and as described below, the following items shall be installed.

1. A 2-inch schedule 40 steel vent pipe shall be welded to the well casing as shown on the Plans. The upper end of the vent pipe shall be threaded and provided with a screened, inverted vent.

2. A 3-inch schedule 40 steel gravel feed tube shall be installed as shown on the Plans. The upper end of the pipe shall be threaded and provided with a cap as shown on the Plans. The cap shall be marked with the termination depth of the chute.

3. A 2-inch schedule 40 steel pipe sounding tube shall be installed on the well casing as shown on the Plans. The sounding tube will be held to the well casing by brackets welded to the casing at 40-feet intervals. The sounding tube will not be welded to the brackets, but allowed to move vertically through them. A prefabricated sounding tube connection shall be used to provide transducer entry into the casing. This connection shall include two 3/8-inch thick by 10-inch wide mild steel stiffener plates running parallel to a 5-feet long access slot and three 1-inch thick by 2-inch wide mild steel stiffener rings around the casing.

PART 3 EXECUTION

3.1 COMMUNICATIONS WITH CONSTRUCTION SUPERVISOR

A. A fluent English speaking supervisor shall be on-site at all times work is occurring on the work site.

3.2 HOURS OF OPERATION

A. Drilling operations may proceed continuously, 24-hours per day. Installation of casing, gravel and cement shall proceed continuously until complete. When work is expected to occur between the hours of 7 pm and 7 am, the Contractor shall notify all residents within 500 feet of the impending construction activity.

3.3 INSTALLING CONDUCTOR CASING

A. A 36-inch diameter (minimum) conductor casing shall be installed to a depth of at least 50 feet below natural grade. If an adequate clay layer is not present at that depth the depth shall be increased as directed by the Engineer. The conductor casing shall be set in a hole not less than 42 inches in diameter. It shall be securely anchored at the ground surface to prevent falling.

B. Care shall be taken to install the conductor plumb. Centralizers shall be welded to the conductor casing at intervals not to exceed 20 feet to center the casing in the bore. The centralizers shall be constructed of 3/8-inch thick by 2-inch wide steel strips so shaped as to form a guide approximately 2.5 inches from the casing wall.

C. Each strip shall provide at least 1-foot length of bearing surface at the bore interface. A minimum of three strips shall be provided at each circumferential location for centering the casing. Centralizer strips shall be located on the same

vertical alignment so as to minimize interference with placing the sealing material as specified.

D. After the conductor has been installed, the annular space between the conductor casing and the borehole shall be sealed with cement grout. The cement grout shall be placed by pressure grouting with the use of a tremie pipe. The cement grout shall be placed through the tremie pipe, and the pipe shall be gradually withdrawn as the cement rises in the annulus. The quantity of cement grout placed in the annulus shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids. Upon completion of cementing, cement shall be visible above the surface of the ground outside the conductor casing. After cementing operations are completed, the cement shall be left undisturbed for a period of not less than 24 hours. Contractor shall notify Fresno County Health Department prior to placing the grout seal.

3.4 METHOD OF DRILLING

A. The pilot hole and production well, as authorized, shall be drilled by the reverse rotary method of drilling.

3.5 MUD PIT DESIGN

A. No mud pit shall encroach into the recharge basins. No drilling fluid or discharge water of any type shall be allowed to enter the basins.

B. The mud pit recirculation sump shall have a capacity no less than 3 times the expected volume of the completed hole. The compartment layout shall provide a maximum removal of cuttings by settling from the circulating fluid.

C. The sump must be completed to the total required volume prior to commencement of drilling operations.

3.6 PILOT HOLE DRILLING

A. The standard reverse rotary method will be used to drill the pilot hole to an anticipated depth of about 500 feet. The exact depth to which the pilot hole shall be drilled will be determined by the Engineer. The contractor shall be responsible for keeping the hole open to the total depth. The pilot hole will be a minimum of 15-inches in diameter. The purpose of the pilot hole is to allow collection of drill cuttings and geophysical logging of the hole upon completion to the total depth. Drill cuttings will be collected from the borehole and an electric log and a deviation log will be performed upon completion to total depth.

B. Samples of drill cuttings from the bottom of the conductor casing to total depth shall be collected at changes of strata or at 10-feet depth intervals, whichever is less, and placed in separate bags of containers. These samples shall be plainly marked with the depth. One set of samples shall be collected and marked.

C. The Engineer shall select up to eight cutting samples for sieve analysis to allow final design of slot size and gravel gradation. **Contractor shall be responsible for having the sieve analyses performed, at the Contractor's expense.**

D. An electric log and a deviation log will be run in the pilot hole, and it is estimated that two hours will be required for the logging. The Contractor will be responsible for retaining an approved logging subcontractor, at the Contractor's expense, to perform the geophysical logging. Contactor shall remain at the site during logging and cooperate with the logging subcontractor in running the logging tools in the hole. All work shall conform to the specifications of the Owner, the County of Fresno, the State of California Standard Specifications, and local and State permits and ordinances for drilling of boreholes and wells.

3.7 REAMING HOLE AND INSTALLING BLANK AND PERFORATED CASING

A. The pilot hole shall be opened to a final minimum diameter of 30-inches from the bottom of the conductor to an anticipated maximum depth of 500 feet. Contractor shall not begin drilling operations until all casing and gravel is on-site unless approval is obtained from the Engineer in advance. The drilling operation shall be continuous (non-stop) through the entire length of the bore unless permitted or specified otherwise by Engineer in writing. The exact depth of reaming shall be determined by the Engineer after the pilot hole is completed and all information interpreted. Blank and perforated casing will be required as shown on the Plans or as modified by the Engineer after completion of the pilot hole.

B. Prior to installing the casing, the drilling fluid shall be thinned and circulated in the borehole to remove any cuttings caked to the side of the borehole.

C. Upon completion of the hole to the final diameter, and after thinned drilling fluid has been circulated in the hole, a caliper log shall be run by a subcontractor approved by the Engineer.

D. Casing installation shall be by methods that will ensure no damage to blank casing, perforated casing, or the borehole. The casing shall be suspended above the bottom of the hole to insure that it will not be supported from the bottom.

E. Except when drilling is in progress, casing is being installed, or gravel is being placed, the top of each well shall be kept securely covered, both day and night, to effectively prevent tampering or entrance. Upon completion of well casing installation, placing of gravel envelope, and development and testing of the well, a steel plate shall be installed on the top of each well casing. The plate shall be welded around the full circumference.

F. Centralizers shall be welded to the casing at intervals not to exceed 80 feet to center the casing in the bore. Centralizers shall also be installed at 5 feet from top of and bottom of the casing. The centralizers shall be welded at both points that contact the casing. Centralizers shall be constructed of 3/8-inch-thick steel strips at least 2 inches wide so shaped as to form a guide approximately 2-1/2 inches from the casing wall. Each strip shall provide at least 1-foot length of bearing surface at the bore interface. At least three strips shall be provided at each

centralizer location. Centralizer strips shall be placed on the same vertical alignment so as to minimize interference with placing of gravel or sealing material.

G. Ten (10) feet of blank casing shall be installed at the bottom of the well. The bottom of the casing is to have a 5/16-inch minimum thickness rounded steel cap welded to casing.

H. The welder required for final assembly of well casings shall be qualified in accordance with the latest revision of the section titled "WELDING PROCEDURES" of the ASME Boiler Construction Code or by the AWS Standard Qualifications Procedure.

I. The casing shall be lowered in the well with the collar facing upward. The plain end of the following length shall be inserted in the collar. True contact of the two joints must be verified by observation through the inspection windows. Spot welds shall be placed through the three windows in order to hold the contact position. A filet type weld shall be made covering the top edge of the collar continuously for the entire circumference. Two welding passes shall be applied to 5/16 inch and thicker wall material. The inspection windows on all casing sections shall be seal welded to assure a leak-proof connection.

3.8 FURNISHING AND INSTALLING GRAVEL ENVELOPE

A. Prior to placing gravel, the permanent gravel fill pipe shall be placed in the well as shown on the plans and described in these Specifications.

B. The gravel shall be placed using double hopper and tremie pipe equipment. The rate at which gravel is allowed to drop from the upper hopper into the lower hopper, where clean water (not from mud pit) is added, shall result in a free-flowing water/gravel mix. The water/gravel mix shall be pumped into the tremie pipe from the lower hopper. Gravel placement shall start with the tremie pipe near the bottom of the hole. Only clean water (not from the mud pit) will be used to place the gravel. The tremie pipe shall be withdrawn from the well at such a rate that the bottom of the tremie pipe is within a few feet of the top of the gravel pack. From time to time during the gravel packing operation, the flow of gravel shall be interrupted, the tremie pipe allowed to empty of gravel, and the top of the gravel located by "sounding" with the tremie pipe or other device.

C. Prior to placing the gravel in the well, a granular hypochlorite or similar disinfectant shall be added to the gravel at the rate of at least ½ pound per cubic yard of gravel, based on 70% chlorine content. If a lower strength hypochlorite, or other chlorine product is used, the quantity shall be adjusted accordingly.

D. The quantity of gravel placed in the annulus of the well shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids. Significant differences between the estimated and final volume of gravel installed may be grounds for rejection of the well.

E. During well development and test pumping, gravel pack level shall be measured. If the level of gravel in the well or fill tube drops, additional gravel will be placed as required.

3.9 INSTALLING ANNULAR SEAL

A. A cement grout seal shall be installed in the annular space above the gravel pack between the wall of the borehole and the well casing. The cement grout shall be sand-cement. The well casing shall be filled with water during placement of the grout seal. The Contractor may install the cement grout in lifts to prevent casing collapse, if deemed necessary by the Contractor. Contractor shall notify Fresno County Health Department prior to placing the grout.

B. The bottom five feet of the sealed section shall consist of five feet of fine sand. The sand used shall be approved by the Engineer prior to placement, and shall be placed using a tremie pipe.

C. The cement grout shall be placed by pressure grouting with the use of a tremie pipe. Grout placement shall start with the tremie pipe at the bottom of the area to be grouted. The cement grout shall be placed through the tremie pipe, and the pipe shall be gradually withdrawn as the cement rises in the annulus. The quantity of cement grout placed in the annulus shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids.

D. Significant differences between the estimated and final volume of the cement seal may be grounds for rejection of the well.

E. The cement seal will extend from the ground surface to a depth as shown on the Plans, or as indicated by Engineer after completion of the hole.

F. Each cement seal shall be allowed to set for 24 hours prior to further operations.

3.10 PRELIMINARY DEVELOPMENT

A. Preliminary well development will begin by airlifting open-ended at the bottom of the well until the heaviest fluids are removed.

B. Swabbing and airlifting shall then be used for preliminary development. The swabbing and airlifting operations shall commence at the bottom of the lowest perforated casing section and work upward in short screen intervals of no more than 20 feet. The swab shall be repeatedly hoisted at each increment. Upon reaching the top of the uppermost perforated section, the swabbing shall begin again at the bottom of the well and proceed upward, in similar manner, back to the top of the perforations.

C. During preliminary development the Contractor shall monitor the level of gravel in the annulus and add material as necessary. After preliminary development is

complete the gravel level shall be at the depth specified in the Plans or as modified by the Engineer.

D. The well shall then be developed by pumping and surging with a test pump. The pumping equipment shall be clean and in good operating condition upon delivery to the site. Within not more than four (4) days after completion of preliminary development, the Contractor shall commence well development by pumping and surging.

3.11 DEVELOPMENT BY PUMPING AND SURGING

A. The Contractor shall install, operate, and remove a pump for developing the well. The pump shall have a capacity in excess of 3,500 gpm against a total head of 350 feet measured at the discharge head. The prime mover shall be a variable speed type. Up to 400 feet of column pipe, tube and shaft shall be provided with the development pump. The development pump setting will be determined by the Engineer after well construction

B. The pump development water may be discharged to the nearby canal. Contractor will be required to repair any damage to the canal due to discharge of the water.

C. The Contractor shall install discharge piping from the pumping unit of sufficient size and length to conduct water to the point of disposal together with a totalizing flow meter that will accurately measure the flow rate. The Contractor shall provide a manometer to check the accuracy of the totalizing flow meter. The totalizing meter shall be accurate within plus or minus 5% of the flow rate indicated by the manometer. If the totalizing meter is not within this tolerance it will be recalibrated or replaced until it does operate within this tolerance. Control valves, meter, manometer, access tubes, and other equipment required shall be installed prior to start of pump development. The Contractor shall cooperate with the Engineer who will be present periodically during the well development.

D. The initial pumping rate shall be restricted (500 gpm) and as the water clears shall be gradually increased until the maximum rate is reached. Development shall continue at each step rate for a minimum of one hour. At intervals of approximately 10 to 15 minutes, the pump shall be stopped and the water in the pump column shall be allowed to surge back through the pump bowls and through the perforated area.

E. Development records shall be maintained on at least a 1/2-hour interval showing pumping rate, pumping level, and sand production. Development shall continue until the following conditions are met:

1. The specific capacity (gpm per foot of drawdown) no longer increases with time.

2. Sand production is less than 5 ppm within 10 minutes after commencement of pumping at this capacity of the well. Failure to meet this requirement may be sufficient cause for rejection of the well.

F. The Contractor shall be responsible for disposing of all development and test water. Water, including mud, sand and debris pumped from the well during developing and testing shall be disposed of by the Contractor off site in such a manner as not to damage or interfere with other work. The disposal and discharge sites shall be approved by the Owner.

G. Development pumping and surging (not including pump test) is expected to be completed within 48 hours of total pumping time.

H. The Contractor may submit alternate development methods in writing for approval by the Engineer. However, the submittal must be prior to commencement of the production well drilling operation.

3.12 TESTING FOR YIELD AND DRAWDOWN

A. Following development of the well, the Contractor shall perform a pump test of the well including step rate and recovery tests. The Contractor shall cooperate with the Engineer who will be present during the test pumping procedure. The actual test pumping rates will be furnished by the Engineer upon completion of well development. Well shall remain idle for at least 12 hours overnight prior to commencement of test, and static or non-pumping level shall be determined prior to the pump test.

B. The pumping equipment shall be of the variable speed type and shall be the same equipment as used during the well development procedure. Gauges, valves, meter, manometer, access tubes, and other equipment required shall be installed prior to beginning the pump test procedure.

C. The pump shall be operated continuously for a period of 12 hours at the rates selected by the Engineer. The pumped water shall be disposed of in a manner similar to the development water.

D. During each test, the discharge of the pump shall be measured with an accurate totalizing meter supplied by the Contractor and approved by the Engineer. Additionally, the Contractor shall provide a manometer to allow a check of the accuracy of the totalizing flow meter. The totalizing flow meter shall be accurate within plus or minus 5% of the flow rate indicated by the manometer. The pump discharge shall be maintained during the test within plus or minus five (5) percent of the desired pumping rate by means of a gate valve. Prior to the start of the test, the pump shall be adjusted to each of the prescribed pumping rates in order to determine the appropriate motor speeds (rpm) and discharge valve positions to facilitate rapid adjustment of the pump at the commencement of testing.

E. Upon completion of the pump test the well shall remain undisturbed for a period of at least 12 hours to allow water level recovery to be measured. After the pump is removed, all sand and debris shall be removed from the bottom of the well.

3.13 COMPLETED WELL WATER SAMPLES

A. Water samples will be collected during each pump test. The Contractor shall cooperate with the Engineer who will collect the samples.

3.14 PLUMBNESS AND ALIGNMENT

A. The Contractor shall test well for plumbness and alignment by lowering a 40-foot long "dummy" or cage into the well to the bottom of the casing. The outer diameter of the dummy shall be not more than one-inch smaller than the inside diameter of the well casing. The dummy shall consist of a rigid spindle with 3-rings, each 12 inches wide and spaced top-middle-bottom. The central member of the dummy shall be sufficiently rigid to maintain the concentric alignment of the 3 rings.

B. Should the dummy fail to move freely throughout the length of the well, the well shall be subject to rejection by the Owner.

C. The Contractor shall guarantee that the well, when completed, shall be sufficiently straight and plumb to permit the free installation and operation of a deep well turbine pump normally used in similarly sized casings with the pump bowls set at 400 feet.

3.15 VIDEO SURVEY

A. A color video survey of the entire length of the casing will be performed on the well to verify casing integrity, location of perforations, and effectiveness of development. The video survey equipment shall have side scan capability. Videotape shall be submitted to Engineer for review prior to casing closure. If further well cleaning or any repairs are necessary, Contractor shall do so at his own expense and also pay for an additional video survey after the well is cleaned.

3.16 CASING CLOSURE

A. Upon completion of work on each well, the production well shall be capped by welding a 1/4-inch steel plate over the top of the well casing.

3.17 CLEANUP

A. Material excavated from the mud pits during drilling operations shall be stockpiled within the well sites. At the completion of work at each site, the cuttings and drilling mud will be removed from the mud pit and disposed of by the Contractor and the stockpiled material shall be placed back in the mud pit. The mud pits shall be filled and compacted to achieve a relative compaction equivalent to native soils or of 90% per ASTM D-1557 whichever is less. All temporary fencing shall be removed.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 WORK INCLUDED

A. Work required under this section consists of furnishing all materials, supplies, equipment, tools, transportation, and facilities, and performing all labor and services incidental to furnishing and installing concrete work as described in this section of the Specifications, shown on the accompanying Plans, or reasonably implied therefrom, except as hereinafter specifically excluded. The work shall include, but is not necessarily limited to:

1. All formwork including special forms as required for any special construction and/or to accommodate the work of others and removal of forms.

2. All concrete reinforcements, placement, bending and forming thereof.

3. All concrete and cement finishing, all surface treatment and curing including non-slip finishes.

4. Installation of all reglets, bolts, anchors, cans, sleeves, column bolts, etc., whether furnished under this section or by others (except cans and sleeves required under the Electrical and Mechanical Sections).

5. The furnishing of all items required to be or shown on the Plans as embedded in concrete, which are not specifically required under other sections.

6. Setting headers and screens finishing, curing, and protecting concrete.

B. Where prior inspection and test of materials are required, documentary evidence, in the form of test reports, shall be furnished prior to the time the material is incorporated into the work. All rejected material shall be promptly removed from the premises.

1.2 REFERENCES

A. American Concrete Institute (ACI)

B. American Society for Testing and Materials (ASTM)

C. State Standard Specifications

D. Uniform Building Code (UBC)

1.3 DEFECTIVE WORK

A. Work considered to be defective may be ordered, by the Engineer, to be replaced in which case the Contractor shall remove and replace the defective work at his expense. Work considered to be defective shall include, but not be limited to, the following:

1. Concrete incorrectly formed, or not conforming to details and dimensions on the Plans or with the intent of these documents, or concrete the surfaces of which are out of plumb or level.

2. Concrete in which defective or inadequate reinforcing steel has been placed.

3. Concrete containing wood, cloth, or other foreign matter, rock pockets, voids, honeycombs, cracks or cold joints not scheduled or indicated on the Plans.

4. Concrete below specified strength.

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Provide material certificates, shop fabrication and placement drawings, and schedule for all reinforcing steel, imbedded items, form release and curing compounds.

PART 2 PRODUCTS

2.1 CONCRETE

A. Concrete shall conform to Section 90 of the State Standard Specifications. Unless otherwise shown or specified, all concrete shall contain not less than 611 pounds of Portland cement per cubic yard of concrete (6-1/2 sack) with a minimum 28-day compressive strength of 3500 psi.

1. Portland cement shall be Type V, or ASTM C150, Type 11.

2. Concrete shall contain 6% ±1% entrained air.

3. Water/cement ratio shall not exceed 0.45 (by weight).

4. Sump at placement shall be 4."

B. Concrete used for thrust blocks shall contain not less than 517 pounds of Portland Cement per cubic yard of concrete (5 1/2 sack).

C. Concrete used for pipe encasement shall contain not less than 517 pounds of Portland Cement per cubic yard of concrete (5 1/2 sack).

D. Slurry cement backfill used in lieu of compacted soil shall contain not less than 188-pounds of Type II Portland Cement per cubic yard of concrete (2 sack) and shall comply with Section 19 of the State Standard Specifications.

2.2 AGGREGATE

A. Aggregate for normal weight concrete shall conform to ASTM C-33. Aggregates shall be free of dirt, clay balls, roots, bark and other deleterious substances and shall be thoroughly washed before use.

2.3 WATER

A. Water shall be clean and free from injurious amounts of acids, alkalis, salts, oils, organic materials or other deleterious substances.

2.4 ADMIXTURES

A. Air Entraining: ASTM C260

B. Water Reducing: ASTM C494, Type A or D

C. Accelerating: ASTM C494, Type C or E

1. No admixture containing any chloride ions is acceptable.

2.5 REINFORCING STEEL

A. Rebar shall be ASTM designation A615, Grade 60.

B. Welded wire fabric shall conform to ASTM A 185.

2.6 FORM MATERIALS

A. Exposed Concrete: Plywood complying with U.S. Plywood Standard PS-1 “BB (Concrete Form) Plywood” Class I, or better.

B. Textured Finish Concrete: Units of face design, size arrangement and configuration to match control sample.

C. Cylindrical Columns and Supports: Metal, fiberglass or waxed paper tubes of sufficient wall thickness to resist imposed loads without deformation.

D. Form Release Agent shall leave behind a paintable concrete surface.

1. Release #1, The Burke Co., or approved equal.

2.7 CURING MATERIALS

A. Reinforced waterproof paper

1. Sisal Kraft, Orange Label, or approved equal.

B. Liquid-membrane curing compound

1. Curing compound shall comply with ASTM C309, Type 2.

a. White pigmented material

b. Clear material

PART 3 EXECUTION

3.1 REINFORCING STEEL

A. Comply with CRSI, “Placing Reinforcing Bars” and as specified herein.

B. Place reinforcing steel and embedded items in accordance with approved shop drawings.

C. Splicing of bars shall be by lapping. Lapped splices shall be 45 bar diameters for bar size through #8 and 60 bar diameters for larger bars, unless otherwise shown on the Plans.

D. Splicing of the wire fabric shall be by lapping. Lapped splices shall be two full mesh, minimum.

E. All rebar in vertical walls shall be supported by metal chairs.

F. Prior to placement of the concrete, reinforcing steel shall be cleaned and free of all concrete, dirt, oil, mill scale, rust or other coatings that would reduce or destroy the bond.

G. All reinforcing steel and embedded items shall be reviewed and approved by the Engineer prior to concrete placement.

3.2 FORMS

A. All forms shall be cleaned and an approved agent applied each time they are used and shall be so constructed and set as to resist, without springing or settlement, the pressure of the concrete and the placing operations.

B. All forms shall be set and maintained in true alignment, grade and section until the concrete has sufficiently set. The interior surfaces of forms shall be adequately treated with an acceptable material to insure non-adhesion of mortar. All forms shall be mortar-tight. When forms appear to be unsatisfactory in any way, concrete placement shall be stopped until the defects have been corrected.

C. Metal tie rods or anchorages within the forms shall be fitted with suitable cones or comparable devices. Metal tie rods or anchorages shall be removed to a depth of 1" from the surface without injury to the concrete. All fittings for metal ties shall be of such design that upon their removal, the cavities which are left will be of the smallest possible size, but of sufficient diameter to allow the cavity to be "dry packed" with cement mortar. The cavities shall be filled with cement mortar and the surface left sound, smooth and even.

D. Form release agent shall be applied to the form so that no agent comes in contact with reinforcing steel.

3.3 PLACING

A. All concrete shall be placed before it has taken its initial set and shall be placed in horizontal layers and in such a manner as to avoid segregation. The concrete adjacent to the forms and joints shall be thoroughly internal consolidated with a vibrator operating at not less than 4,500 vibrations per minute.

B. The Contractor shall notify the Engineer 24 hours (1 working day) prior to concrete placement.

1. The formwork and reinforcing steel placement shall be approved by the Engineer prior to ordering concrete.

3.4 CURING

A. Exposed concrete surfaces shall be protected from premature drying by covering as soon as possible with canvas, plastic sheets with sealed joints, burlap, sand or other satisfactory materials and kept continuously moist; or, if the surfaces are not covered, they shall be kept continuously moist by flushing or sprinkling.

1. Curing shall continue for a period of not less than 7 days after placing the concrete. If curing compound is used, two (2) applications will be made for even coverage. Curing methods must be approved by the Engineer.

3.5 FINISHING

A. Defective and honeycombed surfaces shall be chipped back to such a depth to expose solid concrete. The surface shall be dampened and coated with a bonding agent and packed with mortar.

B. Concrete Finishes for Horizontal Slab Surfaces:

1. General: Tamp concrete to force coarse aggregate down from surface. Screed with straightedge, eliminate high and low places, bring surface to required finish elevations; slope uniformly to drains. Dusting of surface with dry cement or sand during finishing processes not permitted.

2. Slab Finish shall be as follows:

a. Surfaces intended to receive damp proofing or water proofing membranes: Float finish.

b. Floors intended to receive floor coverings and MCC rooms: Trowel finish.

c. Sidewalks, garage floors, drive-throughs and ramps: Broom finish.

d. Exterior slabs, platforms, steps and landings, exterior and interior pedestrian ramps and interior stairs and all process equipment areas, not covered by other finish materials: Broom finish.

3. Deviation in finish surface shall not exceed ¼" in 10 ft.

4. No tolerance will be allowed that will result in the maximum running, or cross, slope exceeding the requirements of the Americans with Disabilities Act.

3.6 TESTING

A. Testing of concrete shall be as required by the Engineer and in accordance with ACI 301, Chapter 16.

1. All costs of initial testing will be paid by the Owner unless otherwise noted.

2. All costs involved, including those required by the Engineer, in retesting of concrete required because of a failure to meet these Specifications shall be at the expense of the Contractor.

END OF SECTION

CONSOLIDATED IRRIGATION DISTRICT

CONTRACT DOCUMENTS

AND

SPECIFICATIONS

FOR THE

ADAMS & ACADEMY BASIN PROJECT
WELL EQUIPPING CONTRACT

[DATE]

Prepared for:

Prepared by:

2505 ALLUVIAL AVENUE
CLOVIS, CALIFORNIA 93611-9166
559/326-1100 FAX 559/326-1090

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SECTION 00005

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SECTION 00100

INSTRUCTIONS TO BIDDERS

1. The Contract Documents include the Contract Agreement, the Request For Bids, the Instructions to Bidders, Bidding and Contract Documents - Division 0, General Requirements - Division 1, Technical Specifications - Division 2 through Division 16, the Bidder's Proposal as accepted (including the Bid Schedule), the Indemnity Agreement, the Non-collusion Affidavit, the required Bonds, Wage Scale (prevailing wages) the Plans, Profiles and Drawings, and any Addenda or Change Orders. Bidders must examine each of the Contract Documents, must visit the location of the Work and inform themselves of the conditions and make their own estimates of the facilities and difficulties attending the execution of the Work.

2. All Bids must be presented under sealed cover on the blank proposal form attached hereto. Bids shall be submitted in a sealed envelope with the name of the bidder, the name of the project and the statement **"Do Not Open Until The Time of Bid Opening."** Bids are required for the entire work described herein. Bids will be compared on the basis of the total of bid items in the Bid Schedule. Award, if made, will be based upon the lowest responsible bid submitted.

3. The party to whom the Contract is awarded must, at the time the Contract is awarded, possess a Class A Contractor's license valid in the State of California.

4. The Bidder shall include all of the items listed in Section 00305 – Bidder's Checklist in the Bid.

5. Each Bid must be accompanied by a Bid Security payable to the Owner for ten percent (10%) of the total amount of the base Bid. Bidders may provide the Bid Security in one of the following forms: A Bid Bond from an admitted California Surety, a cashier's check made payable to the Owner, a certified check made payable to the Owner, or cash. In no event will security submitted by unsuccessful Bidders be held by the Owner for more than 60 days from the time of award of the Contract. The Bid Security of the successful Bidder will be retained until the Performance Bond and the Payment Bond have been executed and approved, after which the Bid Security will be returned.

6. A Performance Bond and a Payment Bond in the amount of One Hundred percent (100%) each of the Contract Price, with a Corporate Surety approved by the Owner and the Engineer, will be required for the faithful performance of the Contract. The Bidder shall state in the proposal the name and address of the Surety or Sureties, with Certificate Numbers, who will sign the Bonds in case the Contract is awarded to him.

7. The party to whom the Contract is awarded will be required to execute the Contract Agreement, Performance Bond, and Payment Bond within ten (10) calendar days from the date when the written notice of the award of the Contract is mailed to the Bidder at the address given by him. In case of failure to do so, the Owner may at its option, consider that the Bidder has abandoned the Contract, in which case, the Bid Security accompanying the proposal shall become the property of the Owner and award may be made to another party. Corporations must furnish a certificate attesting to corporate existence and authority of officers to sign contracts and other documents.

8. **The Contractor shall begin Work within fourteen (14) calendar days** after receiving the Notice to Proceed by the Owner. The Contractor shall **complete all Work by June 30, 2015. The Notice to Proceed is anticipated to be executed by March 2, 2015.** Time is of the essence and time of completion as specified will be enforced.

9. The Contractor's attention is called to Section 01013, addressing Liquidated Damages. It is agreed that the Contractor shall be liable for and shall pay to the Owner, as liquidated damages and not as a penalty, the listed sum per day for each calendar day of delay in completion of the Work from the date of completion as specified herein or in any written extension of time granted by the Owner. Liquidated damages will be deducted from final payments.

10. Before the award of the Contract, any Bidder may be required to furnish evidence satisfactory to the Owner and to the Engineer of the necessary facilities, ability, and pecuniary resources to fulfill the conditions of the Contract.

11. Prior to signing the Contract, the successful Bidder shall submit, on a form acceptable to the Owner and Engineer, an overall construction schedule for the project. This schedule shall start with the proposed date of signing the Contract, and the completion date shall be no later than the date specified in the Contract.

12. Bidders must satisfy themselves by personal examination of the location of the proposed work, and by examination of the Plans and Specifications as to the requirements of the Work and the accuracy of the estimate of the quantities of the work to be done, and shall not at any time after the submission of the Bid dispute or complain of such estimate nor assert that there was any misunderstanding in regard to the nature or amount of work to be done.

13. The Contract and the Specifications contain the provisions required for the construction of the project. No information obtained from any officer, agent, consultant, or employee of the Owner on any such matters shall in any way affect the risk or obligation assumed by the successful Bidder or relieve him from fulfilling any of the conditions of the Contract.

14. Proposals which are incomplete, unbalanced, conditional or obscure or which contain additions not called for, erasures, alterations or irregularities of any kind or which do not comply with the Notice to Bidders and Instruction to Bidders may be rejected at the option of the Owner.

15. A Bidder may withdraw any proposal he has submitted at any time prior to the hour set for the closing of the Bids provided the request for withdrawal is signed in a manner identical with the proposal being withdrawn. No withdrawal or modification will be permitted after the hour designated for closing the Bids. The Bidder's Proposal shall then hold firm for sixty (60) days to enable the Owner to complete pre-construction arrangements prior to issuing any Notice of Award.

16. Computation of quantities that will be the basis for payment estimates, both monthly and final, will be made by the Engineer.

17. If any person contemplating submitting a Bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans and Specifications or other Contract Documents, or finds discrepancies in, or omissions from the Plans and Specifications, he may submit to the Owner a written Request For Interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the

Contract Documents will be made only by Addendum duly issued and a copy of such Addendum will be mailed or delivered to each Bidder receiving a set of such Contract Documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents. No oral interpretations of any provision in the Contract Documents will be made to any Bidder.

18. No substitution of subcontractors by the Bidder will be allowed or permitted except in accordance with the provisions of Public Contract Code Sections 4107 and 4107.5.

19. The award of the contract, if made, will be within **thirty (30) calendar days** after the opening of bids, and satisfactory submittal of materials required prior to the formal award.

20. Consolidated Irrigation District reserves the right to accept or reject any or all bids, and to evaluate the bids submitted.

SECTION 00101

REQUEST FOR BIDS

In general, the Work consists of furnishing all labor, materials and equipment necessary to equip and construct the well head improvements for recovery wells RW101, and RW102. The Work includes furnishing and installing natural gas pipeline, natural gas engines, concrete pad, sound barrier, installing flow meters at the distribution structure and well discharges, the electrical panels, and all conduit and wiring associated with the power supplies, flow meters, submersible water level sensor; and furnishing and installing steel pipe, fittings, and appurtenances for the well discharges at each of the sites. The work also includes furnishing and installing the bowls, column assembly, discharge head and gear heads at each well site.

1. Sealed bids will be received by Consolidated Irrigation District at the office of Provost & Pritchard Consulting Group at 2:00 p.m. (local time) on **[DATE]** at 286 W. Cromwell, Fresno, CA 93711 and following said deadline all bids will be publicly opened and read. Bids shall be submitted in a sealed envelope with the name of the bidder, the name of the project and the statement **"Do Not Open Until the Time of Bid Opening."** Bids received after said deadline will be returned unopened to the bidder.

2. A non-mandatory **pre-bid meeting and project site tour** will be held on **[DATE] at 10:00am** beginning at the northwest corner of the intersection of South Avenue and S Highland Avenue. Contractors shall personally examine the project site prior to bidding.

3. A full set of Bidding Documents is available for examination at the office of Provost & Pritchard Consulting Group, 286 W. Cromwell, Fresno, CA 93711. Charges for documents will be as follows:

Complete base set of full-size Bidding Documents (specifications and full-size drawings)	$ 40.00
Mailing, if required	$ 15.00

Charges are not refundable, whether the documents are returned or not.

4. Prevailing Wage Rates: Pursuant to Section 1770, California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of California Department of Industrial Relations. A copy of such prevailing rate is on file at the offices of the County of Fresno, which will be made available for examination during business hours to any party on request, or information is available on the Internet website for the California Department of Industrial Relations for the appropriate prevailing wage rates. The website address is: www.dir.ca.gov/DLSR/PWD.

5. Bidders shall furnish a Bid Security with their Bidder's Proposal in the amount of 10% of the base bid amount.

6. OWNER reserves the right after opening Bids to reject any or all Bids, to waive any informality or non-responsiveness in a Bid, or to make award to the lowest responsive, responsible Bidder and reject all other Bids, as it may best serve the interest of the OWNER.

7. Contractor's License Classification: In accordance with the provisions of California Public Contract Code, Section 3300, Consolidated Irrigation District has determined that CONTRACTOR shall possess a valid **Class A Contractor's License** at the time of Bid opening and for the duration of the contract. Failure to possess the specified license shall render the Bid as non-responsive and shall act as a bar to award of the contract to any Bidder not possessing said license at the time of Bid opening.

8. The Contractors' State License Board may be contacted at 9821 Business Park, Sacramento, CA 95827; PO Box 26000, Sacramento, CA 95826; (800) 321-2752.

BY THE ORDER OF THE CONSOLIDATED IRRIGATION DISTRICT BOARD

_____ _____

Phillip Desatoff, General Manager Date

SECTION 00305

BIDDER'S CHECKLIST

SUBMIT THIS BIDDER'S CHECKLIST WITH YOUR BID DOCUMENTS.

Bidders shall complete and submit all documents in the "REQUIRED" column for bids to be considered responsive.

REQUIRED

1. Section 00310 - Bidder's Proposal
2. Section 00313 - List of Subcontractors
3. Section 00314 - Material Suppliers Information
4. Section 00315 - Preliminary Construction Schedule
5. Section 00316 - Non-Collusion Affidavit
6. Section 00317 - Public Contract Code Section 10162 Questionnaire on Disqualification
7. Section 00318 - Public Contract Code 10232 Statement on Contempt
8. Section 00324 – Workers Compensation Certificate
9. Section 00329 – Labor and Other Code Requirements Certificate
10. Section 00340 - Pre-Qualification Statement
11. All issued Addenda
12. Bid Security attached to front of Proposal in the form of (check one):

☐ Certified Check ☐ Bidder's Bond (Section 00601)
☐ Cashier's Check ☐ Cash

SUBMITTED BY:

Name of Company _____
Contact Name _____
Address _____
City _____ State _____ Zip _____
Phone No. _____ Fax No. _____
Contractor's License No. _____ Class: _____

Documents required on the checklist but not included with your bid may render your bid non-responsive and ineligible for award. Bids received by the scheduled bid opening time will be opened and publicly read but are subject to verification that all required documents have been submitted.

END OF SECTION

SECTION 00310

BIDDER'S PROPOSAL

CONSOLIDATED IRRIGATION DISTRICT

hereinafter called the OWNER.

The work to be done and referred herein is in the Consolidated Irrigation District and in Fresno County, State of California.

The work is to be constructed in accordance with the Special Provisions and contract annexed hereto and also in accordance with the Standard Plans and Standard Specifications most recent edition, of the State of California, Business and Transportation Agency, Department of Transportation.

The work to be done is shown on the sets of Plans, entitled: "ADAMS & ACADEMY BASIN PROJECT- WELL EQUIPPING CONTRACT".

The undersigned, as bidder, declares that the only persons, or parties interested in this proposal as principals are those named herein, that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, in the annexed proposed form of contract, and the Plans therein referred to; and he proposes and agrees if this proposal is accepted, that he will contract with the Owner to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following unit prices, to-wit:

In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	**Addendum Date**
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and became familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

CONSOLIDATED IRRIGATION DISTRICT
ADAMS & ACADEMY BASIN PROJECT
WELL EQUIPPING CONTRACT

BID SCHEDULE

Item	Description	Quantity	Unit	Unit Price	Total
GENERAL					
1.	Mobilization/Demobilization, Bonds, Insurance, and Permits	LUMP SUM			$_____
2.	Worker Protection	LUMP SUM			$_____
3.	Miscellaneous Facilities and Operations	LUMP SUM			$_____
RW101					
4.	F&I Gas Line and Pressure Regulator	LUMP SUM			$_____
5.	F&I Pump and Discharge Head	LUMP SUM			$_____
6.	Install Natural Gas Motor	LUMP SUM			$_____
7.	F&I Column, Tube and Shaft	400	LF	$_____	$_____
8.	F&I Well Discharge Manifold	LUMP SUM			$_____
9.	Construct Sound Barrier	LUMP SUM			$_____
10.	Site Electrical	LUMP SUM			$_____
11.	Site Integration	LUMP SUM			$_____
				Subtotal (Items 4 through 8)	$_____
RW102					
12.	F&I Gas Line and Pressure Regulator	LUMP SUM			$_____
13.	F&I Pump and Discharge Head	LUMP SUM			$_____
14.	Install Natural Gas Motor	LUMP SUM			$_____
15.	F&I Column, Tube and Shaft	380	LF	$_____	$_____
16.	F&I Well Discharge Manifold	LUMP SUM			$_____

Item	Description	Quantity	Unit	Unit Price	Total
17.	Construct Sound Barrier	LUMP SUM			$_____
18.	Site Electrical	LUMP SUM			$_____
19.	Site Integration	LUMP SUM			$_____
	TOTAL BASE BID (Items 1 through 19)				$_____

Indicate the percentage of the dollar amount of the Work that the Bidder proposes to perform with its own forces: _____%. Less than 60% shall render the bid nonresponsive.

ABBREVIATIONS USED IN ENGINEER'S ESTIMATE AND PROPOSAL SHEETS

CF	-	Cubic Foot (Feet)	SACK(S)	-	Sack(s)
CY	-	Cubic Yard(s)	STAYD	-	Station Yard (s)
EA	-	Each	SF	-	Square Foot (Feet)
LB(s)	-	Pound(s)	SY	-	Square Yard(s)
LF	-	Linear Foot (Feet)	TN	-	Ton(s)
LS	-	Lump Sum	MGAL	-	Thousand Gallon(s)
*(F)	-	Final Pay Item	(S)	-	Specialty Item
*(S-F)	-	Specialty Item and Final Pay Item			
(F&I)		Furnish and Install			

*Final Pay Item: Refer to Section 01025 Measurement and Payment.

Bids are required for the entire work. Bids will be compared on the basis indicated in the Instructions to Bidders. The project will be awarded to the lowest responsible bidder based on the sum of his bid as produces a net amount which is within the available funds.

The bidder shall set forth for each item of work, in clearly legible figure, total for the item in the respective spaces provided for this purpose. The "Total" column shall be the sum of all lump sum price bid. If the total cost of any item, or the total Base bid is inconsistent with the Unit Cost, the Unit Cost shall prevail.

If this proposal shall be accepted and the undersigned shall fail to contract, as aforesaid, and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the Owner, within ten (10) days not including Sundays and legal holidays, after the bidder has received notice of award of the contract, the Owner, at its option, may determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of the Owner.

Accompanying this proposal is security in amount equal to at least ten percent (10%) of the total amount of the base bid. Check one only:

_____Bid Bond Attached;_____Certified Check; _____ Cashier's Check; _____Cash;

Bonding Company	Bond No.	Expires

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

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, 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 name in full.

_____

_____

_____

Licensed in accordance with an act providing for the registration of Contractors, Class _____ License No._____

By_____ _____
Signature of Bidder Dated

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the seal and signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS:_____
MAILING ADDRESS:_____
BUSINESS PHONE:_____
(Area Code)

PROJECT:_____

BIDDER:_____

SECTION 00313

LIST OF SUBCONTRACTORS

The bidder shall hereby designate the names and business addresses of each subcontractor who will perform work or labor on the Project. Please fill out as completely as possible when submitting your bid. Use subcontractor's business name as registered with the License Board.

1. State the name and place of business of each subcontractor licensed by the State who will (i) perform work or labor or render service to the Bidder for the Project contemplated in the Plans and Specifications or (ii) specially fabricate and install a portion of the work or improvement according to the detailed Drawings contained in the Plans and Specifications, in an amount in excess of one-half of one percent of the Bidder's total Bid.

2. State the portion of the Work that will be done by each subcontractor. List only one subcontractor for each portion as defined by the Bid.

3. Work not listed as subcontracted shall be performed by Bidder.

4. Subcontractors may not be substituted without cause. Subcontractor substitution procedure will be in accordance with State Contracts Code Section 4100, et seq.

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SUBCONTRACTOR:

Business Address:_____

Class _____ License No._____

Item No. or Description of Work:_____

Dollar Amount or Percentage of Total Bid:_____

SECTION 00314

MATERIAL SUPPLIERS INFORMATION

The Bidder shall indicate opposite each item of equipment or material listed below the name of the manufacturer or supplier of the equipment or material proposed to be furnished under the Bid.

	Equipment/Material	Manufacturer/Supplier
1.	Pump	
2.	Natural Gas Motor	
3.	Gas Pipeline	
4.	Sleeve Coupling	
5.	Flow Meter	
6.	Submersible Water Level Sensor	
7.	Steel Pipe	
8.		
9.		
10.		
11.		
12.		
13.		
14.		

Awarding of a contract under this bid will not imply approval by the Owner of the manufacturers of suppliers listed by the Bidder. No substitution will be permitted after award of contract unless equipment of material of the listed manufacturer of supplier cannot meet the specifications.

SECTION 00315

PRELIMINARY CONSTRUCTION SCHEDULE

The Contractor shall submit with his Bid a preliminary construction schedule for the Owner's review, including important milestones, assuming the Notice to Proceed is issued on **[DATE].** The Preliminary Construction Schedule shall be in sufficient detail to show the chronological relationship of all activities of the project, including, but not limited to, estimated starting and completion dates of various activities, procurement of materials and scheduling of equipment. The Preliminary Construction Schedule shall reflect completion of all work under the contract within the specified time and in accordance with the Specifications. The Preliminary Construction Schedule will be used by the Owner in helping determine award of the contract.

DATE(S)	WORK ITEM
[DATE].	**Notice to Proceed**

SECTION 00316

NON-COLLUSION AFFIDAVIT

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

PROJECT: Consolidated irrigation District

Adams & Academy Basin Project – Well Equipping Contract

TO: Consolidated Irrigation District Board

_____
(Name)

being first duly sworn, deposes and says that he or she is

_____
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

of _____ .
(Bidding Entity)

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.

(Title 23 United States Code Section 112)

(Calif. Public Contract Code Section 7106; Stats. 1988, c. 1548, Section 1.)

Signed:_____

_____ _____
Name Date

SECTION 00317

PUBLIC CONTRACT CODE SECTION 10162
QUESTIONNAIRE ON DISQUALIFICATION

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is Yes, explain the circumstances in the space below:

_____

_____

_____

NOTE: The above Questionnaire is part of the Proposal.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

By_____ _____
Signature of Bidder Date

SECTION 00318

PUBLIC CONTRACT SECTION 10232
STATEMENT ON CONTEMPT

(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

In accordance with Public Contract Code Section 10232, the Contractor, hereby states, under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

By_____ _____
Signature of Bidder Date

SECTION 00324

WORKER'S COMPENSATION CERTIFICATION

STATE OF CALIFORNIA)
(SS
COUNTY OF FRESNO)

The undersigned is aware of the provisions of Section 3700 of the Labor Code of the State of California which require every employer to be insured against liability of worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and the undersigned will comply with such provisions, and will require all subcontractors to comply with such provisions, before commencing the performance of the work of this Contract.

_____
Date:

_____
Contractor Signature

END OF SECTION

SECTION 00329

LABOR AND OTHER CODE REQUIREMENTS CERTIFICATE

In accordance with California Labor Code 1771.5, this project includes a Labor Compliance Program (LCP) that authorizes the establishment of an LCP to enforce prevailing wage requirements on public works construction projects. For questions or assistance concerning the Program, contact the District's Labor Compliance Officer, Richard Perez, Labor Consultants of California, P. O. Box 1875 Hanford, CA. 93232; telephone number: (559) 584-7499 or by email at laborc@cnetech.com. A copy of the approved LCP can be provided upon request. The project is located in Fresno County.

1 - STATE WAGE RATE CLAUSES

Pursuant to Sections 1720 et seq., and 1770 et seq., of the California Labor Code, the successful bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Prevailing wage schedules for Fresno County are available from the Department of Industrial Relations - Division of Labor Statistics and Research via the Internet at www.dir.ca.gov. A prevailing wage scale is also on file in the office of the Consolidated Irrigation District and copies may be obtained upon request.

The successful bidder intending to use a craft or classification not shown on the prevailing rate determinations may be required to pay the rate of the craft or classification most closely related to it.

Pursuant to the provisions of California Labor Code, section 1773, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate of holiday and overtime work in the locality in which the Work is to be performed for each craft, classification or type of worker needed to execute the Work. Copies of the prevailing rate of per diem wages are on file at the Owner's principal office and shall be made available to any interested party on request. The Contractor shall cause a copy of the Director's determination of the prevailing rate of per diem wages to be posted at a prominent place at the site of the Work. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid and will not under any circumstances be considered as the basis of claim against the Owner. The Contractor shall comply with Labor Code section 1774 and 1775. In accordance with Labor Code section 1775, the Contractor shall forfeit as a penalty to the Owner not more than $50 for each Day or portion thereof for each worker paid less than the prevailing rates as determined by the director for the Work or craft in which the worker is employed for any Work or by any subcontractor under the Contractor. The amount of this penalty shall be determined by the Director based on the factors set forth in section 1775. In addition to such penalty, the difference between such prevailing wage rates and the amount paid to each workman for each Day or portion thereof for each workman was paid less than the prevailing wage rate shall be paid to each worker by the Contractor.

2 - LABOR CODE SECTION 1776 COMPLETE PAYROLL RECORDS; CERTIFIED AND AVAILABLE

(A) Each contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct.

(2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

(B) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public may not be given access to the records at the principal office of the contractor.

(C) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.

(D) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

(E) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship

Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address, and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (29 U.S.C. Sec. 175a) shall be marked or obliterated only to prevent disclosure of an individual's name and social security number. A joint labor management committee may maintain an action in a court of competent jurisdiction against an employer who fails to comply with Section 1774. The court may award restitution to an employee for unpaid wages and may award the joint labor management committee reasonable attorney's fees and costs incurred in maintaining the action. An action under this subdivision may not be based on the employer's misclassification of the craft of a worker on its certified payroll records. Nothing in this subdivision limits any other available remedies for a violation of this chapter.

(F) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city, and county, and shall, within five working days, provide a notice of a change of location and address.

(G) The contractor or subcontractor has 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

(H) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section.

(I) The director shall adopt rules consistent with the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code) and the Information Practices Act of 1977 (Title 1.8 (commencing with Section 1798) of Part 4 of Division 3 of the Civil Code) governing the release of these records, including the establishment of reasonable fees to be charged for reproducing copies of records required by this section.

3 - LABOR CODE SECTION 1777.5
EMPLOYMENT OF PROPERLY REGISTERED APPRENTICES

(A) Nothing in this chapter shall prevent the employment of properly registered apprentices upon public works.

(B) Every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered.

(C) Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public works. The employment and training of each apprentice shall be in accordance with either of the following:

(1) The apprenticeship standards and apprentice agreements under which he or she is training.

(2) The rules and regulations of the California Apprenticeship Council.

(D) When the contractor to whom the contract is awarded by the state or any political subdivision, in performing any of the work under the contract, employs workers in any apprenticeable craft or trade, the contractor shall employ apprentices in at least the ratio set forth in this section and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the contractor, shall arrange for the dispatch of apprentices to the contractor. A contractor covered by an apprenticeship program's standards shall not be required to submit any additional application in order to include additional public works contracts under that program. "Apprenticeable craft or trade," as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the California Apprenticeship Council. As used in this section, "contractor" includes any subcontractor under a contractor who performs any public works not excluded by subdivision (o).

(E) Prior to commencing work on a contract for public works, every contractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the public work. The information submitted shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the awarding body if requested by the awarding body. Within 60 days after concluding work on the contract, each contractor and subcontractor shall submit to the awarding body, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the contract. The information under this subdivision shall be public. The apprenticeship programs shall retain this information for 12 months.

(F) The apprenticeship program that can supply apprentices to the area of the site of the public work shall ensure equal employment and affirmative action in apprenticeship for women and minorities.

(G) The ratio of work performed by apprentices to journeymen employed in a particular craft or trade on the public work may be no higher than the ratio stipulated in the apprenticeship

standards under which the apprenticeship program operates where the contractor agrees to be bound by those standards, but, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentice work for every five hours of journeyman work.

(H) This ratio of apprentice work to journeyman work shall apply during any day or portion of a day when any journeyman is employed at the jobsite and shall be computed on the basis of the hours worked during the day by journeymen so employed. Any work performed by a journeyman in excess of eight hours per day or 40 hours per week shall not be used to calculate the ratio. The contractor shall employ apprentices for the number of hours computed as above before the end of the contract or, in the case of a subcontractor, before the end of the subcontract. However, the contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the jobsite. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Chief of the Division of Apprenticeship Standards, upon application of an apprenticeship program, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification.

(I) A contractor covered by this section that has agreed to be covered by an apprenticeship program's standards upon the issuance of the approval certificate, or that has been previously approved for an apprenticeship program in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the applicable apprenticeship standards, but in no event less than the 1-to-5 ratio required by subdivision (g).

(J) Upon proper showing by a contractor that he or she employs apprentices in a particular craft or trade in the state on all of his or her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by journeymen, the Chief of the Division of Apprenticeship Standards may grant a certificate exempting the contractor from the 1-to-5 hourly ratio, as set forth in this section for that craft or trade.

(K) An apprenticeship program has the discretion to grant to a participating contractor or contractor association a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:

(1) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.

(2) The number of apprentices in training in the area exceeds a ratio of 1 to 5.

(3) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis.

(4) Assignment of an apprentice to any work performed under a public works contract would create a condition that would jeopardize his or her life or the life, safety, or property of fellow

employees or the public at large, or the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.

(L) When an exemption is granted pursuant to subdivision (k) to an organization that represents contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member contractors shall not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.

(M)(1) A contractor to whom a contract is awarded, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the public works site. A contractor may take as a credit for payments to the council any amounts paid by the contractor to an approved apprenticeship program that can supply apprentices to the site of the public works project. The contractor may add the amount of the contributions in computing his or her bid for the contract.

(2) At the conclusion of the 2002-03 fiscal year and each fiscal year thereafter, the California Apprenticeship Council shall distribute training contributions received by the council under this subdivision, less the expenses of the Division of Apprenticeship Standards for administering this subdivision, by making grants to approved apprenticeship programs for the purpose of training apprentices. The funds shall be distributed as follows:

(a) If there is an approved multiemployer apprenticeship program serving the same craft or trade and geographic area for which the training contributions were made to the council, a grant to that program shall be made.

(b) If there are two or more approved multiemployer apprenticeship programs serving the same craft or trade and geographic area for which the training contributions were made to the council, the grant shall be divided among those programs based on the number of apprentices registered in each program.

(c) All training contributions not distributed under subparagraphs (A) and (B) shall be used to defray the future expenses of the Division of Apprenticeship Standards.

4 - LABOR CODE SECTION 1810
DEFINITION: A LEGAL DAY'S WORK

Eight hours labor constitutes a legal day's work in all cases where the same is performed under the authority of any law of this State, or under the direction, or control, or by the authority of any officer of this State acting in his official capacity, or under the direction, or control or by the authority of any municipal corporation, or of any officer thereof. A stipulation to that effect shall be made a part of all contracts to which the State or any municipal corporation therein is a party.

5 - LABOR CODE SECTION 1813
PENALTY FOR OVERTIME ON ANY PUBLIC WORK CONTRACT

The contractor or subcontractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of this article. In awarding any contract for public work, the awarding body shall cause to be inserted in the contract a stipulation to this effect. The awarding body shall take cognizance of all violations of this article committed in the course of the execution of the contract, and shall report them to the Division of Labor Standards Enforcement.

6 - LABOR CODE SECTION 1815
MINIMUM OVERTIME PAY

Notwithstanding the provisions of Sections 1810 to 1814, inclusive, of the Labor code, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 1/2 times the basic rate of pay.

7 - LABOR CODE SECTION 1860
CONTRACT PROVISION

The awarding body shall cause to be inserted in every public works contract a clause providing that, in accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees.

8 - LABOR CODE SECTION 1861
CONTRACTOR CERTIFICATION TO LABOR CODE SECTION 3700

Each contractor to whom a public works contract is awarded shall sign and file with the awarding body the following certification prior to performing the work of the contract: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

9 - LABOR CODE SECTION 6500 AND 6705
TRENCH EXCAVATION SAFETY PLANS

1. The Contractor's attention is directed to the provisions of Labor Code section 6705 concerning trench excavation safety plans. Labor code section 6705 provides in relevant part:

a. No contract for public works involving an estimated expenditure in excess of twenty-five thousand dollars ($25,000), for the excavation of any trench or trenches five feet or more in depth, shall be awarded unless it contains a clause requiring submission by the contractor and acceptance by the awarding body or by a registered civil or structural engineer, employed by the awarding body, to whom authority to accept has been delegated, in advance of excavation, of a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such

trench or trenches. If such plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.

b. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders.

2. Before execution of the contract by the Owner, the Contractor shall submit to the Owner a copy of his permit for the project issued by Cal-OSHA.

If there is any non-compliance with said detailed plans, the Contractor shall stop forthwith all affected work until there is compliance in the opinion of the State Division of Industrial Safety. The Owner, Engineer, officers, employees, consultants, and agents of the aforementioned, shall not be liable for costs incurred by the Contractor due to work stoppage, and the Contractor will not be given nor is entitled to an extension of time to complete the Work within the time set forth in this contract due to the work stoppage.

10 - NONDISCRIMINATION CLAUSE

1. During the performance of the Contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Contractors and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900, set forth in Chapter 5 of Division 4 of Title 2 or the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractor shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

2. Contractor's attention is also directed to Section 1735 of the Labor Code, which provides: "A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter."

3. Contractor's attention is further directed to Section 1777.6 of the Labor Code, which provides:
An employer or a labor union shall not refuse to accept otherwise qualified employees as registered apprentices on any public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as provided in Section 3077 of this code and Section 12940 of the Government Code.

4. This contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Contract.

11 - DRUG-FREE WORKPLACE CERTIFICATION CONTRACTOR:

The contractor named below hereby certifies compliance with The Drug-Free Workplace Act of 1990 (Government Code 8350 et seq.) in matters relating to providing a drug-free workplace. The below named contractor or applicant will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).

2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:

(a) The dangers of drug abuse in the workplace,

(b) The person's or organization's policy of maintaining a drug-free workplace,

(c) Any available counseling, rehabilitation and employee assistance programs, and

(d) Penalties that may be imposed upon employees for drug abuse violations.

3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract:

(a) Will receive a copy of the company's drug-free policy statement, and

(b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract.

12- DEBARRED SUBCONTRACTOR PROHIBITION

(A) A public entity, as defined in Section 1100, may not permit a contractor or subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code to bid on, be awarded, or perform work as a subcontractor on, a public works project. Every public works project shall contain a provision prohibiting a contractor from performing work on a public works project with a subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

(B) Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract, and any public money that may have been paid to a debarred subcontractor by a contractor on the project shall be

returned to the awarding body. The contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

THE UNDERSIGNED CERTIFIES THAT, IN PERFORMANCE OF THE CONTRACT, THE CONTRACTOR WILL COMPLY WITH THE ABOVE REQUIREMENTS IN ADDITION TO OTHER LEGAL REQUIREMENTS.

CONTRACTOR OR
SUBCONTRACTOR NAME: _____

CERTIFIED BY:

NAME:_____ TITLE:_____

SIGNATURE:_____ DATE:_____

END OF SECTION

SECTION 00340

PRE-QUALIFICATION STATEMENT

PROJECT: CONSOLIDATED IRRIGATION DISTRICT
ADAMS & ACADEMY BASIN PROJECT
WELL EQUIPPING CONTRACT

TO: The Board of Directors, CONSOLIDATED IRRIGATION DISTRICT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

_____
(Name of Organization)

_____
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

_____
(Address and Telephone Number)

1) EXPERIENCE AND REFERENCES

List three (3) or more past or current projects of similar size and scope to this project by completing the table below:

Past or current project name and location	Project description	Owner	Contract amount ($) and completion date	Reference contact person name and phone number

2) CONTRACTOR FINANCIAL INFORMATION

a) List name, address, and phone number of bonding company used by your organization.

b) List name, address, and phone number of a banking institution familiar with your organization.

c) State whether your organization has been subject of bankruptcy, failed business, or failed to complete a contract.

Signed: _____

_____ _____

Name Date

SECTION 00501

CONTRACT

THIS CONTRACT is made at **CONSOLIDATED IRRIGATION DISTRICT** in **Fresno** County, California, by and between _____. hereinafter called the "Contractor," and the **CONSOLIDATED IRRIGATION DISTRICT**, a California irrigation district hereinafter called the "Owner".

Contractor and the Owner, for the consideration hereinafter named, agree as follows:

ARTICLE I. SCOPE OF WORK. The Work to be constructed is a project entitled ADAMS & ACADEMY BASIN PROJECT – WELL EQUIPPING CONTRACT, located in Fresno County, State of California.

The Contractor shall furnish all labor and materials, including tools, implements, and appliances required to construct the Work and shall perform and construct all Work in a good and workmanlike manner, free from any and all liens and claims including those of mechanics, materialmen, sub-contractors, artisans, machinists, teamsters, draymen and laborers required for the construction of the Work.

Contractor shall comply with and construct the Work in strict conformity with the Contract Documents, including that set of Plans, entitled: "ADAMS & ACADEMY BASIN PROJECT – WELL EQUIPPING CONTRACT," all other Plans, Drawings, Specifications; and the provisions of this Contract.

ARTICLE II. CONTRACT DOCUMENTS. The Contract Documents shall consist of the following documents, each of which is on file in the office of the Owner and all of which are incorporated herein and made a part hereof by reference thereto: this Contract, including, Division 0 – Bidding and Contract Requirements, Division 1 - General Requirements, Division 2 through Division 16 - Technical Specifications, any Standard Specifications referenced, Plans, Profiles and Drawings, Addenda or Change Orders (if any), and Appendices. In the event of conflict between portions of the Contract Documents, refer to Section 01005 – Specifications to resolve priority.

ARTICLE III. PAYMENT. In the manner, at the time and upon the conditions stated in the Contract Documents, Owner agrees to pay the Contractor in current funds for the performance of the Contract the sum of: _____
(Figures in Words)

_____
(Figures in Numbers)

It is understood that said price is based upon the estimated quantities of materials to be used as set forth in the Bidder's Proposal, except where provisions are made in the Contract Documents whereby the estimated quantities shall constitute the final quantity.

Contractor is responsible for payment of prevailing wages in accordance with the provisions of Section 1770, et seq. of the Labor Code. Prevailing wage schedules for Fresno County are

available from the Department of Industrial Relations-Division of Labor Statistics & Research via the Internet at www.dir.ca.gov. A prevailing wage scale is also on file in the office of the **CONSOLIDATED IRRIGATION DISTRICT**, 2255 Chandler Street, Selma, CA 93662, and copies may be obtained upon request.

ARTICLE IV. TERMINATION. If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his sub-contractors should violate any of the provisions, including, but not limited to, failure to meet the time of commencement and time of completion requirements in Section 01011, of the Contract Documents, or if he should refuse or fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to sub-contractors or for material or labor, or disregard laws, ordinances or the instructions of the Engineer, then the Owner may serve written notice upon the Contractor and his surety of material breach and its intention to terminate the Contract, such notice to contain the reasons for such intention to terminate the contract, and unless, within seven (7) days after the serving of such notice, Contractor performs as required by the Contract Documents or makes valid objection to termination, the contract shall, upon the expiration of said seven days, cease and terminate. If Contractor does not perform or make valid objection in response to such notice, then it waives all rights to perform the contract, to submit a claim for costs caused by the Owner's performance of the contract, or to object to the Owner withholding its costs in performing the contract.

In the event of any such termination, the Owner may immediately take over performance of the contract and prosecute the work to completion as provided below, if immediate action is required because exigent circumstances are reasonably determined to exist by the Owner, or serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety within seven (7) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within the seven (7) days stated above from the date of the serving of such notice, the Owner may take over the work and prosecute the same to completion by force account, either with its own forces or with a contractor of its choice, or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for doing so, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the Work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the Work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If the expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided and damage incurred through the Contractor's default, shall be certified by the Engineer.

When the contract has been terminated as provided above or elsewhere in the Contract Documents, such termination shall not affect any rights of the Owner against the Contractor then existing or which may thereafter accrue.

ARTICLE V. WORKERS' COMPENSATION. Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the

State of California and during the performance of the Work will so to comply with the said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in triplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-Insure should be provided the Owner.

ARTICLE VI. JOB SITE CONDITIONS. Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project Work, including safety of all persons and property; and that this requirement shall apply continuously and not be limited to normal working hours.

ARTICLE VII. CHANGES IN THE WORK. New and unforeseen work will be classed as extra work when determined by the Owner that such work is not covered by any of the various items or combination of such items for which there is a bid price. In the event that portions of such work are determined by the Owner to be covered by some of the various items or combinations of such items for which there is a bid price, the remaining portion of such work will be classified as extra work. Extra work also includes work specifically designated as extra work in the Plans and Specifications. Refer to Section 01022 – Changes to the Work.

ARTICLE VIII. COMPLETION. Upon receipt of written notice that the Work is ready for final review, the Engineer and Owner will promptly make such review, and when the Owner finds the Work satisfactory under the Contract and the Contract fully performed, the Owner will promptly issue a Notice of Completion stating that the Work required by this Contract has been completed. Within 10 days of acceptance, the Owner shall cause the Notice of Completion to be recorded. Final payment shall become due thirty-five (35) days after the date of the recording of the Notice of Completion.

Before issuance of final payment, the Contractor shall submit Conditional Releases as specified in Section 01026 – Waiver and Release Submittals, except that, in the case of disputed indebtedness or liens, the Contractor may submit, in lieu of evidence of payment, a Surety Bond satisfactory to the Owner guaranteeing payment of all such disputed amounts when adjudicated.

ARTICLE IX. TIME OF PERFORMANCE. The Notice to Proceed is specified in Section 00680 – Notice to Proceed. Beginning of Work and Time of Completion are specified in Section 01011 – Description of Work and Schedule Constraints. Liquidated Damages are those specified in Section 01013 – Liquidated Damages. All time limits stated in the Contract Documents are of the essence.

ARTICLE X. INDEMNITY AND INSURANCE. Before commencing Work, the Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, the insurance described in Section 00502 - Indemnity Agreement. The Contractor shall furnish evidence of the required insurance coverages to the Owner prior to execution of the Contract Documents.

ARTICLE XI. ASSIGNMENT OF CLAYTON ACT AND CARTWRIGHT ACT RIGHTS.
Per Government Code Section 4552, in submitting its Bid and entering into the Contract or a subcontract to supply goods, services, or materials pursuant to the Contract, the Contractor or subcontractor offers and agrees to assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under

the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or any subcontract. This assignment shall be made and become effective at the time the Owner tenders final payment to the Contractor, without further acknowledgment by the parties.

ARTICLE XII. ASSIGNMENT AND TRANSFER OF CONTRACT. The Contractor shall not assign or transfer this Contract or any part thereof or any interest therein without consent in writing of the Owner and the Contractor's Surety, and any such assignment or transfer without such written consent shall be null and void.

ARTICLE XIII. CLAIMS AND DISPUTE RESOLUTION. To the extent required by applicable law, claims arising between the Contractor and the Owner under or in connection with this Contract shall be resolved in accordance with the provisions Section 00701-Dispute Resolution, incorporated herein by this reference.

ARTICLE XIV. HEADINGS AND INTERPRETATION. The headings in the Contract Documents are solely for the convenience of the parties, and are not intended to and shall not be construed to in any way limit Contractor's duties with respect to the performance of the Work as provided in the Contract Documents. Any uncertainty or ambiguity in the language of this Contract or the Contract Documents shall not be construed against the party drafting the same, but shall be construed as if both parties prepared the same and any provision to the contrary in Civil Code § 1654 is waived by the parties.

ARTICLE XV. REMEDIES . The remedies given to Owner in the Contract Documents shall not be exclusive, but shall be cumulative and in addition to all remedies now or hereafter allowed by law.

If any provision of the Contract Documents is void or unenforceable, the same shall in no way affect the validity or enforceability of any other provision of the Contract Documents or the validity or enforceability of this Contract as a whole.

This Contract shall be binding upon and shall inure to the benefit of the parties hereto, as well as their respective heirs, successors and assigns.

IN WITNESS WHEREOF, they had executed this Contract this _____ day of _____, 2015.

West Valley Construction Company, Inc.	Consolidated Irrigation District
Contractor	Owner
By _____	By _____
	Phillip Desatoff, General Manager
ATTEST: _____	By _____

END OF SECTION

SECTION 00502

INDEMNITY AGREEMENT

The undersigned Contractor (or supplier) by reason of contracts or purchase orders (and addenda and riders thereto) which have or may be entered into with the designated certificate holder, agrees the following conditions shall apply with respect to any and all work performed for or materials or equipment supplied to designated certificate holder.

The Contractor agrees to indemnify and save harmless, the Consolidated Irrigation District, the State of California, Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants from and against all loss or expense, (including costs and attorney fees) on account of injury or death of persons employed by the Contractor, or his sub-contractors, his or their agents or employees; injury to or death of any person; or injury to, damage or destruction of property, real or personal, including loss of use thereof. Upon demand, the Contractor shall defend any suits or actions covered by the terms of this Agreement.

Pursuant to Civil Code 2782 (A), Contractor shall have no obligation to indemnify or save harmless Indemnitees against loss or expense due to the sole negligence or willful misconduct of Owner, Provost & Pritchard Consulting Group, their officers, directors, agents, employees, and consultants, ,nor due to defects in design furnished by those persons.

Pursuant to Civil Code 2782 (B), Contractor shall have no obligation to indemnify or save harmless Indemnitees against loss or expense due to the active negligence of Owner.

Before commencing work, Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, insurance coverages as set forth in Section 00505, Insurance Requirements.

DATE: _____ ACCEPTED:_____
Owner, Partner or Officer

Witness-If Corp., Attest & Seal COMPANY: _____

_____

END OF SECTION

SECTION 00503

GUARANTY

The Contractor shall remain responsible for all defects in the Work, for a period of one (1) year following completion and acceptance of the Work by the Owner. Should any of the materials or equipment prove defective or should the Work as a whole prove defective, due to faulty techniques, material furnished or methods of installation, or should the Work or any part thereof fail to operate properly as originally intended and in accordance with the Plans and Specifications, the undersigned agrees to, upon demand by the Owner, replace any such materials and repair said work completely and without cost to the Owner, so that said work will function successfully as originally contemplated, or, upon demand, reimburse the Owner for its expenses incurred in restoring said Work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after receipt of demand from the Owner. If the undersigned shall fail or refuse to comply with his obligations under this guaranty, the Owner shall be entitled to all costs and expenses, including attorney's fees, reasonably incurred by reason of the said failure or refusal.

Prior to Owner exercising the option to have such repair or replacement performed by others, Owner shall notify undersigned of Owner's intent. Undersigned shall have 10 days to inspect the defective Work, materials and/or equipment and ascertain its condition. Full compensation for furnishing the guaranty will be considered as included in the contract price or prices paid for the items of work involved and no additional compensation will be allowed therefore.

Date: _____ _____

Contractor

END OF SECTION

SECTION 00505

INSURANCE REQUIREMENTS

Before commencing work, Contractor shall obtain at his own expense, and agrees to keep in effect during the life of this Contract, as a minimum requirement, the following insurance coverages issued by a company or companies acceptable to the Owner. All insurance, excepting Workers' Compensation and Occupational Disease Insurance, shall include as additional insured: the Owner, the County of Fresno, the United States Department of Housing and Urban Development, Provost & Pritchard Consulting Group, and their officers, directors, agents, employees and consultants.

1) Worker's Compensation and Occupational Disease Insurance meeting the statutory requirements of the State of California; and Employer's Liability Insurance in an amount of at least $1,000,000.00.

2) Comprehensive Liability Insurance with limits of:

   Bodily Injury, Property Damage and Personal Injury - $1,000,000.00 each occurrence, $1,000,000.00 aggregate.

   This insurance shall be on an occurrence basis and shall protect the Contractor against liability arising from: his operations, operations by sub-contractors, elevators, products, completed operations and contractual liability assumed under the indemnity provisions above insurance.

3) Automobile Liability on occurrence basis covering all owned, non-owned, and hired automobiles for limits of liability of:

   Bodily Injury and Property Damage - $1,000,000.00 each occurrence.

4) Builder's Risk Insurance is not required.

Contractor’s Property Damage Liability insurance shall include coverage for property damage caused by blasting, collapse, structural injuries or damage to underground utilities. The policy shall not contain the so-called “x,” “c,” or “u” exclusions.

The certificate of insurance shall further provide that ten days notice of cancellation or reduction in coverage shall be given the Owner.

An Additional Insured Endorsement to Contractor’s Liability insurance policy naming the County, the Owner, the United States and other participating public agencies(if applicable) and all officers and employees of the above, shall also be furnished.

Provided however, that the limits of such insurance shall not limit the extent of such assumed responsibility and liability.

SECTION 00600

BOND REQUIREMENTS

PART 1 GENERAL

1.1 GENERAL

A. All bonds required, whether Bid bonds, Performance, Payment, or other bonds, shall be issued by an admitted surety insurer. The payment and performance bonds required by these specifications will neither be accepted nor approved by the Owner unless the bonds are underwritten by an admitted surety and the requirements of California Code of Civil Procedure Section 995.630 are met. The Owner further reserves the right to satisfy itself as to the acceptability of the surety and the form of bond**. Upon request of the Owner, the bidder shall submit the following documents**:

1. The original, or a certified copy, of the unrevoked appointment, power of attorney, bylaws, or other instrument authorizing the person who executed the bond to do so.

2. A certified copy of the certificate of authority of the insurer issued by the California Insurance Commissioner.

3. A certificate from the county clerk that the certificate of authority has not been surrendered, revoked, canceled, annulled, or suspended, or in the event that it has, that renewed authority has been granted.

4. A certified copy of the certificate of the listing status from the United States Department of the Treasury circular 570, as amended.

5. A financial statement of the assets and liabilities of the insurer to the end of the quarter calendar year prior to 30 days next preceding the date of the execution of the bond, in the form of an officers' certificate as defined in Corporations Code □ 173.

B. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a SURETY on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of surety companies accepted on Federal Bonds, CONTRACTOR shall within twenty (20) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other SURETY or SURETIES as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payment shall be

deemed due nor shall be made until the new SURETY or SURETIES shall have furnished an acceptable BOND to the OWNER.

END OF SECTION

SECTION 00601

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____

as Principal, and _____ as Surety, are hereby held and firmly bound unto CONSOLIDATED IRRIGATION DISTRICT, as OWNER, in the penal sum of _____

_____Dollars ($_____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 2015.

The Condition of the above obligation is such that whereas the Principal has submitted to a certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for the ADAMS & ACADEMY BASIN PROJECT – WELL EQUIPPING CONTRACT;

NOW, THEREFORE,

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said bid) and shall furnish bonds for his faithful performance of said contract and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extension of the time within which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ (L.S.)
Principal

_____
Surety

_____
California Surety Number

IMPORTANT – Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state of California.

END OF SECTION

SECTION 00603

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal, and
Corporation, Partnership, or Individual)

_____
(Name of Surety)

an admitted California Surety, California Certificate No.:_____

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto CONSOLIDATED IRRIGATION DISTRICT, hereinafter called Owner, in the penal sum of _____ _____Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20__, a copy of which is hereto attached and made a part hereof for the construction of:

SOUTH AND HIGHLAND BASIN PROJECT – WELL EQUIPPING CONTRACT

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder of the Specifications accompanying the same shall release or otherwise affect its obligation on this Bond, and it does hereby notice of any such change,

extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the _____day of_____, 20__.

_____
Principal

By _____ (s)

_____
Address

ATTEST:

_____
(Principal) Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

_____
Surety

By _____(s)
Attorney-in-Fact

_____
Address

ATTEST:

_____
(Surety) Secretary

(SEAL)

_____
Witness as to Surety

_____
Address

NOTES: Date of bond must not be prior to date of Contract.
If Contractor is a partnership, all partners must execute Bond.

END OF SECTION

SECTION 00604

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____
(Name of Surety)

an admitted California Surety, California Certificate No.:,_____

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto CONSOLIDATED IRRIGATION DISTRICT,, hereinafter called Owner, in the penal sum of _____ _____ Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 2015, a copy of which is hereto attached and made a part hereof for the construction of:

ADAMS & ACADEMY BASIN PROJECT – WELL EQUIPPING CONTRACT

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor performed in such work, whether by subcontractor or otherwise, then this obligation shall be void, otherwise, to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time alternation or addition to the terms of the Contract or to work to be performed thereunder of the Specifications accompanying the same shall release or otherwise affect its obligation on this Bond, and it does hereby waive notice of any such

change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the _____day of_____, 20__.

_____
Principal

By _____ (s)

_____
Address

ATTEST:

_____
(Principal) Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

_____
Surety

By _____(s)
Attorney-in-Fact

_____
Address

ATTEST:

_____
(Surety) Secretary

(SEAL)

_____
Witness as to Surety

_____
Address

NOTES: Date of bond must not be prior to date of Contract.
If Contractor is a partnership, all partners must execute Bond.

END OF SECTION

SECTION 00675

NOTICE OF AWARD

TO: _____

_____

_____

PROJECT: CONSOLIDATED IRRIGATION DISTRICT

ADAMS & ACADEMY BASIN PROJECT – WELL EQUIPPING CONTRACT

The Owner has considered the bid submitted by you for the above described Work in response to its Notice Inviting Bids dated [DATE] and the Instructions to Bidders.

You are hereby notified that your bid has been accepted, and the sum of the items amounts to $_____.

You are required by the Instructions to Bidders to execute the Contract and provide the necessary bonds and insurance certificates within ten (10) calendar days from the date of this Notice.

If you fail to execute said Contract within ten (10) days from the date of this Notice, Owner will be entitled to consider all your rights arising out of Owner's acceptance of your bid as abandoned. Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to Owner.

Dated this _____day of_____,20___.

CONSOLIDATED IRRIGATION DISTRICT
OWNER

By: _____
Phillip Desatoff

Title: General Manager

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice of Award is hereby acknowledged

By: _____

this the _____ Day of _____, 20__

By: _____

Title _____

END OF SECTION

SECTION 00680

NOTICE TO PROCEED

TO: _____

_____

_____

PROJECT: CONSOLIDATED IRRIGATION DISTRICT

ADAMS & ACADEMY BASIN PROJECT – WELL EQUIPPING CONTRACT

DATE:

You are hereby notified to commence work in accordance with the Contract dated [DATE] on or before [DATE].

The date of completion of all WORK is therefore [DATE]

OWNER – CONSOLIDATED IRRIGATION DISTRICT

By: _____
Phillip Desatoff, General Manager

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____ this ____ day of _____, 20___.

By: _____

Title: _____

END OF SECTION

SECTION 00701

DISPUTE RESOLUTION, SUSPENSION AND TERMINATION

PART 1 GENERAL

1.1 DISPUTE RESOLUTION

A. Owner and Contractor may mutually request mediation of any Claim previously submitted to the Engineer for a decision before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement.

1. Timely submission of the request shall stay the effect of the Engineer's decision.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the claim is not resolved by mediation, Engineer's decision shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

D. Where the Project is Public Work, as defined in Sections 3100 and 3106 of the California Civil Code. California Public Contract Code, Section 20104 shall apply.

1.2 SUSPENSION

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive calendar days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension.

1.3 TERMINATION

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents, including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction

3. Contractor's disregard of the authority of Engineer

4. Contractor's violation in any substantial way of any provisions of the Contract Documents

B. If one or more of the events identified in Paragraph 1.3.A occur, Owner may, after giving Contractor (and surety) seven (7) calendar days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere,

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 1.3.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order.

1. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 1.3.B and 1.3.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than Fifteen (15) days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. The termination procedures of the Performance bond (if any) shall supersede the provisions of Paragraphs 1.3.B, and 1.3.C.

1.4 TERMINATION BY CONTRACTOR

A. If, through no act or fault of Contractor, the Work is suspended for more than 90 consecutive calendar days by Owner or under an order of court or other public authority, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension within that time, terminate the Contract.

END OF SECTION

SECTION 01005

SPECIFICATIONS

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall keep on the job a copy of the Plans and Specifications and shall at all times give the Owner and Engineer access thereto.

B. Anything mentioned in the Specifications and not shown on the Plans or shown on the Plans and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.

C. The Contractor shall not take advantage of any errors, discrepancies or omissions which may exist in the Plans and Specifications but shall immediately call them to the attention of the Engineer whose interpretation or correction thereof shall be conclusive.

D. In case of conflict between portions of the Contract Documents, the order of precedence of Contract Documents shall be:

First:	Permits from other agencies as may be required by law.
Second:	Addenda
Third:	Bid Documents, Division 0
Fourth:	Technical Specifications, Division 2 through Division16
Fifth:	Plans
Sixth:	General Requirements, Division 1
Seventh:	State Standard Specifications
Eighth:	Reference Documents

E. Change Orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over documents listed above. Detailed Plans shall have precedence over general Plans.

F. Whenever any conflict appears in any portions of the Contract Documents, it shall be resolved by application of the order of precedence.

1.2 GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS

A. For definitions of the Specifications categorized as General Requirements (Division 1) and Technical Specifications (Division 2 through Division 16) refer to Section 01090 – Definitions and Abbreviations.

1.3 REFERENCE DOCUMENTS

A. For a definition of Reference Documents and State Standard Specifications refer to Section 01090 – Definitions and Abbreviations.

B. Throughout the following Specification sections, references are made to various widely published, standard and commercial specifications, manuals, or codes of technical societies, organizations, or associations. These specifications are intended to amplify the descriptions of materials, equipment, and construction systems. The Contractor shall caution each of his Subcontractors to become familiar with the contents of the pertinent portions of these Reference Documents. The following Reference Documents are the most widely used, and are cited or referred to in each of the following sections of these Specifications:

1. American Society of Testing Materials (ASTM)

2. American National Standards Institute (ANSI)

3. American Standards Associations (ASA)

4. American Concrete Institute (ACI)

5. Federal Specifications, as applicable.

6. California Building Code

7. California Plumbing Code

8. National Electric Code

9. Construction Safety Orders of the Division of Industrial Relations latest edition.

C. Each citation of a Reference Document shall be construed to refer to the latest published revision of such specification as of the date of the invitation for bids and to such portions of it that relate and apply directly to the material or installation called for on this job. The Engineer will give no consideration to any claimed ignorance as to what a cited Reference Document contains, since such Subcontractor on a project of this scope is deemed to be experienced and familiar with his own trade to be experienced and familiar with his own trade's generally accepted, published standards of quality.

D. Whenever references are made to any of the above-mentioned Reference Documents or testing methods in the governing Building Codes, the requirements of those Reference Documents shall govern, insofar as they are not in contravention with maxima or minima prescribed by documents designated in the Building Code.

1.4 LIST OF DRAWINGS

A. The Work shall conform to the following Drawings:

TITLE	SHEET NUMBERS
ADAMS & ACADEMY BASIN PROJECT	
WELL EQUIPPING PROJECT	
Cover Sheet	1
Site Plan	2
Well Pad Grading Plan	3
Wellhead Improvements	4
Project Turnout	5
Project Distribution Structure	6
Construction Details	7
Symbols and General Notes	E1
Abbreviations	E2
Electrical Site Plan	E3
Single Line Diagram & Conduit/Wire Schedule	E4
Electrical Equipment Cabinet & Service Panel	E5
Electrical Equipment Service Pad	E6
Miscellaneous Electrical Details	E7

1.5 STATE STANDARD SPECIFICATIONS

A. For the purpose of this contract, the following terms or pronouns in place of them, used throughout the State Standard Specifications and defined in Section 1, Definition of Terms, of the State Standard Specifications, shall be as follows:

TERMS	INTERPRETATION
State	Consolidated Irrigation District
Department	Consolidated Irrigation District
Director	District Manager
Engineer	District Manager, Consolidated Irrigation District, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted them.
Department of Transportation	Consolidated Irrigation District
Contractor	The person or persons, co-partnership or corporation, private or municipal, who have entered into a contract with the Consolidated Irrigation District as party or parties of the second part, or his or

	her legal representative.

1.6 OCCUPATIONAL SAFETY AND HEALTH ACT

A. The applicable standards of the American National Standards Institute and the National Fire Protection Association that have been adopted are hereby made a part of these Specifications as a whole and as mentioned in the various sections.

B. Any errors, ambiguities, or inconsistencies of these standards with either the local codes, or the Specifications, or the Drawings shall be brought to the attention of the Engineer.

1.7 COMPLIANCE WITH ALL LAWS AND CODES

A. Contractor shall conform to and abide by all local city, county, state and federal laws, rules, regulations, including industrial safety laws. Such laws shall be considered as essential parts of these Specifications and, in the absence of definite requirements herein, the provisions of such rules and regulations shall be observed by the Contractor. If the Drawings and/or Specifications are at variance therewith, Contractor shall so notify Engineer promptly. Should the Contractor perform any work contrary to such laws, ordinances, rules and regulations he shall bear all costs arising therefrom.

B. Where these Specifications, however, call for or describe materials workmanship or construction of a better quality, higher standard, or larger size than is required by said rules and regulations, the provisions of these Specifications shall take precedence over said rules and regulations. Contractor shall furnish, without any extra charge, all additional labor or materials, or both, when required for compliance with these rules and regulations.

END OF SECTION

SECTION 01011

DESCRIPTION OF WORK AND SCHEDULE CONSTRAINTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The Work consists of furnishing all labor, materials and equipment necessary to equip and construct the well head improvements for recovery wells RW101, and RW102. The Work includes furnishing and installing natural gas pipeline, concrete pad, sound barrier, installing flow meters at the distribution structure and well discharges, the electrical panels, and all conduit and wiring associated with the power supplies, flow meters, submersible water level sensor; installation of Owner provided natural gas motors, and furnishing and installing steel pipe, fittings, and appurtenances for the well discharges at each of the sites, as well as the bowls, column assembly, discharge head and gear heads at each well site in accordance with the Plans and the Specifications.

B. The construction site is located in Fresno County near Fowler, California.

1.2 USE OF SITE BY DISTRICT

A. The District reserves the right to use the project facilities, in whole or in part, provided that the facilities affected by their use are substantially complete, safe to operate, and will not impact the Contractor's schedule or guaranty.

B. The District will notify the Contractor in writing seven (7) calendar days prior to using a facility.

1.3 BEGINNING OF WORK

A. The Contractor shall begin work within fourteen (14) calendar days after receipt of official Notice to Proceed from the Owner.

1.4 TIME OF COMPLETION

A. The Contractor shall complete all work by the completion date indicated on the Notice to Proceed, unless the period for completion is extended otherwise by the Contract Documents.

1.5 TIME CONSTRAINTS

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

1.6 ORDER OF WORK

A. The Contractor shall first coordinate delivery of the Motor supplied by Owner.

B. The Contractor shall then install the electrical power panels at each site, obtain the required approvals from Fresno County and PG&E, and schedule PG&E to provide service.

END OF SECTION

SECTION 01013

LIQUIDATED DAMAGES

PART 1 GENERAL

1.1 LIQUIDATED DAMAGES

A. The Contractor shall pay to the Owner the sum of

ONE THOUSAND DOLLARS ($ 1,000.00)

per day for each and every calendar day's delay in finishing the work in excess of the project completion date.

B. It is agreed by the parties to the contract that in case all the work called for under the contract in all parts and requirements is not finished or completed by the completion date as set forth above in the Notice to Proceed, damage will be sustained by the Consolidated Irrigation District, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Consolidated Irrigation District will sustain in the event of and by reason of the delay; and it is therefore agreed that the Contractor will pay to the Consolidated Irrigation District the sum set forth above per day for each and every calendar day's delay in finishing the work in excess of the number of calendar days prescribed; and the Contractor agrees to pay the liquidated damages herein provided for, and further agrees that the Consolidated Irrigation District may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

C. It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements within the number of calendar days specified, the Engineer shall have the right to increase the number of calendar days or not, as the Engineer may deem best to serve the interest of the Consolidated Irrigation District and if the Engineer decides to increase the number of calendar days, the Engineer shall further have the right to charge to the Contractor, or the Contractor's heirs, assigns or sureties and to deduct from the final payment for the work all or any part, as the Engineer may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the contract, and which accrue during the period of the extension, except that cost of final surveys and preparation of final estimate shall not be included in the charges.

D. The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering and inspection for any portion of the delay in completion of the work beyond the time named above for the completion of the work caused by acts of God or of the public enemy, fire, floods, tsunamis, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, shortage of materials and freight embargoes, provided that the Contractor shall notify the

Engineer in writing of the causes of delay within 15 days from the beginning of that delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

E. No extension of time will be granted for a delay caused by a shortage of materials unless the Contractor furnishes to the Engineer documentary proof that the Contractor has made every effort to obtain the materials from all known sources within reasonable reach of the work in a diligent and timely manner, and further proof in the form of supplementary progress schedules that the inability to obtain the materials when originally planned did in fact cause a delay in final completion of the entire work which could not be compensated for by revising the sequence of the Contractor's operations. The term "shortage of materials," as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and are to be incorporated in the work. The term "shortage of materials," shall not apply to materials, parts, articles or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the contract. Only physical shortage of material will be considered as a cause for extension of time. Delays in obtaining materials due to priority in filling orders will not constitute a shortage of materials.

F. If the Contractor is delayed in completion of the work by reason of changes made by Consolidated Irrigation District or by failure of the Consolidated Irrigation District to acquire or clear right of way, or by any act of the Engineer or of the Consolidated Irrigation District not contemplated by the contract, an extension of time commensurate with the delay in completion of the work thus caused will be granted, and the Contractor shall be relieved from any claim for liquidated damages, or engineering and inspection charges or other penalties for the period covered by that extension of time; provided that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of the delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

END OF SECTION

SECTION 01017

MATERIALS

PART 1 GENERAL

1.1 GENERAL

A. The materials furnished and used shall be new, except as may be provided elsewhere in these Specifications, or on the Plans.

B. All materials required to complete the work under this contract shall be furnished by the Contractor, unless otherwise stated.

C. It shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instruction before proceeding with the Work. The Engineer may, by appropriate instructions, correct said apparent errors and omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

1.2 DEFINITIONS

A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor.

B. Revisions: Changes to Contract Documents requested by Owner or Engineer.

C. Options: Specified options of products and construction methods included in Contract Documents.

1.3 TRADE NAMES AND ALTERNATIVES

A. Wherever an article, or any class of materials, is specified by the trade name or by the name of any particular patentee, manufacturer or dealer, or by reference to the catalog of any such manufacturer or dealer, it shall be taken as intending to mean and specify the article or material described or any other equal thereto in quality, finish and durability, and equally as serviceable for the purpose for which it is or they are intended. The intent of the Plans and Specifications is to specify highest grade standard equipment, and it is not the intent of these Plans and Specifications to exclude or omit the products of any responsible manufacturer, if such products are equal in every practical respect to those mentioned herein, as determined by the Engineer.

1.4 SAMPLES

A. At the option of the Engineer, the source of supply of materials for the Work shall be subject to tests and inspection before the delivery is started and before such materials are used in the Work. Samples representative of the character and

quality of materials shall be submitted by the Contractor. Samples shall be of sufficient quantities or amounts for testing or examination.

B. All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national technical organizations, and such special methods and tests as are prescribed in the Contract Documents.

C. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. Samples and test specimens prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer, or his designated representative, in the presence and with the assistance of the Contractor.

1.5 SUBMITTALS

A. Material Submittals shall be made in accordance with Section 001300 – Submittals.

1.6 INSPECTION OF MATERIALS BY THE CONTRACTOR

A. Contractor shall make a close inspection of all materials as delivered, and shall promptly return all defective materials without waiting for their rejection by the Engineer.

1.7 CERTIFICATES OF COMPLIANCE

A. A Certificate of Compliance may be required for certain materials and equipment that become final products of the completed Work. Certificates of Compliance shall be furnished prior to the use of any materials for which these Specifications require that such a certificate be furnished. In addition, when so authorized in these Specifications, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.

B. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.

C. A Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the certificate.

D. All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis 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 Plans and Specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

E. The Consolidated Irrigation District reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

1. The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

1.8 MANUFACTURER TESTING

A. At the option of the Engineer, materials and equipment to be supplied under this Contract will be tested and inspected either at their place of origin or at the site of the Work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials and equipment to be tested and inspected at point of origin.

1. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or re-inspection at the site of the Work.

2. Materials and equipment which will require testing and inspection at the place of origin shall not be shipped prior to such testing and inspection.

1.9 MANUFACTURERS' RECOMMENDATIONS

A. All equipment specified and used in the project shall be installed in accordance with the approved manufacturer's current written recommendations.

B. All such equipment, material, etc., shall be of the manufacturer's latest system or line.

1.10 SUBSTITUTIONS

A. Conditions: Contractor's substitutions shall be considered when one or more conditions are satisfied, as determined by the Engineer. (The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.)

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of the Contract Documents.

3. Request is timely, fully documented and properly submitted.

4. Request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request shall not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by governing authority, and the requested substitution can.

7. Substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear.

   a. Additional responsibilities for the Owner may include additional compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

   b. Contractor shall provide all data in support of any proposed substitute or “or-equal” at Contractor’s expense.

8. Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. Specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. Specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

1.11 SUBSTITUTION REQUEST FORM

A. Use Substitution Request Form in on page 01017-5.

B. Submit one form (4 copies) for each request.

END OF SECTION

SUBSTITUTION REQUEST FORM

TO: _____

PROJECT: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION: _____ PARAGRAPH: _____ SPECIFIED ITEM: _____

Proposed Substitution: _____

Attach: 1) Complete technical data, including laboratory tests, if applicable.

2) Complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

A. Does the substitution affect dimensions on Drawings?

B. Will the undersigned pay for changes to the project design, including engineering and detailing costs caused by the requested substitution?

C. What affect does substitution have on other trades?

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of the proposed and specified items are:

____Same _____ Different (explain on attached sheet)

SUBSTITUTION REQUEST FORM

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By:

Signature _____

Firm _____

Address _____

Date _____

Telephone _____

For Use by Design Consultant
Accepted Accepted as Noted Not Accepted Received Late By_____ Date_____ Remarks_____

SECTION 01018

CONTRACTOR'S RESPONSIBILITIES

PART 1 GENERAL

1.1 SUPERVISION AND SUPERINTENDENCE

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent thereto who shall not be replaced without written notice to Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

1.2 MAINTAINING TRAFFIC

A. Traffic and Access: The Contractor's operations shall cause no unnecessary inconvenience. The access rights of the public shall be considered at all times. Unless otherwise authorized, traffic shall be permitted to pass through the Work, otherwise a detour, approved by the Engineer, shall be provided. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, whether public or private, Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when Contractor has obtained written permission from the owner and tenant of private property involved, to obstruct traffic at the designated point.

B. The type and location of signs, lights, flags, flagmen and other traffic control and safety devices shall be in accordance with the "Manual of Traffic Controls - Warning Signs, Lights, and Other Devices for Use in performance of Work Upon Highways," latest edition, issued by the State of California, Department of Transportation. Copies of the Manual may be obtained from the Permits Engineer, State Department of Transportation, or on the internet at www.dot.ca.gov .

C. Reflectivity of construction signs shall conform to the State Standard Specifications.

D. Based on all the above, Contractor shall determine the need for any signs, lights, flags, flagmen and any other traffic control and traffic safety devices and shall include all such costs in the Traffic Control item of Contractor's Bid. No other compensation will be made.

1.3 OBSTRUCTIONS

A. Attention is directed to the possible existence of underground utility facilities not indicated on the plans and to the possibility that utility lines may be in a location different from that which is indicated on the plans. The Contractor shall ascertain the exact location of underground utilities whose presence is indicated on the plans, the location of their service laterals or other appurtenances, and of existing service lateral or appurtenances of any other underground facilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes, prior to doing work that may damage any of the facilities or interfere with their service.

B. If the Contractor cannot locate an underground facility whose presence is indicated on the plans, the Contractor shall so notify the Engineer in writing. If the facility for which the notice is given is in a substantially different location from that indicated on the plans or in the special provisions, the additional cost of locating the facility will be paid for as extra work as provided in the General Conditions.

C. If the Contractor discovers underground utilities not indicated on the Plans, the Contractor shall immediately give the Engineer and the Utility Company written notification of the existence of those facilities. The utilities shall be located and protected from damage as directed by the Engineer, and the cost of that work will be paid for as extra work as provided in the General Conditions. The Contractor shall, if directed by the Engineer, repair any damage which may occur to the utilities. The cost of that repair work, not due to the failure of the Contractor to exercise reasonable care, will be paid for as extra work as provided in the General Conditions. Damage due to the Contractor's failure to exercise reasonable care shall be repaired at the Contractor's cost and expense.

D. Where it is determined by the Engineer that the rearrangement of an underground facility is essential in order to accommodate the project improvements and the plans do not provide that the facility is to be rearranged, the Engineer will provide for the rearrangement of the facility by other forces or the rearrangement shall be performed by the Contractor and will be paid for as extra work.

E. When ordered by the Engineer in writing, the Contractor shall rearrange any utility or other non highway facility necessary to be rearranged as a part of the project improvements, and that work will be paid for as extra work.

F. Should the Contractor desire to have any rearrangement made in any utility facility, or other improvement, for the Contractor's convenience in order to facilitate the Contractor's construction operations, which rearrangement is in addition to, or different from, the rearrangements indicated on the Plans, the Contractor shall make whatever arrangements are necessary with the owners of

the utility or other facility for the rearrangement and bear all expenses in connection therewith.

G. The Contractor shall immediately notify the Engineer of any delays to the Contractor's operations as a direct result of utility facilities which were not indicated on the Plans or were located in a position substantially different from that indicated on the Plans, or as a direct result of utility or other non highway facilities not being rearranged as herein provided (other than delays in connection with rearrangements made to facilitate the Contractor's construction operations or delays due to a strike or labor dispute). These delays will be considered right of way delays within the meaning of Section 8 1.09, "Right of Way Delays" of the State Standard Specifications, and compensation for the delay will be determined in conformance with the provisions in Section 8 1.09. The Contractor shall be entitled to no other compensation for that delay.

H. Any delays to the Contractor's operations as a direct result of utility or other non highway facilities not being rearranged as provided in this Section, due to a strike or labor dispute, will entitle the Contractor to an extension of time as provided in Section 01013 - Beginning of Work, Time of Completion & Liquidated Damages. The Contractor shall be entitled to no other compensation for that delay.

I. Full compensation for conforming to the requirements of this article shall be considered as included in the various contract items of work and no separate payment will be made therefore.

1.4 PRE-CONSTRUCTION MEETING

A. The Contractor and its job superintendent, the Contractor's subcontractors and their job superintendents will be required to attend the pre-construction conference scheduled by the Owner as specified in Section 01200 – Project Meetings. A project schedule shall be submitted by the Contractor at this meeting.

1.5 SAFETY REPRESENTATIVE

A. The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the Work. The Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with the performance of the Work, whether on or adjacent to the site, with cause of death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injury or serious damage to the property are caused, the accident shall be reported immediately by telephone or messenger to the Engineer. If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

1.6 SAFETY AND PROTECTION

A. Safety and Protection*:* The Contractor shall have at the work site, copies or suitable extracts of Construction Safety Orders, issued by Cal-OSHA. He shall comply with provisions of these and all other applicable laws, ordinances and regulations.

1. Contractors must comply with provisions of the safety and health regulations for construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29 C.F.R.

2. In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the Contract.

3. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his facilities, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.

4. The Contractor agrees that it shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner, and Provost & Pritchard Engineering Group, Inc. harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting for liability arising from the sole negligence of Owner or the Engineer.

5. In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

6. The duty of the Engineer to conduct construction review of the Contractor's performance and the undertaking of inspections by the Engineer or the giving of instructions as authorized herein is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site and shall not be construed as supervision of the actual construction nor make the Engineer or the Owner responsible for providing a safe place for the performance of work by the Contractor, subcontractors,

or suppliers; or for access, visits, use, work, travel or occupancy by any person.

7. The Owner, the Engineer, and their respective employees' site responsibilities are limited solely to the activities of the Owner's and Engineer's employees on site. These responsibilities shall not be inferred by any party to mean that the Owner or Engineer has responsibility for site safety. Safety in, on, or about the site is the sole and exclusive responsibility of the Contractor alone. The Contractor's methods of work performance, superintendence and the Contractor's employees, and sequencing of construction are also the sole and exclusive responsibilities of the Contractor alone.

B. Contractor shall comply with Public Contract Code Section 7104

1. The Contractor's attention is directed to the provisions of Public Contract Code Section 7104. This section requires that any public works contract which involves digging trenches or other excavations that extend deeper than four feet below ground level contain provisions requiring that (i) the Contractor must notify the local agency of certain specified conditions relating to hazardous waste, unexpected subsurface or latent conditions, or unknown physical conditions, (ii) the local agency must promptly investigate any such conditions reported to it and issue a change order if it makes certain findings regarding those conditions, and (iii) in the event of a dispute between the local agency and the Contractor as to whether hazardous waste exists or whether the conditions encountered differ from those expected, the Contractor is not excused from performance, but must proceed with all Work to be performed under the contract.

2. Full compensation for all costs involved in locating, verifying, protecting, exposing, bracing, and otherwise providing for utilities and compliance with Public Contract Code Section 7104 shall be included in the amounts bid for Miscellaneous Facilities and Operations or the various items of Work, and no separate payment shall be made therefor.

C. The Contractor shall include all costs for the above items in the various bid items, and no separate payment will be made therefore.

1.7 ACCIDENT PREVENTION

A. Precaution shall be exercised by the Contractor at all times for the protection of persons (including Owner, Engineer, and Regulatory Agency employees) and property. The safety provisions of applicable laws, and of building and construction codes shall be observed. Machinery, equipment and other hazards shall be guarded or eliminated.

B. First aid facilities and information posters conforming at least to the minimum requirements of the Occupational Safety and Health Administration shall be provided in a readily accessible location or locations.

C. The Contractor shall make all reports as are, or may be, required by any authority having jurisdiction, and permit all safety inspections of the work being performed under this Contract. Before proceeding with any construction work, the Contractor shall take the necessary action to comply with all provisions for safety and accident prevention.

1.8 PROTECTION OF EXISTING ITEMS

A. The Contractor shall protect all existing utilities, structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.

B. Contractor will be held responsible for any damage to existing utilities, structures, roadways and walkways, Work; materials; or equipment because of his operations and shall repair or replace any damaged utilities, structures, roadways, and walkways, work, materials, or equipment to the satisfaction of, and at no additional cost to, the Owner.

1.9 PROJECT SECURITY

A. The Contractor shall make adequate provision for the protection of the Work area against fire, theft, and vandalism, and for the protection of the public against exposure to injury.

B. Sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities, shall be provided in readily accessible locations.

1.10 PERMITS AND LICENSES

A. The Contractor shall procure all permits and licenses, pay all charges and fees, as required, and give all notices necessary and incidental to the due and lawful prosecution of the work.

1.11 PROJECT SITE MAINTENANCE

A. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work site clean and free from rubbish and debris.

B. Materials and equipment shall be removed from the site as soon as they are no longer necessary; and upon completion of the work and before final inspection, the entire work site shall be cleared of equipment, unused materials and rubbish so as to present a satisfactory clean and neat appearance. All cleanup and project site maintenance costs shall be included in the Contractor's Bid.

1.12 DEWATERING

A. Comply with Section 02200 – Earthwork of these Specifications.

1.13 STORM WATER CONTROL

A. Contractor shall be responsible for managing storm water runoff during the construction period. See Section 02503 of these Specifications. Contractor's full range of responsibilities is set forth in that section, but includes the following non-exhaustive list of duties:

1. Contractor shall prepare and submit a Storm Water Pollution Prevention Plan for the project. See Section 02503 of these Specifications. This plan must be prepared by a Qualified SWPPP Developer (QSD) as recognized by the State of California.

2. Contractor shall retain and provide the services of a Qualified SWPPP Practitioner (QSP) as recognized by the State of California, who shall perform or oversee all necessary monitoring, testing and reporting prescribed by the SWPPP and the State of California Construction General Permit. The QSP duties may be performed by the QSD.

3. Contractor shall prepare and post to SMARTS all required testing and reporting as mandated by the SWPPP and the Construction General Permit, including periodic inspection reports, quarterly reports, reports of non-storm water discharge, and annual reports. The City, as the Legally Responsible Party, will certify these reports after they are posted to SMARTS.

4. All Water Board fees for SWPPP-related tasks and posts shall be included in the Contractor's bid for this item of work,.

1.14 USE OF SITE AND OTHER AREAS

A. The Contractor shall effectively secure and protect adjacent property and structures, crops and other vegetation.

B. Contractor shall repair all fences damaged during the work.

C. In all cases where the Contractor removes fences to obtain room to work, he shall provide and install temporary fencing as required. Prior to completion of construction, the Contractor shall restore all original fences to the satisfaction of the Engineer. All costs of providing, work required for site maintenance and maintaining and restoring gates and fencing shall be borne by the Contractor.

D. The Contractor shall use extreme care during construction to prevent damage from dust to crops and adjacent property. The Contractor shall also abate dust nuisance by cleaning, sweeping and sprinkling with water or other means as necessary. Dust control shall conform to the applicable provisions of Section 10 of the State Standard Specifications. All cleanup, dust control, and project site maintenance costs shall be absorbed in the Contractor's Bid.

E. The Contractor shall be responsible for all damage to any property resulting from trespass by the Contractor or his employees in the course of their employment, whether such trespass was committed with or without the consent or knowledge of the Contractor.

F. The Contractor shall provide and maintain enclosed toilets for the use of employees engaged in the Work. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps.

G. All traffic signs and street signs within the limits of the improvement shall be removed, salvaged and stockpiled at locations designated by the Engineer. Traffic control signs and street signs will be replaced upon the completion of the Work and the cost of removal and replacement will be included in various bid items, and no separate payment will be made as such.

H. Compensation for any necessary work required for site maintenance shall be considered as included in the prices paid for the various bid items and no additional compensation will be made therefore.

1.15 EMERGENCIES

A. In the event of an emergency or unusual conditions endangering life, the Work, or adjacent property, the Contractor may, without special instructions or authorization, act at his discretion to prevent or eliminate such danger. If the Engineer determines that a change in the Contract Documents is required due to the action taken by the Contractor in response to such an emergency, a change order will be issued.

1.16 AIR POLLUTION CONTROL

A. The Contractor shall not discharge smoke, dust or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.

B. Contractor shall comply with the San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. Dust control shall be as specified in Section 02504 – Dust Control.

C. Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Acts of 1970 and Cal OSHA.

1.17 PROJECT SITE SECURITY

A. The Contractor shall secure the project site at all times when work is not in progress. It shall be his responsibility to protect existing and newly construction facilities from damage due to his construction operations and shall be responsible

for the repair or replacement of any facilities which are damaged due to his failure to secure the project site.

B. Contractor shall make his own arrangements, pay for and assume all responsibility for acquiring, using and disposing of additional work areas and facilities temporarily required by him. He shall indemnify and hold the Owner harmless from all claims for damages occasioned by such actions.

1.18 NOTIFICATION

A. The Owner shall be supplied at all times with the names and telephone numbers of at least two (2) persons in charge of or responsible for the work, who can be reached for emergency work twenty-four (24) hours a day, seven (7) days a week.

An Emergency Contact List with contract numbers and addresses for the Sheriff, Police, Fire Department, the names and telephone numbers of at least two (2) medical doctors practicing in the vicinity and the local ambulance service shall be prominently displayed adjacent to telephones.

B. The Contractor shall notify the Owner at least forty-eight (48) hours prior to commencing work.

C. Contractor shall notify. USA Underground Service Alert Organization for utility underground permits per Section 4216 of the government Code. The Contractor shall obtain all identification numbers and certifications required for underground utility locations prior to starting excavation within the project limits of work. The Underground Service Alert Phone Number is 800-227-2600. The Contractor shall immediately notify the District and the utility owner if he/she disturbs, disconnects, or damages any utility.

1.19 LABOR

A. No person whose age or physical condition is such as to make his employment dangerous to his health and safety or to the health and safety of others shall be employed on the Work, and in no event shall any person under the age of sixteen (16) years be employed.

1.20 ADMINISTRATION

A. Contractor shall also be responsible for the administration of the project and all submittal and deliverable requirements as set forth in these specifications including but not limited to: all of Division 0, Bidding Documents; Division 1, General Conditions; and Division(s) 2-16, Technical Specifications. The Contractors work shall not be considered complete until the administrative requirements are complete.

1.21 COMMUNICATION

A. All correspondence, coordination of owner furnished items, and all communication from the Contractor shall be submitted to the Engineer for review and distribution

to the Owner. Direct contact with the Owner is not permitted except in an emergency or by written permission from the Engineer. The Engineer may designate one or more persons to accept communications from the Contractor.

END OF SECTION

SECTION 01019

CONSTRUCTION STAKES, LINES, AND GRADES

PART 1 GENERAL

1.1 LINES AND GRADE

A. The Work shall be executed in accordance with the lines and grades indicated in the Contract Documents. Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes.

1.2 SURVEY SERVICES

A. Construction surveying and staking for construction will be done by the Engineer or Engineer's representative at the Owner's expense. The Engineer will provide one set of control stakes to identify utility locations.

B. Additional detail staking layout will be the responsibility of the Contractor. The Contractor shall be responsible for preserving construction survey stakes, permanent survey monuments and bench marks for the duration of their usefulness. If any construction survey stakes permanent survey monuments or benchmarks are lost or disturbed and need to be replaced, such replacement shall be made by the Engineer at the expense of the Contractor.

C. The Contractor shall notify the Engineer at least five (5) working days before he will require survey services in connection with laying out of any portion of the Work. The Contractor at his own expense shall dig all holes necessary for line and grade stakes prior to requesting survey services that depend on such digging.

END OF SECTION

SECTION 01022

CHANGES TO THE WORK

PART 1 GENERAL

1.1 GENERAL

A. The provisions of Section 9-1.04 “Force Account” of the State Standard Specifications are modified as indicated in this section.

B. The Owner reserves the right to vary the contract price by ± 25% by varying the Unit Price quantities without adjusting the associated Unit Price paid to the Contractor for the work.

1.2 COST OF CHANGED WORK

A. When extra work is to be paid for on a force account basis, the labor, materials and equipment used in the performance of that work shall be subject to the approval of the Engineer and compensation will be determined as follows:

1. To actual wages paid: a Labor Surcharge will be added as specified in the California Department of Transportation publication entitled “Labor Surcharge and Equipment Rental Rates.”

2. To actual wages paid, including the Labor Surcharge: a fee of 15% will be added.

3. To the costs incurred for materials purchased and equipment rental: a fee of 15% will be added.

    a. Equipment rental rates shall be computed on the basis of “Labor Surcharge and Equipment Rental Rates” referenced above.

4. To the costs incurred for subcontracted work: a fee of 5% will be added.

    a. Basis of cost shall be the subcontractor’s written quote.

B. For changes that result in a decrease in cost, the Contractor shall not be entitled to any compensation for loss of expected profit.

1.3 AUTHORIZATION REQUIRED

A. Contractor shall not proceed with work outside the scope, lines or grades shown on the Plans or other documents without proper authorization. Necessary authorization shall be a Work Change Directive or Change Order, properly signed by the Engineer and/or the Owner.

B. Work done without proper or timely authorization will not be paid.

END OF SECTION

SECTION 01025

MEASUREMENT & PAYMENT

PART 1 GENERAL

1.1 MEASUREMENT

A. Unless otherwise specified in the Contract Documents, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures and shall be measured on the basis of “in-place” quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be measured. Compensation for such incidental work is considered to be included in the various items of work bid.

1.2 INCREASED OR DECREASED QUANTITIES

A. Increases or decreases in quantities shall be governed by the General Conditions.

B. All written requests for adjustment shall be made no later than five working days after notification by the Engineer that the item of work is complete.

1.3 FINAL PAY QUANTITIES

A. Final pay quantities shall be in accordance with the General Conditions except as modified below.

B. Final pay quantities will be designated only in the Bid Schedule and in Section 01900 – Explanation of Bid Items, and are not shown on the Plans. .

C. When an item of work is designated as a Final Pay Quantity on the Bid Schedule and/or in the Explanation of Bid Items, the estimated quantity for that item of work shall be the final pay quantity, unless the dimensions of any portion of that item are revised by the Engineer, or the item or any portion of the item is eliminated.

If the dimensions of any portion of the item are revised, and the revisions result in an increase or decrease in the estimated quantity of that item of work, the final pay quantity for the item will be revised in the amount represented by the changes in the dimensions.

If a final pay item is eliminated, the estimated quantity for the item will be eliminated.

If a portion of a final pay item is eliminated, the final pay quantity will be revised in proportion to the bid quantity represented by the eliminated portion of the item of work.

D. The estimated quantity for each item of work designated as a Final Pay Quantity on the Bid Schedule and/or in the Explanation of Bid Items shall be considered as approximate only, and no guarantee is made that the quantity which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations does not equal the estimated quantity.

E. In case of discrepancy between the quantity shown on the Bid Schedule for a final pay item and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity shown on the Bid Schedule.

1.4 PARTIAL PAYMENT

A. Attention is directed to Section 9-1.06 of the State Standard Specifications which, except as modified herein, shall apply in its entirety.

1. The local agency shall withhold not less than 5 percent of the contract price until final completion and acceptance of the project.

2. Partial payments for materials on hand shall not exceed one hundred percent (100%) of the value of material delivered on site, properly stored in a secured fenced area subject to, or under the control of, the owner and local agency, and unused. Contractor shall submit copies of invoices of materials to support values. Materials stored shall be installed within 60 days of delivery for payment eligibility.

B. Payment shall not relieve the Contractor from its obligations under the Contact; nor shall such payment be construed as acceptance of any of the Work. Payment shall not be construed as transfer of ownership of any equipment or materials to the Owner. Responsibility of ownership shall remain with the Contractor who shall obligated to protect any fully or partially completed work or structure for which payment has been made; or replace any materials or equipment to be provided under the Contract which may be damaged, lost, stolen or otherwise degraded in any way prior to acceptance of the Work, except as provided in Section 7-1.15 of the State Standard Specifications.

1.5 FINAL PAYMENT

A. Final payment will be due thirty-five (35) days after the recording of the Notice of Completion by the Owner.

B. Payment for the work will be made in accordance with the Standard Procedures of the Owner, and no later than sixty days after the recording of the Notice of Completion by the Owner.

C. Upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Bidder's Proposal hereto attached. Payments on account thereof will be made as set forth in these Specifications.

1.6 THE CONTRACTOR SHALL COMPLY WITH SECTION 1026 -- WAIVER AND RELEASE SUBMITTALS.SECURITIES IN LIEU OF RETENTION AND ESCROW AGREEMENT

A. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with Owner, or with a state or federally chartered bank in California as the escrow agent, who shall then pay those withheld moneys to Contractor. Upon satisfactory completion of the contract, the securities shall be returned to Contractor.

B. Alternatively, Contractor may request and the owner shall make payment of retentions earned directly to the escrow agent at the expense of Contractor. At the expense of Contractor, Contractor may direct the investment of the payments into securities and Contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by Contractor. Upon satisfactory completion of the contract, Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from Owner, pursuant to the terms of this section. Contractor shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of Contractor.

C. Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Contractor and Owner.

D. Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between _____ _____ whose address is _____ _____ herein after called "Owner," _____ _____ whose address is _____ _____ hereinafter called "Contractor" and _____ _____ whose address is _____ _____ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for _____ in the amount of _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the escrow agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of _____, and shall designate the Contractor as the beneficial owner.

(2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to

the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:	On behalf of Contractor:	On behalf of Escrow Agent:
_____	_____	_____
Title	Title	Title
_____	_____	_____
Name	Name	Name
_____	_____	_____
Signature	Signature	Signature
_____	_____	_____
Address	Address	Address

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

Owner	Contractor
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature

END OF SECTION

SECTION 01026

WAIVER AND RELEASE SUBMITTALS

1.1 GENERAL INSTRUCTIONS FOR WAIVER AND RELEASE (LIEN WAIVER) SUBMITTALS

A. Waivers and Releases must be submitted, on forms provided by Owner or on equivalent forms supplied by Contractor. Copies of said forms, which comply with Civil Code Sections 8132 though 8138, are attached at the end of this Section.

B. Comply with Section 1025 - Measurement and Payment.

C. Waiver and Release submittal sequence:

1. Upon initial submittal for progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Progress Payment"**. If initial submittal is also a final submittal for any or all subcontractors, material or equipment suppliers, submit a **"Conditional Waiver And Release Upon Final Payment"** for those suppliers or subcontractors.

2. Upon each subsequent submittal for progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Progress Payment"** for the total amount through the current progress payment. Also submit an **"Unconditional Waiver And Release Upon Progress Payment"** reflecting the previous progress payment aggregate sum.

3. Upon submittal for final progress payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Final Payment"**. Also submit an **"Unconditional Waiver And Release Upon Progress Payment"** reflecting the previous progress payment aggregate sum.

4. Prior to final payment, submit for each subcontractor, material or equipment supplier a **"Conditional Waiver And Release Upon Final Payment"**.

5. Upon receipt of final payment, Contractor shall submit an **"Unconditional Waiver And Release Upon Final Payment"**.

END OF SECTION

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Through Date:_____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:_____

Amount of Check: $_____

Check Payable to:_____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release:_____

Amount(s) of unpaid progress payment(s): $_____

(4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Through Date:_____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: $_____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant:_____

Name of Customer:_____

Job Location:_____

Owner:_____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:_____

Amount of Check: $_____

Check Payable to:_____

Exception

This document does not affect any of the following:

Disputed claims for extras in the amount of: $ _____

Signature

Claimant's Signature:_____

Claimant's Title:_____

Date of Signature:_____

UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Maker of Check: _____

Amount of Check: $ _____

Check Payable to: _____

Exception

This document does not affect any of the following:

Disputed claims for extras in the amount of: $ _____

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

SECTION 01040

COORDINATION OF WORK

PART 1 GENERAL

1.1 RESPONSIBILITY OF CONTRACTOR

A. The Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results of the Contractor's Work. Failure of the Contractor to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the Work by the Contractor.

1.2 WORK INVOLVED WITH EXISTING SYSTEM

A. Existing materials and equipment removed not designated to be salvaged for Owner in the execution of the Work shall become the property of the Contractor and shall be removed from, and disposed of, off the site by the Contractor in an acceptable and lawful manner.

1.3 COORDINATION OF WORK

A. The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with these Specifications, he shall obtain from each of his subcontractors a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

B. Open trench work in the Kirby Canal shall be kept to a maximum of one week and coordinated with the Engineer.

END OF SECTION

SECTION 01052

ENGINEER'S STATUS DURING CONSTRUCTION

PART 1 GENERAL

1.1 OWNER'S REPRESENTATIVE

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in these Specifications and will not be changed without written consent of Owner and Engineer.

1.2 VISITS TO SITE

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Section 1.5, below. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

C. Review of the Work by the Engineer shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

D. No oral or telephonic agreement or conversation with any officer, agent or employee of the Owner or the Engineer, or with the Engineer, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the Contract Documents.

E. The Contractor shall pay the Owner for all overtime review in accordance with existing resolutions or fee schedules of the Owner, unless the charges for such inspection have been specifically waived in the Contract Documents. Overtime charges will be made for all reviews on Saturdays, Sundays and State holidays, and hours worked by the reviewer other than those of the normal working day.

1.3 AUTHORIZED VARIATIONS IN WORK

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided within the Contract Documents.

1.4 REJECTING DEFECTIVE WORK

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed. Neither this authority nor the Engineer's good faith judgment to reject or not reject any work shall subject the Engineer to any liability or cause of action by the Contractor, subcontractors, or any other suppliers or persons performing work on the Contract.

1.5 LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES

A. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

B. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

C. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other

documentation required to be delivered will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

D. The limitations upon authority and responsibility shall also apply to, the Engineer's field representative, known as the Resident Project Representative, if any, and assistants, if any.

END OF SECTION

SECTION 01090

DEFINITIONS AND ABBREVIATIONS

PART 1 GENERAL

1.1 DEFINITIONS AND TERMS

A. Whenever in these Specifications, or in other Contract Documents, the following terms are used, the intent and meaning shall be interpreted as follows:

1. Board: Consolidated Irrigation District Board of Directors.

2. Calendar Day: Every day shown on the calendar.

3. Contractor: The word “Contractor” means the person, firm or corporation to whom the award is made. Subcontractors as such will not be recognized.

4. Contract Unit Price: The Contractor’s original bid for a single unit of an item of work in the Proposal.

5. Contract Time: The number of calendar days for completion of the Work, including authorized time extensions. In the event a calendar date is specified for Project completion in lieu of a number of calendar days, the Work shall be completed by that calendar date. The Contract Time shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

6. Engineer: Provost & Pritchard Consulting Group, 2505 Alluvial Avenue, Clovis, California 93611, (559) 326-1100.

7. Equipment: (Construction) - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of work. (Installed) - All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

8. General Conditions: All specifications contained in Division 0 and 1.

9. General Requirements: All specifications contained in Division 1.

10. Notice: Any notice allowed or required to be given by the Owner may be given by the Engineer.

11. Owner: Consolidated Irrigation District, a California irrigation district.

12. Person: Any individual, association, partnership, corporation, trust, joint venture or other legal entity.

13. Plans: The drawings, profiles, cross-sections, working drawings and supplemental drawings, or reproduction thereof, approved by the Engineer, which show the location, character, dimensions or details of the work.

14. Proposal: The offer of a Bidder when submitted on the Proposal form; properly signed and guaranteed.

15. Reference Documents: Bulletins, Rules, Methods of Analysis or Test, Codes, Standards, and Specifications of public or private agencies, Engineer Societies, or Industrial Associations. Reference shall be to the latest edition thereof, including Amendments, which are in effect and published at the time the Request for Bids is issued, unless a specific edition is identified, in which case reference shall be to such specific edition. Reference Documents are intended to amplify the descriptions of materials, equipment, and construction systems and are to be considered a part of the Contract Documents insofar as the various sections thereof are referred to hereinafter. Examples of Reference Documents are Federal Specifications, State Standard Specifications, and those of American Society of Testing Materials (ASTM), American National Standards Institute (ANSI), American Standards Associations (ASA), and American Concrete Institute (ACI).

16. Salvage: The protection storage, and/or removal of specified existing equipment, parts or materials during the work for retention and later use by the Owner.

17. Sanitary Sewer: Any conduit and appurtenances intended for the reception and transfer of sewage.

18. State: The State of California.

19. State Standard Plans: State of California, Business and Transportation Agency, Department of Transportation, Caltrans, Standard Plans, latest revision.

20. State Standard Specifications: Standard Specifications for the project are those entitled "Standard Specifications, State of California, Business and Transportation Agency, Department of Transportation", 2006 edition, hereinafter referred to as the State Standard Specifications. These Specifications are to be considered a part of the Contract Documents insofar as they are not superseded by other provisions contained in Divisions 0 through 16 of these Specifications.

21. Storm Sewer: Any conduit and appurtenances intended for the reception and transfer of storm water.

22. Street: Any public road, highway, parkway, freeway, alley, walk or right-of-way.

23. Surety: Any individual, firm or corporation bound with and for the Contractor for the acceptable performance, execution and completion of the Work, and for the satisfaction of all obligations incurred.

24. Utility: Tracks, overhead of underground wires, pipelines, conduits, ducts or structures, sewers of storm drains owned, operated or maintained in or across a public right-of-way or private easement.

25. Water Main: Any conduit and appurtenances intended for the distribution of water.

26. Working Day: Any weekday (Monday through Friday), not a designated national holiday, during which weather allows the Contractor to work four or more hours consecutively, starting no later than 10:00 AM.

1.2 REFERENCED STANDARDS

A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the Owner. The Engineer will furnish, upon request, information as to how copies may be obtained.

1.3 LIST OF ABBREVIATIONS

A. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute

APWA	American Public Works Association
ARI	American Refrigeration Institute
ASA	(now U.S.A.S.I., USA Standards Institute) Association & its Standard Specifications
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America (formerly SCPI)
CAL/OSHA	California Occupational Safety and Health Administration
CALTRANS	California Department of Transportation
CBC	California Building Code
CCR	California Codes of Regulations
CDA	Copper Development Association
CEC	California Electrical Code
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CMC	California Mechanical Code
CPC	California Plumbing Code
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
DHI	Door and Hardware Institute
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EJCDC	Engineers' Joint Contract Documents Committee
EPA	Environmental Protection Agency
FED SPEC	Federal Specification
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual
FSA	Fluid Sealing Association
FTI	Facing Tile Institute
HEI	Heat Exchange Institute
HMI	Hoist Manufacturers Institute
HPMA	Hardwood Plywood Manufacturers Association

HTI	Hand Tools Institute
ICBO	International Conference of Building Officials
I-B-R	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IFI	Industrial Fasteners Institute
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
JIC	Joint International Conference (Hydraulic Institute)
MHI	Materials Handling Institute
MIL	Military Specification
MMA	Monorail Manufacturers Association
MSS	Manufacturers' Standardization Society
NAAMM	National Association of Architectural Metals Manufacturers
NACE	National Association of Corrosion Engineers.
MBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NBHA	National Builders Hardware Association
NCSPA	National Corrugated Steel Pipe Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NEMI	National Elevator Manufacturing Industry
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NLA	National Lime Association
NPC	National Plumbing Code
NPT	National Pipe Thread
NRCA	National Roofing Contractors' Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PFI	Pipe Fabrication Institute
PS	Product Standard
RTI	Resilient Tile Institute (formerly AVATI)
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SI	International Systems of Units (Metric)
SIGMA	Sealed Insulating Glass Manufacturers Association
SFPA	Southern Forest Products Association

SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPFA	Steel Plate Fabricators Association
SPI	Society of the Plastics Industry
SPTA	Southern Pressure Treaters Association
SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction (Greenbook)
UL	Underwriters' Laboratories
UPC	Uniform Plumbing Code
USBR	U.S. Bureau of Reclamation
USGS	United States Geological Survey
WCLA	West Coast Lumbermen's Association (Std. Grading and Dressing Rule)
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.1 PRECONSTRUCTION CONFERENCE

A. Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the Owner will arrange a preconstruction conference to be attended by the Contractor, Contractor's superintendent, the Owner, the Engineer or his representative, and representatives of utilities, major subcontractors, and others involved in the execution of the Work. The purpose of this conference shall be to establish a working understanding between the parties and to discuss the Construction Schedule, Critical Path Method format required, shop drawing submittals and processing, applications for payment and their processing, and such other subjects as may be pertinent for the execution of the Work.

1.2 PROGRESS MEETINGS

A. The Owner shall arrange and conduct progress meetings. These meetings shall be conducted weekly, unless designated otherwise and shall be attended by the Engineer or his representative, Contractor, Contractor's superintendent and representatives of all subcontractors, utilities, and others that are active in the execution of the Work. The purpose of these meetings shall be to expedite the work of any subcontractor or other organization that is not up to schedule, resolve conflicts, and in general, coordinate and expedite the execution of the Work.

B. The agenda of progress meetings shall include review of progress and schedule, of payment request, of the latest Construction Schedule update, and of the record documents.

1.3 PROGRESS AND SCHEDULE REVIEW

A. The progress of the Work and the Construction Schedule shall be reviewed to verify:

1. Actual start and finish dates of completed activities since the last progress meeting.

2. Durations and progress of all activities not completed.

3. Reason, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.

4. Payment due to the Contractor based on percentage complete of items in the submitted payment request.

5. Reasons for, and duration of, required revisions in the Construction Schedule.

6. After each monthly update, the Contractor shall submit to the Engineer three (3) prints of the last accepted Construction Schedule, revised in accordance with the monthly review.

1.4 REVIEW OF PAYMENT REQUEST

A. The Contractor shall have his copy of the payment request and all other data required by the Contract Documents completed prior to the progress meeting. The Engineer will process Contractor's payment request after satisfactory review of the schedule update.

END OF SECTION

SECTION 01300

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 GENERAL SUBMITTAL REQUIREMENTS

A. The Contractor shall submit to the Engineer such schedules, reports, drawings, lists, literature samples, instructions, directions, and guarantees as are specified or reasonably required for construction, operation, and maintenance of the Work. The Contractor's attention is directed to the individual Specification sections in these Contract Documents that may contain additional and special submittal requirements.

1.2 REVISIONS TO CONSTRUCTION SCHEDULE

A. Attention is directed to the provisions of Section 01013 - Beginning of Work, Time of Completion & Liquidated Damages

B. The Contractor shall submit a revised Construction Schedule within five (5) days of the occurrence of any of the following:

1. When delay in completion of any activity or group of activities indicates an overrun of the Contract time or control point requirement, by 5 calendar days or ten percent (10 percent) of the remaining duration, whichever is less.

2. Delays in submittals, deliveries, or work stoppage are encountered which make re-planning or rescheduling of the work necessary.

3. The schedule does not represent the actual prosecution and progress of the project as being performed in the field.

C. Acceptance of the revised Construction Schedule and all supporting data is contingent upon compliance with other related requirements specified elsewhere in this Division 1 – General Requirements and in any other Contract Documents, or requirements by the Engineer.

D. The cost of revisions to the Construction Schedule resulting from Contract changes will be included in the cost for the change in the Work, and will be based on the complexity of the revision or Change Order, man-hours expended in analyzing the change, and the total cost of the change.

E. The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.

1.3 ADMINISTRATIVE SUBMITTALS

A. The Contractor is reminded of his obligation, as required by law, to make required submittals to applicable Federal, State or local agencies. Failure to comply with this requirement may result in the withholding of progress payments and make the Contractor liable for other prescribed action and sanctions.

B. The Contractor shall submit for information to the Engineer a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, certified payrolls, etc. submitted directly to a federal, state, or other governing agency.

C. During the performance of the Contract, the Contractor shall maintain on a daily basis, and submit to the Engineer as requested, full and correct information as to the number of persons employed in connection with each subdivision of the work, the classification, cost, source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the work.

1.4 TECHNICAL SUBMITTALS (SHOP DRAWINGS)

A. Submittals are required for each item listed in Section 01301, Master List of Submittals. Contractor may submit additional materials and/or equipment at his option.

B. Requirements in this Section are in addition to any specific requirements for submittals specified in other divisions and sections of these Contract Documents.

C. Each submittal shall contain material pertaining to no more than one equipment or material item, and shall have the specification section and applicable paragraph number clearly identified. Each submittal shall be sequentially numbered starting with the first one delivered. Re-submittals shall include the number of the original submittal plus the suffix ".1" for the first re-submittal, ".2" for the second re-submittal, etc. (e.g. submittal 3.0, 3.1, 3.2, etc.) Submittals not conforming to these requirements will be rejected.

D. Designation of work "by others," if shown on shop drawings, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who has prepared the shop drawings.

E. Submittals will be promptly acted upon by the Engineer, and returned to the contractor not later than the time allowed for in B.1. below. The Contractor shall provide in his Construction Schedule the time for this review. If the Contractor is required by the Engineer to resubmit data, then the time required for the Contractor to prepare and resubmit such data, and the required time for Engineer review, shall not be a cause for delay in contract completion or a cause for an extension of contract time. Delay shall be assigned solely to the Contractor.

F. Additional costs for the Engineer's review beyond the second submission shall be borne by the Contractor. This applies to all submittals including shop drawings.

G. After a submittal has been reviewed and accepted, no changes or substitutions to that submittal will be allowed.

H. Shop Drawings and submittals will be reviewed for general conformance with the drawings and specifications. The intent of the review is to determine if the Contractor is submitting materials and equipment which are in general conformance with the Contract Documents. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed. Engineer's review of submittals shall not relieve Contractor from responsibility for errors, omissions, or deviations, nor responsibility for compliance with the Contract Documents. The Contractor shall indicate on the submittal transmittal form any deviation, the reasons, and how the submittal deviates from the contract requirements.

1.5 SUBMITTAL PROCEDURE:

A. The Contractor shall submit to the Engineer for his review four (4) copies of each submittal (shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items furnished under this Contract, etc.) Three (3) copies will be returned to the Contractor. (If Contractor needs more or less than three (3) copies returned, please submit more or less than four (4) copies. Engineer will retain one (1) copy of each submittal and return the rest.) Shop drawings shall be submitted in sufficient time to allow the Engineer not less than 10 regular working days for examining the shop drawings.

B. Shop drawings shall be accurate and complete, and shall contain all information required for Engineer to determine the suitability and conformance of each product submitted, including satisfactory identification of items in relation to the Contract Drawings and Specifications.

C. Shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the shop drawings that Contractor has checked and approved the shop drawings, that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved. Shop drawings which are incomplete or have not been checked by the Contractor will be returned to the Contractor for corrected resubmission.

D. After review by the Engineer, the requested number of submittal copies will be returned to the Contractor, appropriately stamped. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the Contractor with direction to make changes or corrections. The Contractor shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal. If changes are made by the Contractor on the resubmitted shop drawings in addition to those requested by the Engineer, such changes shall be clearly explained in an accompanying transmittal letter.

E. The review of shop drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of dimensions, fabrication details,

coordination with other work, space requirements, or for deviations from the Contract Drawings or Specifications, unless the Contractor has called attention to such deviations by a letter accompanying the shop drawings and the Engineer approves the change or deviation in writing at the time of his review; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings.

F. The Contractor agrees that shop drawing submittals processed by the Engineer do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and to permit the Engineer to monitor the Contractor's progress and understanding of the design.

G. Review by Engineer:

Upon review by the Engineer of each of the Contractor's submissions, the material will be returned to the Contractor with actions defined as follows:

1. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. This action does not constitute approval or deletion of specified or required items not shown in the partial submittal.

2. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the Contractor. No re-submittal required.

3. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Engineer. Resubmittal required.

4. SUBMIT SPECIFIED ITEM: Minor item in submittal missing or incomplete. Submit data, specifications, drawings covering specified item only. Submittal shall be referenced to the main submittal under review.

5. REJECTED: Submitted material does not conform to Plans and Specifications in major respect, i.e.: wrong item, wrong size, model, capacity, or material. Re-submittal required.

1.6 SHOP DRAWING REQUIREMENTS:

A. General: Shop drawings referred to herein shall include shop drawings, catalog cuts, information schematic diagrams, and other submittals for both shop and field-fabricated items. The Contractor shall submit, as applicable, the following for all prefabricated or manufactured structural items, material, and equipment:

1. Complete manufacturer's specifications, including materials description and paint system.

2. Samples of finish colors for selection.

1.7 RECORD DRAWINGS:

A. The Contractor shall deliver to the Engineer one complete set of final Record Drawings before the contract will be considered complete by the Owner. The Record Drawings will consist of a drafted marked-up set of Contract Record Drawings. Sketch mark-up on drawings will not be acceptable.

B. The Contractor shall keep an up-to-date set of marked-up Contract Record Drawings on a full-size set of the Contract Drawings. During the progress of the work, the Contractor shall record and mark-up any changes from or additions to the work described in the Plans and Specifications. All information recorded on the Contract Record Drawings shall be clearly legible.

C. At the end of the work, prior to Project Closeout, the Contractor shall provide the Engineer with the Contract Record Drawings, showing all "as-built" conditions.

D. Final payment will not be made to the Contractor until such time as the Record Drawings are satisfactorily submitted.

1.8 REQUESTS FOR INFORMATION

A. Requests for Information about the Contract Documents shall be directed by Contractor to Engineer using a Request for Information (RFI) form. Such requests will not be accepted by the Engineer from a Subcontractor or Supplier.

B. A separate form shall be used for each specific item for which information is required. Requests for Information for more than one item using a single RFI form will be permitted only when the items are so functionally related that expediency indicates review of the group of items as a whole.

C. The Engineer will reply to the Contractor's Request for Information within five (5) regular business days following receipt by the Engineer.

PART 2 PRODUCTS

Not used.

PART 3 PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01400

QUALITY CONTROL AND TESTING

PART 1 GENERAL

1.1 NOTICE OF DEFECTS

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

B. All defective Work may be rejected, corrected, or accepted, at the discretion of the Owner and Engineer.

1.2 ACCESS TO WORK

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests shall have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith.

1.3 MATERIALS AND EQUIPMENT

A. Materials and equipment shall be subject to the requirements of Section 01017 – Materials and Substitutions.

1.4 PROJECT SITE TESTING

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. All routine tests of materials shall be at the expense of the Owner, under direction of the Engineer. Testing shall be by an independent certified laboratory approved by the Engineer. Payment for testing shall be included in the price paid for other items of work. No separate payment will be made.

C. All material suitability tests shall be at the expense of the Owner. Testing shall be by an independent certified laboratory approved by the Engineer.

1.5 TEST STANDARDS

A. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.

B. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the ASTM, where applicable.

1.6 UNCOVERING WORK

A. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without concurrence of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and recovered at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be re-observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall promptly correct said defects, including all work involved in uncovering and recovering the work, at no cost to the Owner.

2. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

1.7 CORRECTION OR REMOVAL OF DEFECTIVE OR REJECTED WORK

A. Upon receipt of notice, Contractor shall correct all defective or rejected Work and replace it with Work that is not defective, at no cost to the Owner.

1.8 ACCEPTANCE OF DEFECTIVE WORK

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so.

1. If any such acceptance occurs, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted.

2. Engineer shall determine the reasonableness of the diminished value of Work so accepted and Contractor shall pay all costs involved in making such determination.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall provide all temporary facilities and utilities required for completion of the Work as well as safety precautions and programs. No attempt is made to set out in detail the Contractor's means or methods necessary to accomplish the tasks involved.

1.2 TEMPORARY UTILITIES

A. Water

1. The Contractor may make arrangements with the Owner to use water where appropriate during construction. See Section 02233 -- Watering of these specifications for details.

2. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.

B. Sanitary Facilities

1. The Contractor shall provide suitable and adequate sanitary conveniences for the use his staff at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

2. With respect to sanitation facilities, the Contractor shall cooperate with and follow directions of representatives of the Public Health Service and the State. State and County Public Health Service representatives shall have access to the Work, whether it is in preparation or progress, and the Contractor shall provide facilities for such access and inspection.

1.3 TEMPORARY CONSTRUCTION FACILITIES

A. Construction hoists, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. The Contractor shall submit design calculations prepared by a professional registered engineer for staging and shoring prior to application of loads.

C. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations from one hour before sunset each day to one hour after sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded in such a manner as to prevent person from falling, walking, or otherwise entering any excavation in any street, roadway, parking lot, treatment plant, or any other area, public or private.

D. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.

E. At such time or times any temporary construction facilities and utilities are no longer required for the work, the Contractor shall notify the Engineer of his intent and schedule for removal of the temporary facilities and utilities, and obtain the Engineer's approval before removing the same. As approved, the Contractor shall remove the temporary facilities and utilities from the site as his property and leave the site in such condition as specified, as directed by the Engineer, and/or as indicated on the Plans.

1.4 ACCESS ROADS AND STAGING AREA

A. Adequately access shall be maintained to all storage areas and other areas to which frequent access is required. The Contractor shall limit the location of his storage of equipment and materials outside of the project site. The Contractor shall make his own arrangements for space that may be required and bear all associated costs. The Contractor shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

B. Storage and protection:

1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with accordance with manufacturer’s recommendations to prevent corrosion.

2. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.

END OF SECTION

SECTION 01502

PROTECTION OF UNDERGROUND FACILITIES AND SURVEY MONUMENTS

PART 1 GENERAL

1.1 UNDERGROUND FACILITIES

A. Shown or Indicated*:* The information and data shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such underground facilities, including Owner, or by others.

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. Reviewing and checking all such information and data,

b. Locating all Underground Facilities shown or indicated in the Contract Documents,

c. Coordination of the Work with the owners of such underground facilities, including Owner, during construction, and

d. The safety and protection of all such underground facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated: If an underground facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated with reasonable accuracy in the Contract Documents, the provisions of Section 01018 shall apply.

1. Contractor shall develop and execute a work-plan, subject to Engineer's approval to protect underground facilities.

2. The Contractor shall expose, prior to staking and trenching, all existing utilities and existing facilities which may control proposed facility grades, and alignment. Two working days notice shall be given to the Engineer prior to commencing this work.

3. Full compensation for all costs involved in locating, verifying, protecting, exposing, and otherwise providing for utilities shall be included in the amounts bid for the various items of work, and no separate payment shall be made therefore.

1.2 PROTECTION

A. The Contractor shall not interrupt the service function or disturb the supporting base of any Utility by disrupting any facility identified in the Plans and Specifications without authority from the Owner or order from the Engineer. Where protection of such facilities is required to ensure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at the Contractor's expense.

B. The Contractor shall be prepared at all times with labor, equipment and materials to make repair on damaged mains or Utility facilities. The Contractor shall immediately notify the Engineer and the Utility owner if he disturbs, disconnects or damages any Utility. The Contractor shall bear the costs of repair or replacement of any Utility facility described with reasonable accuracy in the Plans and Specifications that is damaged by the Contractor. No extra compensation will be made for the repair of any services or mains damaged by the Contractor, nor for any damage incurred if the neglect or failure of providing protective barriers, lights and other devices or means required to protect such existing utilities or facilities described with reasonable accuracy in the Plans and Specifications.

1.3 SURVEY MARKERS AND PERMANENT REFERENCE POINTS

A. Surveying and Permanent Survey Markers

The Engineer will take measurements to assure the preservation of survey markers (monuments and bench marks). The Contractor shall not disturb permanent survey markers without the consent of Engineer and shall bear the expense of replacing any that may be disturbed without permission.

1. Replacement of survey markers shall be done only by the Engineer.

2. If disturbing of markers cannot be avoided, the Owner shall pay the cost of replacing said markers.

B. Lot Corner Monuments

The Contractor shall preserve property line and corner survey markers except where their destruction is unavoidable and the Contractor is proceeding in accordance with accepted practice. Markers that are lost or disturbed by his operations shall be replaced at the Contractor's expense by the Engineer.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 GENERAL

A. It is the intent of these Contract Documents that the Contractor shall deliver a complete and operable facility capable of performing its intended functions and ready for use.

1.2 CLEANING

A. Throughout the period of construction the Contractor shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris, excepting select material which may be required for refilling or grading.

1.3 FINAL SITE CLEAN-UP

A. Upon completion of the Work, and prior to final acceptance, the Contractor shall remove from the vicinity of the Work all paint, surplus material, and equipment belonging to him or used under his direction during construction.

1.4 WASTE DISPOSAL

A. The Contractor shall dispose of surplus materials, waste products, demolition materials, and debris. The Contractor shall transport and dispose of waste materials in accordance with applicable laws and regulations.

1.5 PROJECT RECORD DOCUMENTS

A. The Contractor shall maintain at the site, available to the Owner and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders, and other modifications in good order and marked to record all changes made during construction. These Documents shall be delivered to the Engineer upon completion of the Work.

B. Record documents shall be reviewed during progress meetings to ascertain that all changes have been recorded.

C. Store Record Documents separate from documents used for construction.

1.6 TOUCH-UP AND REPAIR

A. The Contractor shall touch-up or repair finished surfaces on structures, equipment, fixtures, or installations, that have been damaged prior to final

acceptance. Surfaces on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items, the item shall be replaced. Such items shall include, but not be limited to, the following:

1.7 EQUIPMENT START-UP

A. After all acceptance tests have been completed by the Contractor and Owner but prior to final acceptance, the Contractor shall recheck all equipment for proper alignment and adjustment, check oil levels, re-lubricate all bearings and wearing points, and in general assure that all equipment is in proper condition for regular continuous operation.

1.8 OPERATION AND MAINTENANCE (O&M) MANUALS

A. Operation and maintenance instructions shall include, as a minimum, the following data for each item of mechanical, electrical, and instrumentation equipment: All equipment manufacturers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system.

1. An itemized list of all data provided.

2. Name and location of the manufacturer, the manufacturer's local representative, the nearest supplier, and spare parts warehouse.

3. Equipment function, normal operating characteristics, and limiting conditions.

4. Recommended maintenance procedures during storage of equipment prior to installation and after installation but prior to start-up.

5. Recommended installation, adjustment, start-up, calibration, and troubleshooting procedures.

6. Recommended lubrication, lubrication intervals, and an estimate of yearly quantity needed.

7. Recommended step-by-step procedures for all modes of operation. Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions. Instructions shall include keystrokes and procedures required for adjusting control setpoints for equipment operation.

8. Complete internal and connection wiring diagrams.

9. Electrical equipment maintenance

10. Test data and performance curves, where applicable

11. Recommended preventive maintenance procedures and schedule.

12. Complete parts lists, by generic title and identification number, with exploded views of each assembly.

13. Recommended spare parts and any special tools required.

14. Disassembly, overhaul, and reassembly instructions.

B. Following completion of an item, instructions and procedures shall be modified by the Contractor to reflect field changes. In addition, the O&M Manuals shall contain reproducible prints of the Contract record wiring diagrams, schematics, and installation drawings required under the Electrical and Instrumentation Specifications. Information not applicable to equipment installed in the work shall be excluded.

C. Individual Manuals shall be broken into sections and indexed. The sections shall include Mechanical Equipment, Automatic and Special Valves, Control Systems, Electrical, and others as necessary. Under each section there shall be a description of the operation and maintenance, lubrication schedules, and installation instructions of each item. Sections shall be labeled and each item shall be sub-labeled. No acceptance of equipment will be made until the individual manual has been approved. Contractor's copy of the individual manual shall be available at the site of the Work for use by field personnel and the Engineer during start-up and testing of the equipment.

1.9 MASTER SETS

A. Before final acceptance of the project, the Contractor shall provide five (5) master sets of operation and maintenance instructions each consisting of a collection of the individual manuals previously submitted and approved. The master sets shall be arranged in hard-leaf, 3-ring binders. Each volume of each master set shall contain only that materials which can be held between the rings.

B. Manuals and other data shall be printed on heavy, first quality paper, 8 ½ by 11 inch size with standard 3-hole punching. Drawings and diagrams shall be reduced to 8 ½ by 11 inches or 11 by 17 inches. Where reduction is not practicable, larger drawings shall be folded separately and placed in envelopes which are bound into the manuals. Each envelope shall bear suitable identification .

C. No progress payment in excess of ninety five percent (95%) of the Contract amount shall be made until all such materials have been received from the Contractor.

D. Each volume of each master set shall include the following:

1. Embossed title on the outside front leaf and the spine:

Operation and Maintenance Manuals

2. A plastic laminated (both sides) table of contents listing all items contained therein and their location.

3. Tabbed and labeled dividers separating the individual operation and maintenance manuals contained in the volume. Dividers shall be keyed to the table of contents.

4. A list of manufacturer's local representatives for the major equipment items contained in the volume.

5. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.

6. Submit final volumes revised, within ten days after final inspection.

1.10 FINAL EQUIPMENT CHECK

A. After test operation and before final acceptance, or acceptance for the final 7-day test run by the Owner, each piece of machinery shall be lubricated and all components and couplings checked for proper alignment and adjustment.

B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. Provide submittals to Owner that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.11 MANUFACTURER'S CERTIFICATES OF PROPER INSTALLATION

1. The Contractor shall submit manufacturers' certificates of proper installation for all items of equipment.

1.12 WARRANTIES

A. Provide notarized copies.

B. Execute and assemble documents from subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in binder with durable plastic cover.

D. Submit prior to Application for Final Payment

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

END OF SECTION

SECTION 01900

EXPLANATION OF BID ITEMS

1. GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

An explanation of each bid item is provided below:

GENERAL

BID ITEM NO. 1 – Mobilization/Demobilization, Bonds, Insurance, and Permits
This bid item includes mobilization/demobilization for all demolition, construction, and site work authorized under this contract. This bid item also includes obtaining the required insurance, and securing all necessary licenses, permits, and paying permit fees for the entire project. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 2 – Worker Protection
This bid item includes provisions for protection of workers and public from any hazards that may occur during execution of the work at all times, including but not limited to weekends, holidays, and non-working. This bid item shall include providing, as necessary, all shoring, sheeting and bracing for trench and excavation stabilization and safety. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 3 – Miscellaneous Facilities and Operations
This bid item includes provisions for de-watering, maintaining drainage, temporary storm and flood water control, dust control, implementing & maintaining the Storm Water Pollution Prevention Plan, construction and removal of temporary security fencing, construction of staging areas, protection of existing facilities, maintaining and providing the record documents, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items. This bid item will be paid for on a Lump Sum basis.

RW101

BID ITEM NO. 4 – Furnish and Install Gas Line and Pressure Regulator
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install the natural gas pipeline from the tie in location near the basin access ramp at S. Leonard Ave and South Ave to Recovery Well 101, as well as the service line and pressure regulator to Recovery Well 101. Also included in this bid item is coordination with PG&E. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 5 – **Furnish and Install Pump and Discharge Head**
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install the pump and discharge head. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 6 –Install Natural Gas Engine
This item includes furnishing all labor, equipment, tools, materials and incidentals required to install the natural gas engine, drive shaft and sleeve, flanges, concrete pad, and sound barrier. The District is in the process of purchasing the engines, which are anticipated to have a 90 day lead time. A copy of the motor submittal is attached to these specifications. The Contractor shall be responsible for coordination and delivery of the engine to the jobsite. This bid item will be paid for on a lump sum basis.

BID ITEM NO. 7 – Furnish and Install Column Pipe, Tube and Shaft
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install the column pipe, tube and shaft. This bid item will be paid for on a unit price basis per Linear Foot of pipe installed. The quantities may be increased, decreased, or deleted entirely by the Owner, with no change in unit price.

BID ITEM NO. 8 – Furnish and Install Well Discharge Manifold
This item includes furnishing all labor, equipment, tools, materials and incidentals required to construct the 14 inch steel discharge manifold with all fittings, gages, flowmeter and appurtenances from the pump discharge to the connection of the existing 48" well discharge stand pipe. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 9 – Construct Sound Barrier
This item includes furnishing all labor, equipment, tools materials and incidentals to construct the sound barrier as detailed on the Plans and Specifications. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 10 – Site Electrical
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install all electrical conduit and wiring for electrical power supply and controls; PVC casing across the canal, construction of the electrical panel pads; furnish and install service pole, electric meter panel, and main disconnect panel; furnish and install all panels; all conduit, furnish and install light fixtures, lamps and foundation, coordination with PG&E, all trenching, backfilling and compaction. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 11 – Site Integration
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install all site integration. This work must be completed by the District's integrator (Innovative Controls). This bid item includes coordinating all work including joint trench work. A quote has been provided in the appendix but it is the Contractor's responsibility to verify that all costs are current. This bid item will be paid for on a Lump Sum basis.

RW102

BID ITEM NO. 12 – **Furnish and Install Gas Line and Pressure Regulator**
This item includes furnishing all labor, equipment, tools, materials and incidentals required to

furnish and install the natural gas pipeline from the stub out and cap near the culvert crossing down to Recovery Well 102 as well as the service line and pressure regulator to Recovery Well 102. This bid item includes a sleeve and stub line under the canal for future use. Also included in this bid item is coordination with PG&E. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 13 – Furnish and Install Pump and Discharge Head
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install the pump and discharge head. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 14 –Install Natural Gas Engine
This item includes furnishing all labor, equipment, tools, materials and incidentals required to install the natural gas engine, drive shaft and sleeve, flanges, concrete pad, and sound barrier. The District is in the process of purchasing the engines, which are anticipated to have a 90 day lead time. A copy of the motor submittal is attached to these specifications. The Contractor shall be responsible for coordination and delivery of the engine to the jobsite. This bid item will be paid for on a lump sum basis.

BID ITEM NO. 15 – Furnish and Install Column Pipe, Tube and Shaft
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install the column pipe, tube and shaft. This bid item will be paid for on a unit price basis per Linear Foot of pipe installed. The quantities may be increased, decreased, or deleted entirely by the Owner, with no change in unit price.

BID ITEM NO. 16 – Furnish and Install Well Discharge Manifold
This item includes furnishing all labor, equipment, tools, materials and incidentals required to construct the 14 inch steel discharge manifold with all fittings, gages, flowmeter and appurtenances from the pump discharge to the connection of the existing 48” well discharge stand pipe. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 17 – Construct Sound Barrier
This item includes furnishing all labor, equipment, tools materials and incidentals to construct the sound barrier as detailed on the Plans and Specifications. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 18 – Site Electrical
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install all electrical conduit and wiring for electrical power supply and controls; PVC casing across the canal, construction of the electrical panel pads; furnish and install service pole, electric meter panel, and main disconnect panel; furnish and install all panels; all conduit, furnish and install light fixtures, lamps and foundation, coordination with PG&E, all trenching, backfilling and compaction. This bid item will be paid for on a Lump Sum basis.

BID ITEM NO. 19 – Site Integration
This item includes furnishing all labor, equipment, tools, materials and incidentals required to furnish and install all site integration. This work must be completed by the District’s integrator (Innovative Controls). This bid item includes coordinating all work including joint trench work. A quote has been provided in the appendix but it is the Contractor’s responsibility to verify that all costs are current. This bid item will be paid for on a Lump Sum basis.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.1 WORK INCLUDED

A. Excavate earth and rock as necessary to allow the installation or construction of various items of work, regardless of character and subsurface conditions.

B. Dispose of unsuitable material off-site or in designated areas, as directed by the Engineer.

C. Prepare excavation and fill for compaction testing.

1.2 RELATED WORK

A. Section 02229 – Utility Line Marking

B. Section 02503 – Storm Water Pollution Prevention Plan

C. Section 02504 – Dust Control

D. Section 02610 – Pipe and Fittings

E. Section 02640 – Valves and Appurtenances

F. Section 03300 – Cast-In-Place Concrete

1.3 REFERENCES

A. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Sol-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.

C. ANSI/ASTM D1556 – Density of Soil and base rock in Place by Sand-Cone Method.

D. ASTM D 2922 and D 3017 – Density of soil and base rock in place by Nuclear method.

E. ASTM D 2937 – Density of soil and in place by Tube method.

F. Section 26 – Aggregate Bases, State Standard Specifications.

G. Section 16 – Clearing and Grubbing, State Standard Specifications

H. Section 17 – Watering, State Standard Specifications

I. Section 19 – Earthwork, State Standard Specifications

1.4 PROTECTION

A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

1. Trenches shall have sloping, sheeting, shoring, and bracing conforming with 29CFR1926, Subpart P—Excavations, CAL/OSHA requirements, and the Contract Documents.

B. Notify Engineer of unexpected subsurface conditions.

C. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

D. Grade excavation top perimeter to prevent surface water run-off into excavation.

1.5 CONTROL AND DIVERSION OF WATER

A. General – The Contractor shall furnish or procure all materials and labor required for constructing and maintaining all necessary cofferdams, channels, flumes, drains, sumps, and/or other temporary diversion and protective works and shall furnish, install, maintain, and operate all necessary pumping and other equipment for removal of water from the various parts of the work and for maintaining the foundations and other parts of the work free from water.

B. Plan – Prior to beginning any work on the removal of water from foundations, the Contractor shall submit for the Engineer's approval a water control plan showing his proposed method for the removal of water from foundations and other parts of the work.

1.6 SUBMITTALS

A. Submit plans as required for work protection against caving ground in excavation. Designs for shoring, bracing, sloping, or similar provisions shall bear the seal of a registered civil or structural engineer.

B. Submittals shall be in accordance with Section 01300 - Submittal Procedures.

1.7 QUALITY ASSURANCE

A. Relative Compaction:

1. All costs for initial compaction tests shall be borne by the Owner. All areas that fail to meet the minimum compaction requirements shall be reworked as required by the Engineer and retested until minimum compaction requirements are obtained. All compaction testing, curves and gradation

analysis will be scheduled and paid for by the Owner. Testing shall be performed by an independent Certified Geotechnical Engineering Lab, licensed in the State of California, selected by the Contractor and approved by the Engineer.

2. The cost of any retests, including time for the Engineer, shall be borne by the Contractor at no additional cost to the Owner. Testing will be required as directed by the Engineer. Test locations shall be determined by the Engineer upon notification from the Contractor that the grade is ready for tests. Contractor shall be present when samples of bedding, select backfill, and backfill materials are gathered for analysis or testing.

B. Compaction tests may be performed for each lift or layer and at intervals determined to be appropriate by the Engineer.

C. Tests for compaction shall conform to references listed in Part 1.3 of this section

D. Sample backfill materials per ASTM D 75.

1.8 DEFINITION

A. Unsuitable Material: Unsuitable material is material determined to be

1. Incapable of being compacted to specified density using ordinary methods at optimum moisture content.

2. Too wet to be properly compacted if circumstances prevent satisfactory in-place drying prior to incorporation into the work.

3. Otherwise unsuitable for the planned use.

1.9 PROJECT CONDITIONS

A. Underground utilities may exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.

B. Arrange construction sequences to provide the shortest practical time that trenches will be open to avoid hazard to the public, and to minimize the possibility of trench collapse.

C. Obtain all required permits and licenses before installing utilities and follow the rules and requirements of the authority having jurisdiction.

1.10 EXCAVATION CLASSIFICATION

A. Regardless of the nature of material excavated, all excavation will be considered unclassified.

PART 2 PRODUCTS

2.1 GENERAL

A. All backfill material shall be approved before use and be free of cinders, ashes, ice, frozen soil, large hard clods, organic debris, or other deleterious items.

B. Engineered fill materials for all fill areas shall be as required by Section 19, Earthwork, State Standard Specifications.

C. Except for sandy soils containing less than 20% fines, or dispersive soils, or both, excavated onsite soils that are free of organic material or deleterious substances must be used to backfill overexcavated areas and levee embankments. Soils which meet this criterion are Unified Soil Classification for SM or SC. Soils classified as SP or SM/SP do not meet this criterion.

2.2 MATERIALS FOR TRENCH BACKFILLING

1. Furnish required bedding, select backfill and backfill materials listed under the appropriate types of utility line in the sections to which this work relates

2. All fill material will be subject to the approval of the Engineer.

B. Materials used in backfill are defined as follows:

1. Bedding: When rock, unstable material, or wet trench is encountered at the excavated grade for utility installation, bedding is required. Materials shall be predominantly sand and gravel, having a plasticity index less than 6. Bedding may be omitted if, in the opinion of the Engineer, the excavated trench bottom will adequately support and not damage the utility line.

   a. Gradation as follows:

Sieve Size	Percent Passing
½ inch	100
No. 4	50-80
No. 200	10-25

   b. Bedding material shall have a sand equivalent of 30 per ASTM D 2419.

2. Select Backfill: Materials shall be predominantly sand and gravel, having a plasticity index less than 6.

   a. Gradation as follows:

Sieve Size	Percent Passing
1½ inch	100
No. 4	50-80
No. 40	10-25

b. Select backfill material shall have a sand equivalent of 30 per ASTM D 2419.

3. Backfill: Soils that contain no rock larger than 3 inches at greatest dimension. If expansive clays are present, such content shall not exceed one-third of the material by volume, and shall be well mixed with non-cohesive soils.

2.3 UTILITY LINE MARKING

A. As specified in Section 02229 – Utility Line Marking

PART 3 EXECUTION

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum.

3.2 MOISTURE CONTROL

A. Water development, hauling, and application shall be in accordance with Section 17, “Watering,” State Standard Specifications.

3.3 TRENCH EXCAVATION

A. Excavation and backfilling of trenches used for construction of communications, power, process piping, and water distribution and sewer systems shall conform to Section 19, “Earthwork,” State Standard Specifications.

B. Except for sandy soils containing less than 20% fines, or dispersive soils, or both, excavated onsite soils that are free of organic material or deleterious substances must be used to backfill overexcavated areas and pipe bedding. Soils which meet this criterion are Unified Soil Classification for SM or SC. Soils classified as SP or SM/SP do not meet this criterion.

C. Excavation shall be by open cut except that short sections of a trench may be tunneled if the utilities can be safely and properly installed and backfill can be properly compacted in such tunnel sections.

D. Trenching Guidelines: Excavate the trench to the approximate level of the grade of the utility line to be installed, using adequate trench width and side slopes to safely accommodate worker access.

1. Rocky Trench Bottom: Where ledge rock, hard pan, boulders, or sharp-edged materials are encountered, over excavate a minimum depth of 6 inches below the bottom of the utility exterior wall to permit adequate bedding preparation. The installed utility shall have at least 6 inches of clearance from any rock protrusion.

    a. Unstable Trench Bottom: Secure approval of depth of over-excavation and stabilization method. For wet trench construction, use approved method of dewatering through diversion, damming and pumping, well points, or underdrain systems. Dispose of removed fluidized materials as approved. Use bedding material to build a suitable foundation to within 6 inches of finished utility grade, prior to bedding with the specified material. Compact layers to 95 percent of maximum density in not greater than 6-inch layers. Do not proceed with utility installation until wet trench and unstable conditions are corrected to the satisfaction of the Engineer.

E. Remove areas of sub-grade not readily capable of it-situ compaction.

1. Backfill with Bedding or Select Backfill material and compact to density equal to requirements for subsequent backfill.

F. Correct unauthorized excavation at no cost to Owner.

1. If the trench is excavated below the required grade, refill any part of the trench excavated below the grade.

2. Place the refilling material over the full width of trench in compacted layers not exceeding 8 inches deep to the established grade with allowance for special bedding.

G. Trench widths in the pipe zone shall be as shown it he drawings. If no details are shown, maximum width shall be 24 inches greater than the pipe outside diameter.

1. Trench width at the top of the trench will not be limited except where width of excavation would undercut adjacent structures and footings. In such case, the minimum lateral separation between the edge of trench and outside edge of adjacent footings and structures shall not be less than 6.0 feet.

H. Hand trim for bell and spigot pipe joints.

I. Remove lumped soil, boulders and rock.

J. Excavation shall not interfere with normal 45 degree bearing splay of foundations.

K. During trench excavation, place the excavated material only within the working area. Do not obstruct roadways or streets. Conform to federal, state, and local codes governing the safe loading of trenches with excavated material.

L. Foundation stabilization

1. After the required excavation has been completed, the Engineer will inspect the exposed subgrade to determine the need for any additional excavation. It is the intent that additional excavation be conducted in all areas within the influence of the pipeline where unsuitable materials exist at the exposed subgrade. Over excavation shall include the removal of all such unacceptable material that exists directly beneath the pipeline to a width 24 inches greater than the pipe outside diameter and to the depth required.

2. Rock refill used by the Contractor for his convenience will not receive any additional payment.

3.4 UTILITY INSTALLATION

A. Utility Installation: Shape the trench bottom to ensure uniform contact with the full length of the installed line and remove any sharp-edged materials that might damage the line. Compaction shall be maintained beneath the line.

3.5 INSTALL UTILITY MARKING AS SPECIFIED IN SECTION 02229 – UTILITY LINE MARKING.TRENCH BACKFILLING

A. Backfilling and cleanup work shall be accomplished as sections of pipe or conduit are tested and approved. Vehicular travel through the work site shall be impeded or obstructed as little as possible.

B. Compaction: Use vibratory compactors for sands and gravels (non-cohesive soils). Use mechanical tampers for sand and gravel containing a significant portion of fine-grained materials, such as silt and clay (cohesive soils). Hand tamp around pipe or cable to protect the lines until adequate cushion is attained. Puddling or water flooding for consolidation of backfill or compaction by wheel rolling will not be permitted.

C. Bedding: Unless otherwise specified, compact the specified material to 93 percent of maximum density to the finished utility grade.

D. Select Backfill: Fill by hand placement around the utility to just over half depth, and compact in a manner to ensure against lateral or vertical displacement. Place select backfill to 12 inches above the utility line by hand placement in not more than 6-inch layers.

E. Backfill: To minimize settling, soils shall be backfilled in layers, with each layer compacted prior to addition of the next layer. Unless otherwise specified, place and compact the specified material as follows:

1. Vehicular Traffic Areas: Fill and compact in 8-inch maximum layers as follows:

a. From top of select backfill to 2 feet below top of subgrade – 93 percent of maximum density.

b. From 2 feet below top of subgrade to top of subgrade – 93 percent of maximum density.

2. Non-traffic Areas: Fill and compact in 8-inch maximum layers to 93 percent of maximum density.

3.6 SAND CEMENT SLURRY, CONCRETE ENCASEMENT AND THRUST BLOCKS

A. Place as shown on the Plans and in accordance with Section 03300 – Cast In Place Concrete.

3.7 SHORING AND SHEETING

A. Construct and maintain all shoring, sheeting, and slope layback necessary to protect the excavation, as needed, for the safety of the employees and as required by applicable State and Federal laws. Provide suitable barricades for public safety, regardless of trench depth.

3.8 DEWATERING

A. The Contractor shall keep all excavation free from water. Furnish, install, maintain, and operate all necessary pumping and other equipment for dewatering of excavations. The Contractor shall at all times have on the project sufficient pumping equipment for immediate use, including stand-by pumps for use in case other pumps become inoperable.

B. The dewatering operation shall be continuous, so that the excavated areas are kept free from water during the construction, until backfill has been placed to a sufficient height to anchor the work against possible floatation.

C. Dewatering devices shall be adequately filtered to prevent the removal of fines from the soil.

D. Repair any damage caused by the failure of any part of the protective works. Remove temporary protective works when they are no longer needed for dewatering purposes.

E. Drain rock shall not be utilized in reservoir or canal embankments.

3.9 SURPLUS MATERIAL

A. Unless otherwise specified, surplus excavated material shall be used to widen embankments uniformly or to flatten slopes,

3.10 UNSUITABLE MATERIAL

A. Unsuitable material shall be excavated and disposed of in a lawful manner off the project site, all disposal shall be approved by the Engineer prior to initiating the work.

3.11 OFF-SITE BORROW AREAS

A. Engineered fill material may be obtained from off-site borrow areas, if on-site sources prove to be insufficient, however they must be approved in advance from the Engineer.

3.12 SURFACE FINISH WORK

A. Open Areas: Grade all disturbed areas, blending with adjacent terrain. Minor irregularities will be permitted.

B. Drainage Ditches: Restore drainage ditches to appropriate line and grade, using approved surface erosion prevention techniques.

C. Clean Up: Remove all rubbish and excess material for disposal as approved, and leave area in a neat, satisfactory condition.

3.13 TOLERANCES

A. Top Surface of Backfilling: Plus or minus 0.05 foot from design grade.

END OF SECTION

SECTION 02229

UTILITY LINE MARKING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing and installing utility line marking.

1.2 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Samples: 24-inch strips of tape.

C. Certification that the materials used in the tape fabrication meet the requirements of this section.

PART 2 PRODUCTS

2.1 MARKING TAPE

A. Capable of being inductively detected electronically.

B. Construction: Metallic foil laminated between two layers of impervious plastic film not less than 3 inches wide. Total thickness of tape shall not be less than 0.005 inch (5 mil) plus or minus 10 percent manufacturing tolerances.

1. Film: Inert plastic. Each film layer shall be not less than 0.0005 inch thick (0.5 mil).

2. Foil: Not less than 0.00035 inch thick (0.35 mil).

3. Adhesive: Compatible with foil and film.

C. Imprint: 3/4-inch or larger bold black letters.

D. Legend: Identify buried utility line tape with imprint such as "Caution: Sewer Line Below". Repeat identification at approximately 24-inch intervals.

E. Background Color: APWA color code and as specified below:

Color	Utility
Safety Red	Electric
High Visibility Safety Yellow	Gas, Oil, Steam, Dangerous Materials
Safety Alert Orange	Telephone, Communications, Cable Television
Safety Precaution Blue	Water System, Irrigation
Safety Green	Sanitary Sewer, Storm Sewer
Safety Brown	Force Mains and Effluent Lines
Purple	Reclaimed Water

F. Manufacturer: Lineguard, Inc., Wheaton, Illinois; Reef Industries, Inc., Houston, Texas; Thor Enterprises, Inc., Sun Prairie, Wisconsin; or Engineer approved equivalent.

2.2 SURFACE MARKERS

A. All markers shall have an identifying letter either cast or routed into marker. The Contractor has the option of any of the following. However, only one type shall be used on any one project:

B. Cast-In-Place Concrete.

1. Concrete: As specified in Section 03300 – Cast in Place Concrete.

2. Reinforcement: One No. 5 bar in center of the marker.

C. Precast Concrete: Commercially fabricated concrete marker meeting design dimensions and concrete reinforcing requirements.

D. Timber Posts: Any softwood lumber species meeting PS 20-70. Grade No. 1 or better, free of heart center, S4S as shown. Pressure treat timber posts for soil contact with waterborne preservative in accordance with AWPA C2-90.

2.3 TRACER WIRE

A. Minimum: 12 AWG copper wire.

PART 3 EXECUTION

3.1 MARKING TAPE

A. Install tape in backfill directly over each buried utility line as shown. Place tape by plowing or during final backfilling.

B. Where utilities are buried in a common trench, identify each line by a separate warning tape. Bury tapes side by side directly over the applicable line.

3.2 TRACER WIRE AND CONDUIT SURFACE MARKERS

A. Tracer Wire: Attachment of the wire to the pipe shall be made with plastic tie-wraps or other approved method. Wires shall be interconnected by soldering at each piping intersection.

1. Tracer wires shall be terminated as shown on the Plans.

B. Contractor shall conduct a satisfactory continuity test before acceptance.

END OF SECTION

SECTION 02233

WATERING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing, hauling, and applying water required for compaction of embankments, backfills, subgrade, and base course, and for landscaping, and other construction operation.

1.2 RELATED WORK

A. Section 01500 – Temporary Facilities.

B. Section 02504 – Dust Control.

1.3 REFERENCES

A. Section 17 - Watering, State Standard Specifications

PART 2 PRODUCTS

2.1 WATER

A. Free of debris, organic matter, and other objectionable substances.

PART 3 EXECUTION

3.1 WATER TRUCK

A. Keep at least one water truck on site at all times, unless Engineer approves removal of the truck from the site before final completion.

3.2 APPLCATION

A. Use pressure type distributors or a pipeline equipped with sprinkler system. Provide approved meter devices near points of discharge.

B. Ensure a uniform application of water for optimum moisture content. Avoid excessive runoff and minimize water waste.

C. The Contractor may water excavation areas before excavating. Drill full depth of excavation to make moisture determinations.

D. If over watering occurs, de-water at no additional expense to the Owner.

3.3 SPECIAL CONTROLS

The Contractor shall take all reasonable means to minimize inconvenience and injury to the public by dust, noise, diversion of storm water, or other agencies under his control.

A. Dust Control

1. As specified in Section 02504 – Dust Control

B. Water

1. The Contractor shall pay for and shall construct all facilities necessary to furnish water for his use during construction. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water. The Contractor may make arrangements with the Owner to use non-potable water where appropriate during construction.

2. Full compensation for furnishing all labor, materials, tools and equipment and for doing all work involved in furnishing and applying water as required by the Contract Documents and Specifications and the State Standard Specifications, shall be considered as included in the contract unit prices paid for other items of work and no additional allowance will be made therefore.

END OF SECTION

SECTION 02503

STORM WATER POLLUTION PREVENTION PLAN

PART 1 GENERAL

1.1 WORK INCLUDES

A. The work of this section consists of implementing measures to prevent storm water pollution during construction activities, in accordance with Federal, State, and local regulations, and in accordance with the Storm Water Pollution Prevention Plan (SWPPP) as provided by the District. The SWPPPs should be amended as needed should revisions be determined necessary during construction activities. The project SWPPP can be amended only by the Owner's Qualified SWPPP Developer (QSD). The contractor shall provide the QSD information should a revision be required.

1.2 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Submit, prior to beginning work and within 10 days of issuance of the Notice to Proceed.

C. Plans showing proposed arrangements and methods for control of erosion, sedimentation, and pollutant conveyance in storm water resulting from demolition activities. Show that the plans satisfy all Federal and State NPDES permit requirements, as well as the Storm Water Pollution Prevention Plan.

D. Provide sufficient information to permit evaluation of:

1. Catch basin protection measures.

2. Surface restoration.

E. Submit narrative describing the means/methods by which the maintenance/inspection procedures will be accomplished. This shall include a schedule for inspection/monitoring of all storm water pollution prevention measures.

1.3 QUALITY ASSURANCE

A. Control the rate and effect of dewatering in such a manner as to avoid all objectionable settlement and subsidence and to assure the integrity of the finished work.

B. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, establish reference points and observe at frequent intervals to detect any settlement that may develop. Conduct the dewatering operation in a

manner that protects adjacent natural resources and facilities. Cost of repairing all damage to adjacent resources and facilities shall be the sole responsibility of the Contractor.

C. Before commencing grading, excavation or filling in any part of the site, Contractor shall construct swales, diversion channels, inlet protection barriers, sedimentation traps, and other measures to guide runoff away from the work area and to capture eroded material before it reaches natural water courses. The measures shall be in accordance with the approved storm water pollution prevention plans.

D. Arrange demolition activities to minimize erosion to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the Project site necessary for demolition. Minimize the area exposed and unprotected.

E. Clearly mark and delineate the work limits activities. Equipment shall not be allowed to operate outside the limits of work or to disturb existing vegetation. Excavation and grading shall be completed during the dry season to the maximum extent possible.

1.4 REGULATORY REQUIREMENTS

A. Contractor shall comply with all provisions of the Federal and State NPDES permit program, as well as any local regulations.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Before the work begins, sufficient equipment shall be available on the site to assure that the operation and adequacy of the erosion control plans can be continuously maintained.

2.2 EROSION CONTROL MEASURES

A. Erosion control measures shall consist of inlet protection barriers and silt fences and other means as determined by the SWPPP.

B. Erosion control measures shall be used to contain only direct precipitation in the construction zone. The contained water shall be allowed to percolate into the ground or drain slowly through the inlet protection barriers.

PART 3 EXECUTION

3.1 GENERAL DESCRIPTION

A. Erosion and sedimentation measures shall include, but may not be limited to: inlet protection barriers, run-on control, and staging area berms. If berms are used, the Engineer shall approve locations and sizes. Berms shall be completely removed at the completion of work or as directed by the Engineer.

B. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent erosion. Temporary measures shall be the Contractor's own design and Contractor shall be solely responsible for risks related to the management of erosion control during construction.

3.2 METHODS

A. As described in the SWPPP and approved by the Engineer, Qualified SWPPP Practitioner (QSP) and QSD.

3.3 MAINTENANCE OF TEMPORARY FACILITIES

A. Inspect erosion and sediment control structures daily and as specified in the SWPPP.

B. Sediment shall be removed from behind run off control structures after each storm, as directed by the SWPP or as directed by the Engineer and QSP.

C. If areas are seeded, contractor shall examine those areas during or after major storms to check that grass is becoming established.

3.4 DISPOSAL OF SEDIMENT FROM STORM WATER POLLUTION CONTROL STRUCTURES

A. Sediment excavated from temporary sediment control structures shall be disposed on the site with general fill or with topsoil. Sediment shall be allowed to dry out as required before reuse. Any trash shall be removed before reuse.

B. Contractor shall place the sediment removed from traps and other structures where it will not enter a storm drain or water course and where it will not immediately reenter the basin.

3.5 REMOVAL OF TEMPORARY STORM WATER POLLUTION CONTROL MEASURES

A. Temporary control measures shall be removed once grading is completed and slopes have stabilized, and permanent drainage works have been constructed. Contractor shall not breach any temporary control structures until the associated catchment area is complete unless approved by the Engineer.

END OF SECTION

SECTION 02504

DUST CONTROL

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of implementing measures to prevent air pollution during construction activities, in accordance with Federal, State, and local regulations.

1.2 RELATED WORK

A. Section 01500 – Temporary Facilities

B. DIVISION 2 – SITE WORK

1.3 REFERENCES

A. San Joaquin Air Pollution Control District (SJVAPCD) Regulation VIII.

1.4 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

1.5 QUALITY ASSURANCE

A. Control the rate and effect of watering in such a manner as to avoid all objectionable settlement and subsidence as approved by the Engineer and to assure the integrity of the finished work.

B. Arrange activities to minimize dust to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the Project site necessary for construction. Minimize the area exposed and unprotected.

C. Clearly mark and delineate the work limits activities. Equipment shall not be allowed to operate outside the limits of work or to disturb existing vegetation.

1.6 REGULATORY REQUIREMENTS

A. Contractor shall comply with all provisions of the SJVAPCD regulations, as well as Federal and State regulations.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Before the work begins, sufficient equipment and resources shall be available on the site to assure that the operation and adequacy of the dust control measures can be continuously maintained.

PART 3 EXECUTION

3.1 GENERAL DESCRIPTION

A. Dust control measures shall include, but may not be limited to: Water application, dust suppressant application, physical barriers limiting site access, reduction of vehicle speed on site, utilization of gravel pads, utilization of grizzlies, and wheel washers. If physical barriers are utilized, the Engineer shall approve the location, size, and type. Physical barriers shall be removed upon project completion.

B. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent dust. Temporary measures shall be the Contractor's own design and Contractor shall be solely responsible for risks related to the management of dust control during construction.

3.2 MAINTENANCE OF TEMPORARY FACILITIES

A. Inspect dust control facilities daily.

B. Sediment shall be removed from grizzlies, gravel pads, and/or paved surfaces, or as directed by the Engineer.

3.3 DISPOSAL OF SOIL FROM PAVED SURFACES AND DUST CONTROL DEVICES

A. Soil excavated from temporary dust control structures shall be disposed on the site with general fill or with topsoil. Soil shall be allowed to dry out as required before reuse. Any trash shall be removed before reuse.

B. Contractor shall place the sediment removed from traps and other structures where it will not enter immediately reenter the device or paved area.

3.4 REMOVAL OF TEMPORARY DUST CONTROL MEASURES

A. Temporary control measures shall be removed once grading is completed and soils have stabilized.

END OF SECTION

SECTION 02610

PIPE AND FITTINGS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Provide all work required for pipe hauling, unloading, distributing, trenching, placing, backfilling and testing of pipelines.

1.2 GENERAL

A. All dimensions and locations of new and existing pipelines, facilities and connections shown on the Plans are to be verified in the field by the Contractor.

B. Coordinate with the Owner on locations for delivery and storage pipe.

C. No pipe shall be used which is cracked or damaged or which, in the opinion of the Engineer, is unsuitable for use. Used materials, rejects, misfits, or seconds are not acceptable for use.

1.3 RELATED WORK

A. Section 02200 - Earthwork

B. Section 03300 - Cast-In-Place Concrete

C. Section 09900 - Painting

1.4 REFERENCES

A. California Plumbing Code

B. American Water Works Association, AWWA.

C. American Society for Testing of Materials, ASTM

D. NRCS 430DD

1.5 SUBMITTAL REQUIREMENTS

A. Shop drawings, manufacturer's literature, and guarantees.

B. Shop drawings of mechanical restrained joint assemblies when used in-lieu of concrete thrust blocks.

C. Submittals shall be in accordance with Section 01300 – Submittal Procedures.

PART 2 PRODUCTS

2.1 POLYVINYL CHLORIDE WATER PIPE (PVC)

A. General: PVC pipe 4-inches and larger in diameter shall conform to ASTM D2241, unless otherwise specified. The pipe shall be PIP size (100 PSI) unless shown otherwise. Each standard or random length shall have been factory tested to four times the service pressure rating of the pipe. Each length of pipe shall be marked with the manufacturer's name, nominal size, pressure classification, and date of manufacture.

B. Joints: Joints shall be push-on type couplings or integral socket bell PVC pipe unless otherwise shown, with rubber gaskets conforming to ASTM D-3139 and ASTM F-47. Integral socket bells of PVC pipe or separate fittings shall meet the same strength requirements as that of the pipe. All component parts of each joint, including gaskets and couplings, shall be clearly marked for use with the pipe for which they are intended.

C. Fittings: Fittings shall be of PVC conforming to ASTM D1784. Fittings shall have a pressure rating at least equivalent to that of the pipe.

2.2 POLYVINYL CHLORIDE SCHEDULE PIPE

A. General: PVC schedule pipe up to 4 inches in diameter shall be ASTM D1785, Schedule 40 or 80 as specified or indicated in the Plans. Pipe material shall have cell classification 12454-B and have NSF seal.

B. Joints: Joints shall be solvent weld joints between pipes, and shall be flanged or threaded at valves or fittings. Flange diameter and drilling shall conform to ANSI B16.5, class 150.

C. Solvent cement shall conform to ASTM D2564 and primer shall conform to ASTM F656.

D. Fittings: PVC fittings shall conform to ASTM D2466, all classifications 12454-B, bearing NSF seal.

2.3 RUBBER GASKETED REINFORCED CONCRETE PIPE (RGRCP)

A. RGRCP shall conform to the specification for Reinforced Concrete Low Pressure Pipe, ASTM Designation C361. Circular reinforcement shall be used, use of elliptical reinforcement in the pipe is not allowed. Cement used in the manufacture of RGRCP shall be Type II. The joints shall show no signs of leakage at hydrostatic pressures up to twenty-five (25) feet. Pipe class shall be as follows:

1. Depth over the top of pipe from three (3) up to five (5) feet – Class A-25

2. Depth over the top of pipe from five (5) up to ten (10) feet – Class B-25

3. Depth over the top of pipe from ten (10) up to fifteen (15) feet – Class C-25

4. Depth over the top of pipe from fifteen (15) up to twenty (20) feet – Class D-25

B. Each joint shall be marked with the following information

1. The name or trademark of the manufacturer.

2. Class and size of pipe, as indicated by applicable specifications.

3. Conformance with ASTM standards.

4. The type of cement.

5. The date of manufacture of the reinforced concrete pipe, if applicable.

C. Pipe shall be tested in the factory as specified in ASTM C-361. The District reserves the right to observed factory tests, as specified in Section 01400 – Quality Control.

D. Joints: Rubber gasketed joints shall conform to the requirements of ASTM designation C 443 capable of withstanding a constant pressure of up to the Head Class rating of the pipe. Rubber gaskets shall be lubricated with the lubricant recommended and supplied by the manufacturer of the pipe.

1. Shallow depths, loads, or other conditions that would require RGRCP stronger than D-25 shall require a pipe design submittal, by the Contractor, and approval by the Engineer.

E. Fittings: All concrete pipe fittings shall be pre-manufactured and shall conform to the ASTM standard for the class of pipe used. Fittings shall be properly restrained with thrust blocks. Fittings shall have pressure rating at least equivalent to that of the pipe.

2.4 STEEL PIPE

A. General: Steel pipe 12-inches in diameter and smaller shall conform to the requirements of the "Specifications for Black and Hot-Dipped Zinc-Plated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses (ASTM A120), and shall be "Standard Weight" Steel Pipe larger than 12 inches in diameter shall be ASTM A139, AWWA C200, wall thickness not less than 0.18 inches.

B. Joints: Pipe 4-inches in diameter and larger shall be flanged or shall have grooved ends for Victaulic-type couplings. Where shown on the Plans, the pipe shall be flanged or plain end for flanged coupling adapters. Flanges shall be standard 150 psi flanges meeting the requirements of ANSI B16.1. Flanges shall be furnished with flat faces. Unless otherwise stated, bolts shall comply with ASTM 307. Pipe smaller than 4 inches shall have screwed or grooved joints unless shown otherwise on the Plans.

C. Fittings: All fittings shall be flanged cast or ductile iron, screwed malleable iron, or Victaulic-type fittings. The Contractor may substitute Victaulic-type fittings for flanged fittings or screwed fittings unless the particular joint requires a specific end for compatibility with a valve or special fitting. All Victaulic-type fittings shall be of strength equal to the pipes with lining and coatings equivalent to that specified for the pipe.

D. Unless otherwise specified or noted in the Plans, all steel pipe 2-1/2 inch and smaller shall be Hot-Dipped galvanized, and pipes larger than 2-1/2 inch shall be black steel with epoxy or lining with minimum 10 mil dry thickness. Exterior surfaces of all pipe shall be shop primed. Finish coatings shall be as specified in Section 09900 - Painting.

2.5 FLANGED JOINTS

A. Flange shall conform to ANSI B16.5, Class 150.

B. Flange bolts and nuts shall conform to ASTM A307 for above ground installations.

C. All bolts, nuts, and washers used to secure underground fittings shall be stainless steel.

D. All steel hardware installed underground shall be coated with a rust preventative, wrapped with 4 mil polyethylene sheeting, and secured with PVC tape.

E. Gaskets shall meet the pressure requirements of the adjoining flanges and shall conform to AWWA C-207.

2.6 FLEXIBLE COUPLINGS

A. Flexible couplings shall be one of the following, or Engineer approved equivalent:

1. Dresser, Inc., Style 38

2. Smith Blair, Inc., Series 411

3. Romac Industries, Inc., Style 400 or 511

B. Hardware shall be as follows:

1. Aboveground; Steel in accordance with AWWA C111.

2. Underground or Underwater; Stainless Steel, type 316 in accordance with ASTM F593

C. Center sleeves shall comply with the following

Nominal Pipe Diameter	Minimum Sleeve Length
6 inch and smaller	Manufacturer's Standard
8 through 14 inch	7 inch
14 inch and larger	10 inch

2.7 CONCRETE FOR THRUST BLOCKS

A. As specified in Section 03300 – Cast In Place Concrete.

PART 3 EXECUTION

3.1 HANDLING AND DISTRIBUTION OF MATERIALS

A. Delivery: Handle pipe carefully to ensure delivery at the project site in sound, undamaged condition. Contractor shall replace damaged pipe at no additional expense to the Owner.

B. Storage: Do not store materials directly on the ground. Adequately support piping to prevent warping. Use protective covers where pipe may be damaged by direct sunlight.

C. Before laying, pipe shall be inspected for cracked, broken, or defective pieces. Such pieces shall be rejected. Pipe shall be carefully lowered into the trench to prevent damage. All dirt or other foreign matter shall be removed from inside the pipe before lowering into the trench.

3.2 INSTALLATION OF BURIED PRESSURE PIPING

A. General: Pipe, fittings, and appurtenances shall be installed in accordance with the manufacturer's instructions and in accordance with the following references as appropriate:

1. Polyvinyl Chloride Pipe – NRCS 430DD.

2. Reinforced Concrete Pipe – ASTM C361.

B. Any damage to pipe shall be carefully repaired by the Contractor in accordance with pipe manufacturer's recommendations and to the satisfaction of the Engineer, before backfilling is commenced. Any pipe damaged beyond repair, in the opinion of the Engineer, shall be replaced by the Contractor at his sole expense.

C. Handling: The pipe shall be protected to prevent entrance of foreign materials during laying operations. When laying is not in progress, open pipe ends shall be protected with a watertight plug or other approved means to exclude water or foreign material.

D. Before work is stopped for the day, all joints shall be completed with the exception of joints adjoining structures.

E. Alignment: Trenches shall be true to line and grade, and the bottom shall be smooth and free from all objectionable material. The width of the trench shall be sufficient to permit laying of the pipe correctly and to permit proper handling and joining of the pipe.

1. The pipe shall be placed firmly in the center of the trench.

2. Each pipe section shall be within 0.05 foot of the calculated invert grade upon installation. Alignment of pipe shall be within 1 foot of the staked alignment upon installation.

F. Deflection: Pipe joints may be deflected but shall not be deflected more than 75% of the maximum allowable as recommended by the pipe manufacturer.

1. Where horizontal or vertical curves are shown in the alignment that cannot be installed by joint deflection of standard pipe lengths, the Contractor may select from the following options with prior approval by the Engineer:

a. Use shorter pipe lengths and allowable joint deflection as specified.

b. Use special mitered joints.

c. Use standard or special fabricated bends.

With all of the above options, thrust blocking or thrust restraint may be required. If it is determined that thrust blocking, or restraint is necessary, it shall be furnished at no additional cost to the Owner.

G. Placing of Pipe: All surfaces against which pipe is to be placed shall be free form standing water, loose earth, mud, and debris. Where the bottom of the trench is soft, wet or otherwise unstable, it shall be excavated a minimum of one foot below grade for the full width of the trench. When the bottom of the trench is excavated below grade, the excavation below grade shall be refilled with select material approved by the Engineer and compacted to the in-place density shown on the Plans. Immediately before placing each section of the pipe, the bottom of the trench or pipe bedding, or both, shall be prepared to provide uniform bearing along the full length of the pipe except at bell holes.

1. Where necessary, a bell hole shall be excavated under and immediately in front of the last section of pipe that has been laid. The bell hole shall provide a minimum clearance between the pipe barrel or coupling and bottom of the bell hole of three inches (3”) but in no case shall the bell holes be smaller than required to facilitate joining or laying the pipe.

2. Pipe shall be kept clean and free of foreign material during laying operations.

3. The pipe joints shall be assembled according to the pipe manufacturer's recommendations, these Specifications, and as directed by the Engineer, but regardless of the method used the joints shall be watertight.

4. The Contractor shall comply with current OSHA Guidelines for excavations and Construction Safety Orders.

5. Excavated material that is unsuitable, as determined by the Engineer, shall be segregated and not used for backfilling.

6. The Contractor shall provide temporary bridging over pipe trenches where it is necessary to provide crossings for workman and equipment or access roads. Where the side walls of the trench are unstable or where the depth of the trench will present a safety hazard to workmen, the Contractor shall provide adequate sheeting that has been suitably braced. The sheeting shall be withdrawn as the backfill is placed about the pipe. Any voids that result from the withdrawn sheeting shall be backfilled and compacted to the same density as the remainder of the trench.

H. Backfill: Backfill and Compaction shall be in conformance with Section 02200 – Earthwork.

1. Relative compaction shall conform to the trench sections for the various pipe types, as shown on the Plans.

I. Joints:

1. Pipe shall be assembled and joined in accordance with the manufacturer's published instructions for the type of pipe and joint used. Where mechanical joints are used, the pipe shall be marked in such a manner that it can be determined after installation that the pipe is properly seated.

2. Where flexible couplings are used as expansion joints, the ends of the pipes shall be separated to allow for expansion. Couplings shall be centered on pipe ends. Runs of pipe containing flexible couplings shall be properly blocked, anchored or tied to the structure to prevent joints from pulling apart.

3. Mechanical restrained joints shall be installed in accordance with joint manufacturer's instructions and recommendations.

3.3 THRUST BLOCKS OR MECHANICAL RESTRAINED JOINTS

A. Place concrete thrust blocks at all tees, elbows, plugs, and other locations where unbalanced forces exist in underground pipe in accordance with details shown. Place blocks between undisturbed ground and fitting to be anchored. Place blocking so that pipe and fittings will be accessible for repairs. Thrust blocks shall be of such size as to give bearing against undisturbed vertical earth banks

sufficient to absorb the thrust from line pressure, allowing a maximum earth bearing pressure of 3000 pounds per square foot below natural grade or as shown on the Plans.

B. Restrained joint fittings may be used in-lieu of thrust blocks, at the discretion of the Engineer. Contractor shall submit shop drawings showing methods of joint restraint for each type of restrained joint fitting to be used including the length of pipe having restrained push-on joints on all pipes which connect to the restrained fitting.

C. When it is necessary to restrain push-on joints adjacent to restrained fittings, a harness restraint device shall be used. All harnesses shall have a pressure rating equal to that of the pipe on which it is used

1. Harness assemblies including tie bolts shall be manufactured of ductile iron conforming to ASTM A536-80. Harness shall be manufactured by EBAA Iron, Inc. or shall be of the type as shown on the Plans.

3.4 ACCEPTANCE TESTS FOR BURIED PIPING

A. All newly installed sections of buried pressure piping shall be pressure and leakage tested as described herein.

B. Polyvinyl Chloride (PVC)

1. The water level in the upstream standpipe shall be maintained at the design high water level for a period of not less than 2 hours.

2. The leakage in gallons per hour shall not exceed 0.02 times the nominal diameter for each 1,000 feet of pipe.

C. Rubber Gasketed Reinforced Concrete Pipe

1. The water level in the upstream standpipe shall be maintained at the design high water level for a period of no less than 2 hours.

2. The allowable leakage under working conditions for RGRCP pipe shall not exceed 250 gallons per 24 hours per inch of pipe diameter, per mile of gravity pipeline tested.

D. Tests shall be made after the trench has been backfilled and compacted, but not until at least 5 days have elapsed since any thrust blocks in the section have been poured.

E. Slowly fill the pipe with water at a rate such that the velocity does not exceed 0.25 foot per second and allow to stand for a minimum of 24 hours prior to starting the test. Expel all air from the pipe. Absorption by the pipe or pipe lining material may require a longer period before beginning the test, as directed by the Engineer.

F. Should testing disclose any visible leaks or leakage greater than that allowed, the defective joints or pipe shall be located, repaired, and re-tested until satisfactory results are obtained by the Contractor at his expense.

END OF SECTION

SECTION 02640

VALVES AND APPURTENANCES

PART 1 GENERAL

1.1 WORK INCLUDED

A. Furnish, install, and test all valves, fittings, and appurtenances as indicated and as specified and as shown on the Plans.

1.2 RELATED WORK

A. Section 02200 – Earthwork

B. Section 02610 – Pipe and Fittings

C. Section 03300 – Cast in Place Concrete

D. Section 09900-Painting

1.3 REFERENCES

A. California Plumbing Code.

B. American Water Works Association Standards

C. Section 90, "Portland Cement Concrete", State Standard Specifications.

1.4 SUBMITTALS

A. Submit in accordance with Section 01300 - Submittal Procedures.

B. Shop drawings, manufacturer's literature, Installation instructions and guarantees

PART 2 PRODUCTS

2.1 COUPLINGS

A. Couplings shall be installed in the locations indicated on the Plans.

B. Flexible couplings suitable for water transmission main applications shall conform to AWWA Standard C219 and shall be as manufactured by Smith Blair, Inc., Series 411 or 413, or Dresser Industries, Inc., Style 38, or equal.

C. The steel middle ring shall be lined and coated with fusion-bonded epoxy meeting the requirements of AWWA Standard 213.

D. The flexible couplings shall be installed with provisions for thrust restraint ties attached to the steel discharge piping. The thrust restraint ties shall be welded lugs, lugs integrally cast with the pipes, or friction collars.

E. Anchor studs placed perpendicular to the long axis of the pipe are unacceptable.

F. Resistance of hydraulic thrust shall be adequate to sustain a force developed by a test pressure of 150 psi.

2.2 PIPE SUPPORT SADDLES

A. As shown on the Plans, saddles shall be furnished and installed to support pipe spools. Saddle installations shall be provided complete including base plates, u-bolts, and anchor bolts. Support saddles shall be galvanized ANVIL Figure 265 or Engineer approved equivalent.

PART 3 EXECUTION

3.1 GENERAL

A. All valves and appurtenances shall be Painted, Coated or Finished in accordance with Section 09900.

END OF SECTION

SECTION 02672

WELL PUMPING FACILITIES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work consists of furnishing and installing two (2) new pumps, including the bowls, column assembly, discharge heads and gear heads as well as installation of the motors as described in these Specifications and as shown on the Plans.

1.2 RELATED WORK

A. Section 02200 – Earthwork

B. Section 02610 - Pipe and Fittings

C. Section 02640 - Valves and Appurtenances

D. Section 03300 – Cast-In-Place Concrete

E. Section 05550 – Anchor Bolts

F. Section 09900 - Painting

G. Section 16000 – Electrical Specifications

1.3 SUBMITTAL REQUIREMENTS

A. Submittals shall be in accordance with Section 01300, Submittal Procedures

B. Submit 3 copies of manufacturer's literature, certificates and guarantees for well pumps.

C. Submit 3 copies of maintenance instructions for equipment.

1.4 QUALIFICATIONS OF CONTRACTORS

A. The installer must have 5 years experience in installing similar equipment.

1.6 NOTIFICATION

A. The Contractor shall give notice to the Engineer of specific operations as follows:

1. Minimum twenty-four (24) hours advance notice of installation of well pumps.

2. Minimum twenty-four (24) hours advance notice of well pumping equipment test operation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. WELL PUMPS AND COLUMN PIPE

1. Pumps shall be of the oil-lubricated deep well turbine type and shall include discharge head, line shaft, shaft tubing and column pipe. Pumps and column pipes shall be sized as shown on the Plans.

2. Pump manufacturers shall supply one (1) complete set of shop drawings, pump curves, installation and operating instructions, and parts list with each pump assembly supplied. These documents shall become the property of the Owner and shall be delivered to the Owner by Supplier upon completion of a pump installation.

3. Pumps shall conform with all local and state sanitary and safety regulations. Pumps and motors shall be capable of continuous operation, and shall meet the following conditions:

Maximum Speed	1,800 RPM
Minimum Bowl Efficiency at Design Capacity	82 %

4. Pump capacities, heads and horsepowers shall be bid as shown on the Plans.

5. Discharge heads of high-grade cast iron or fabricated steel shall be provided for mounting the motors, as shown on the Plans. The discharge heads shall have above ground flanged outlets sized as shown on the Plans for standard pipe.

6. The pump bowls shall be of close-grained cast iron having a minimum tensile strength of 30,000 pounds per square inch, free from blow holes, sand holes, and all other faults; accurately machined and fitted to close dimensional tolerances.

7. Impellers shall be of bronze, accurately machined and fitted, and mechanically balanced. They shall be securely fastened to the impeller shafts with tapered bushings.

8. Thrust bearings shall be chosen to handle the continuous down thrust as specified by the pump manufacturers with an AFBMA B-10 one-year minimum or 5 year average life under design conditions. Provisions shall be made for momentary up thrusts equal to 30% of rated down thrusts.

9. The total lengths and diameters of the column pipes shall be as shown on the Plans. The pipe shall be furnished in interchangeable sections not over 20 feet in length, and shall be connected with threaded, sleeve-type couplings. The joints are to be butted to insure perfect alignment after assembly.

10. The line shafts shall be turned, ground, and polished precision shafting of ample size to operate the pumps without distortion or vibration. The shafts shall be furnished in interchangeable sections not over twenty feet in length and shall be coupled with strong steel couplings machined from solid bar steel.

11. The column assemblies shall have bronze line shaft bearings and bronze oil-lubricated threaded column spiders.

12. The outer column pipe shall be of ASTM A53 Grade B steel pipe in interchangeable sections not over twenty feet in length, with ends of each section faced parallel and machined with 8 straight threads per inch permitting the ends to butt and insuring alignment when connected by standard mill steel couplings. The weight on each column pipe shall be no less than that stated in ANSI Specification E101, Section 5.1 “Standard Specifications for Discharge Column Pipe”.

13. The pump shafts shall be of A582 grade 416 stainless steel turned, ground and polished. It shall be supported by bronze bearings above and below each impeller.

B. Gear Head

1. Gear head shall be manufactured by Deran, Johnson, Amarillo or approved equal.

2. Gear head shall be rated to 200 horsepower and be equipped with an anti reverse ratcheting feature.

PART 3 - EXECUTION

3.1 *INSTALLATION*

A. Well Pumps

1. The pumps shall be installed to the settings shown on the Plans.

2. The pumps shall be installed according to manufacturer’s recommendations.

B. Gear Head

1. The gear head shall be installed according to the manufacturer’s recommendations.

3.2 *TEST OF WELLS*

A. After installation of pumping equipment, each well shall be pumped for a minimum of 15 minutes.

B. Owner or Engineer will be present for test operation of well pumping facilities.

3.3 *ACCEPTANCE*

A. Upon completion, obtain Engineer's acceptance.

END OF SECTION

SECTION 02685

NATURAL GAS DISTRIBUTION PIPING

PART 1 GENERAL

1.1 DESCRIPTION

A. The work of this section consists of furnishing and installing underground natural gas distribution piping, valves, valve boxes, and all other accessories and specialties necessary for a complete and operable natural gas distribution system.

1.2 SUBMITTALS

A. As specified in Section 01300.

B. Submit manufacturer's literature for pipe and fittings, valves, valve boxes, meters, meter enclosures and regulators.

C. Submit proof of certification for personnel responsible for making heat fusion bonded joints in plastic piping.

1.3 CLOSEOUT SUBMITTALS

A. As specified in Section 01700.

B. Furnish as-built drawings for all underground gas distribution piping installed under this contract, including stationing along piping alignments and northing-easting coordinate of valves. Indicate station and depth of all crossed utilities or structures.

C. As specified in section 01700.

1. Operation and maintenance data for valves, meters and regulators.

1.4 DEFINITION

A. Bedding and backfill material types (BD, SB, BF) are defined in Section 02200 – Earthwork.

1.5 QUALITY ASSURANCE

A. All work performed under this section shall meet all recommendations and requirements of International Building Code (IBC), NFPA 54-96, NFPA 58-98, ASTM D2774-94, Code of Federal Regulations (CFR) Title 49, California Title 8, Division 1, Chapter 4, and all other applicable national, state, local, and natual gas supplier standards and regulations.

B. Installer's personnel responsible for making heat fusion bonded joints in plastic piping shall be certified in accordance with Code of Federal Regulations (CFR) Title 49, Part 192, Section 192.285.

PART 2 PRODUCTS

2.1 UNDERGROUND GAS DISTRIBUTION SYSTEM PIPE AND FITTINGS

A. General: Pipe and fittings shall be constructed of PE 2406 low-density polyethylene, and shall be integrally colored yellow. UAC2000, by Uponor Aldyl Co., Shawnee, Oklahoma 74801, or approved equal.

B. Piping: ASTM D2513-96. IPS (iron pipe size) polyethylene gas pressure pipe with a maximum SDR (standard dimension ratio) of 11.

C. Fittings: IPS (iron pipe size) polyethylene fittings suitable for heat fusion bonding.

1. Piping Fusion Bonded Out of Trench.

a. 3/4-inch to 3-inch: ASTM D2683-95. Socket fusion type.

b. 4-inch and larger: ASTM D3261-96. Butt fusion type.

2. Piping Fusion Bonded in Trench.

a. 1/2-inch to 6-inch: Socket fusion type with integral heating coils. Joining of pipe and fittings by electrofusion shall be accomplished with the fitting manufacturer's heating coil control box. Uponor Aldyl EF2000, or approved equal.

2.2 UNDERGROUND VALVES

A. Valves: Valves shall be tested in accordance with ASME B16.40-85. Valve body material shall be PE 2406 to match piping, and stub end SDR (standard dimension ratio) shall be the same as connecting piping. Polyvalve Ball Valves, by Nordstrom Valves, Inc. (division of BTR, Inc.), Sulfur Springs, Texas, or approved equal.

1. 3/4-inch to 1-1/4-inch: Two-piece molded fusion-bonded polyethylene body, with acetal ball, Buna-N seats and stem seals, stainless steel blowout-proof stem, groundwater seal under 2-inch square stem adapter, and pipe stub ends suitable for butt or socket fusion joints.

2. 2-inch to 6-inch: Three-piece molded fusion-bonded polyethylene body, with polypropylene ball, Buna-N seats and stem seals, plastic blowout-proof stem, groundwater seal under 2-inch square stem adapter, and pipe stub ends suitable for butt or socket fusion joints.

B. Valve Boxes: Adjustable plastic roadway valve box, with screw-type bury depth adjustment, 5-1/4-inch nominal diameter. 5-1/4-inch Roadway Valve Box, by Ametek, Inc., Plymouth Products Division, Sheboygan, Wisconsin 53082, or approved equal.

1. Bottom Section: Bottom section shall be constructed of a rigid combination of polyolefin, fibrous inorganic reinforcement, and stabilizer additives to provide resistance to material degradation from ultraviolet light. Bottom section shall have a bell with inside dimensions of 9-inch diameter x 7-1/2-inch high, suitable for 2-inch through 10-inch diameter x 7-1/2-inch high, suitable for 2-inch through 10-inch valves.

2. Top Section: Top section shall be constructed of a ferrous metal impregnated thermoplastic material suitable for detection with a magnetic metal detector.

3. Roadway Ring and Cover: Traffic-rated cast iron top ring with full flange and cast iron traffic cover. Cover shall have the letters "GAS" cast into the cover surface.

2.3 BEDDING AND BACKFILL

A. As specified in 02200 – Earthwork.

2.4 UTILITY LINE MARKERS

A. As specified in Section 02229-Utility Line Marking.

2.5 TRACER WIRE

A. As specified in Section 02229-Utility Line Marking.

2.6 END-OF-LINE AND ROAD CROSSING MARKER POSTS

A. As specified in Section 02229-Utility Line Marking.

2.7 CONCRETE

A. As specified in Section 03300 – Cast-in-Place Concrete.

2.8 ABOVEGROUND PIPE AND FITTINGS

A. ASTM A53 84a, Type E or S, Schedule 40, black steel pipe, with not less than standard weight malleable iron fittings, NPT.

2.9 ABOVEGROUND VALVES

A. Shut off and isolation valves shall be ASTM A47, malleable iron, NPT. Valves shall be rated at 125 PSI, and shall be lockable.

2.10 PRESSURE REGULATORS

A. Regulators shall be series 1800 Industrial Regulators as manufactured by American Meter Co., 300 Welsh Rd., Horsham, PA., 19044-2234, 215-830-1800, or approved equal.

1. Regulators shall be equipped with both underpressure and overpressure shutoff protection.

PART 3 EXECUTION

3.1 GENERAL

A. Natural gas distribution system piping and appurtenances shall be installed in conformance with the installation and service green book prepared by the Pacific Gas & Electric (PG&E) and in accordance with ASTM D2774-94. Complete all work in compliance with NFPA 54-96 and NFPA 58-95.

3.2 UNDERGROUND PIPE INSTALLATION

A. Clean all pipe before installation. Remove all internal debris. Debur all pipe ends after cutting.

B. Keep openings in pipe closed during construction to prevent entrance of foreign matter.

C. Install gas piping and accessories in accordance with NFPA 54-96, NFPA 58-95, ASTM D2774-94, the local natural gas supply company, and in accordance with manufacturer's recommendations.

D. Polyethylene pipe shall be used for underground gas distribution piping; butt fusion connections and fusion connections between polyethylene pipe and socket fittings shall be made in strict accordance with piping and/or pipe fitting manufacturer's instructions; threaded or compression type connections will not be allowed.

E. Minimum cold bending radius for polyethylene pipe shall be 25 times the outside diameter of the pipe. If fittings are present in the bend, the minimum cold bending radius shall be 125 times the outside diameter of the pipe.

3.3 UNDERGROUND VALVE AND VALVE BOX

A. Install in conformance with manufacturer's installation instructions. Valve boxes shall be adequately supported against settlement so that no forces from the valve box can be transmitted to the valve or connecting piping. Install valve boxes as shown on the drawings

3.4 ABOVEGROUND PIPE INSTALLATION

A. Clean all pipe before installation. Remove all internal scale. Ream all pipe ends after cutting.

B. For screwed joints, apply noncrossive, nonhardening Teflon pipe thread compound or tape to male threads only.

C. Install exposed piping parallel with building walls, plumb and level.

3.5 LEAK TESTING

A. Perform testing in the Contracting Officer's presence. Pipe shall be anchored by partial backfilling during testing. All joints and fittings shall remain exposed during testing. Notify Contracting Officer at least 48 hours prior to testing.

B. Prepare each section for testing, using adequate bracing; protect system equipment susceptible to damage by test pressures; make provision for installation of Government pressure gauge in parallel with Contractors gauge, if so requested; and maintain services where required.

C. Test with compressed air (oil free) or nitrogen gas only.

D. Piping system shall stand a pressure of 100 psig for a period of not less than 1 hour without showing any drop in pressure. Leak test shall not exceed 3 hours. Pressure shall be measured with a pressure gauge or an equivalent device, calibrated to be read in increments not greater than 1/2 pound per square inch. All sources of gas pressure shall be isolated before the pressure tests are made.

E. Any leaks shall be repaired by methods approved by the piping manufacturer and the Contracting Officer.

3.6 UTILITY LINE MARKING

A. As specified in Section 02229-Utility Line Marking.

B. Provide end-of-line marker posts at all capped ends of underground distribution piping. Provide marker posts 5 feet from each edge of road at all gas utility road crossings.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 WORK INCLUDED

A. Work required under this section consists of furnishing all materials, supplies, equipment, tools, transportation, and facilities, and performing all labor and services incidental to furnishing and installing concrete work as described in this section of the Specifications, shown on the accompanying Plans, or reasonably implied therefrom, except as hereinafter specifically excluded. The work shall include, but is not necessarily limited to:

1. All form work including special forms as required for any special construction and/or to accommodate the work of others and removal of forms.

2. All concrete reinforcement, placement, bending and forming thereof.

3. All concrete and cement finishing, all surface treatment and curing including non-slip finishes.

4. Installation of all reglets, bolts, anchors, cans, sleeves, column bolts, etc., whether furnished under this section or by others (except cans and sleeves required under the Electrical and Mechanical Sections).

5. The furnishing of all items required to be or shown on the Plans as embedded in concrete, which are not specifically required under other sections.

6. Setting headers and screens finishing, curing, and protecting concrete.

B. Where prior inspection and test of materials are required, documentary evidence, in the form of test reports, shall be furnished prior to the time the material is incorporated into the work. All rejected material shall be promptly removed from the premises.

1.2 RELATED WORK

A. Division 2 – Sitework

1.3 REFERENCES

A. American Concrete Institute (ACI)

B. American Society for Testing and Materials (ASTM)

C. State Standard Specifications

D. California Building Code (CBC)

1.4 DEFECTIVE WORK

A. Work considered to be defective may be ordered, by the Engineer, to be replaced in which case the Contractor shall remove and replace the defective work at his expense. Work considered to be defective shall include, but not be limited to, the following:

1. Concrete incorrectly formed, or not conforming to details and dimensions on the Plans or with the intent of these documents, or concrete the surfaces of which are out of plumb or level.

2. Concrete in which defective or inadequate reinforcing steel has been placed.

3. Concrete containing wood, cloth, or other foreign matter, rock pockets, voids, honeycombs, cracks or cold joints not scheduled or indicated on the Plans.

4. Concrete below specified strength.

1.5 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Provide material certificates, shop fabrication and placement drawings, and schedule for all reinforcing steel, imbedded items, form release and curing compounds.

PART 2 PRODUCTS

2.1 CONCRETE

A. Concrete shall conform to Section 90 of the State Standard Specifications. Unless otherwise shown or specified, all concrete shall contain not less than 611 pounds of Portland cement per cubic yard of concrete (6-1/2 sack) with a minimum 28-day compressive strength of 3,000 psi.

1. Portland cement shall be Type II or Type II, Modified.

2. Concrete shall contain 4% ±1% entrained air.

3. Water/cement ratio shall not exceed 0.45 (by weight).

4. Slump at placement shall be 4 inches.

B. Concrete used for thrust blocks shall contain not less than 517 pounds of Type II Portland Cement per cubic yard of concrete (5 1/2 sack).

C. Concrete used for pipe encasement shall contain not less than 517 pounds of Type II Portland Cement per cubic yard of concrete (5 1/2 sack).

D. Slurry cement backfill used in lieu of compacted soil shall contain not less than 188-pounds of Type II Portland Cement per cubic yard of concrete (2 sack) and shall comply with Section 19 of the State Standard Specifications.

2.2 AGGREGATE

A. Aggregate for normal weight concrete shall conform to ASTM C-33. Aggregates shall be free of dirt, clay balls, roots, bark and other deleterious substances and shall be thoroughly washed before use.

2.3 WATER

A. Water shall be clean and free from injurious amounts of acids, alkalis, salts, oils, organic materials or other deleterious substances.

2.4 ADMIXTURES

A. Air Entraining: ASTM C260

B. Water Reducing: ASTM C494, Type A or D

C. Accelerating: ASTM C494, Type C or E

1. No admixture containing any chloride ions is acceptable.

D. Retarding: ASTM C494, Type B or D

1. No admixture containing any chloride ions is acceptable.

2.5 REINFORCING STEEL

A. Rebar shall be ASTM designation A615, Grade 60.

B. Welded wire fabric shall conform to ASTM A 185.

2.6 EXPOSED-TO-VIEW CONCRETE

A. For exposed-to-view concrete, where legs of metal supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class I).

B. Metal bar supports in slab covers for sewage-containing structures shall also be provided with plastic coated legs.

2.7 FORM MATERIALS

A. Exposed Concrete: Plywood complying with U.S. Plywood Standard PS-1 “BB (Concrete Form) Plywood” Class I, or better.

B. Textured Finish Concrete: Units of face design, size arrangement and configuration to match control sample.

C. Cylindrical Columns and Supports: Metal, fiberglass or waxed paper tubes of sufficient wall thickness to resist imposed loads without deformation.

D. Form Release Agent shall leave behind a paintable concrete surface.

1. Release #1, The Burke Co., or approved equal.

2.8 CURING MATERIALS

A. Reinforced waterproof paper

1. Sisal Kraft, Orange Label, or approved equal.

B. Liquid-membrane curing compound

1. Curing compound shall comply with ASTM C309, Type 2.

a. White pigmented material

PART 3 EXECUTION

3.1 REINFORCING STEEL

A. Comply with CRSI, “Placing Reinforcing Bars” and as specified herein.

B. Place reinforcing steel and embedded items in accordance with approved shop drawings.

C. Splicing of bars shall be by lapping. Lapped splices shall be 45 bar diameters for bar size through #8 and 60 bar diameters for larger bars, unless otherwise shown on the Plans.

D. Splicing of the wire fabric shall be by lapping. Lapped splices shall be two full mesh, minimum.

E. All rebar in vertical walls shall be supported by concrete block spacers or metal chairs.

F. Prior to placement of the concrete, reinforcing steel shall be cleaned and free of all concrete, dirt, oil, mill scale, rust or other coatings that would reduce or destroy the bond.

G. All reinforcing steel and embedded items shall be reviewed and approved by the Engineer prior to concrete placement.

3.2 FORMS

A. All forms shall be cleaned and an approved agent applied each time they are used and shall be so constructed and set as to resist, without springing or settlement, the pressure of the concrete and the placing operations.

B. In designing forms and falsework, the concrete shall be treated as a liquid weighing at least 150 lbs. per cubic foot for vertical loads and not less than 85 lbs. per cubic foot for horizontal pressure. The design of the forms and falsework system shall include allowances for temporary construction loads. The rate of placement of concrete shall be so regulated that the pressures caused by the wet concrete will not exceed the designed form pressure. The unsupported length of wooden columns and compression members shall not exceed 30 times the width of the least side.

C. All forms shall be set and maintained in true alignment, grade and section until the concrete has sufficiently set. The interior surfaces of forms shall be adequately treated with an acceptable material to insure non-adhesion of mortar. All forms shall be mortar-tight. When forms appear to be unsatisfactory in any way, concrete placement shall be stopped until the defects have been corrected.

D. Metal tie rods or anchorages within the forms shall be fitted with suitable cones or comparable devices. Metal tie rods or anchorages shall be removed to a depth of 1" from the surface without injury to the concrete. All fittings for metal ties shall be of such design that upon their removal, the cavities which are left will be of the smallest possible size, but of sufficient diameter to allow the cavity to be "dry packed" with cement mortar. The cavities shall be filled with cement mortar and the surface left sound, smooth and even.

E. Form release agent shall be applied to the form so that no agent comes in contact with reinforcing steel.

3.3 PLACING

A. All concrete shall be placed before it has taken its initial set and shall be placed in horizontal layers and in such a manner as to avoid segregation. The concrete adjacent to the forms and joints shall be thoroughly internal consolidated with a vibrator operating at not less than 4,500 vibrations per minute.

1. Pumping equipment shall be of suitable type, without Y-sections, and with adequate pumping capacity.

2. Loss of slump in pumping should not exceed $1^{1}/_{2}$ ".

3. Concrete shall not be placed through reinforcing that may cause separation of aggregates.

B. The concrete shall be deposited as nearly as possible in its final position. Drop chutes and elephant trunks shall be used on drops greater than 5 feet. Concrete shall be placed at such a rate that all concrete in the same lift will be deposited on plastic concrete. The concrete comprising each unit of work shall be placed in a continuous lift.

C. The Contractor shall notify the Engineer 24 hours (1 working day) prior to concrete placement.

1. The form work and reinforcing steel placement shall be approved by the Engineer prior to ordering concrete.

D. Form Removal. Minimum times for removal after concrete placement are as follows:

Beam sides but not shoring	3 days
Column forms and wall forms	2 days
Forms for supported slabs but not shoring	14 days

3.4 CURING

A. Exposed concrete surfaces shall be protected from premature drying by covering as soon as possible with canvas, plastic sheets with sealed joints, burlap, sand or other satisfactory materials and kept continuously moist; or, if the surfaces are not covered, they shall be kept continuously moist by flushing or sprinkling.

1. Curing shall continue for a period of not less than 7 days after placing the concrete. If curing compound is used, two (2) applications will be made for even coverage. Curing methods shall be approved by the Engineer prior to use.

3.5 FINISHING

A. Defective and honeycombed surfaces shall be chipped back to such a depth to expose solid concrete. The surface shall be dampened and coated with a bonding agent and packed with mortar.

B. Concrete Finishes for Vertical Wall Surfaces:

1. Form facing material shall produce a smooth, hard, uniform texture.

a. Use forms specified for surfaces exposed to view in accordance with the Plans and other Specification Sections.

2. At a minimum, repair the following surface defects:

a. Tie holes

b. Honeycombs deeper than ¼”

c. Air pockets deeper than ¼”

d. Rock holes deeper than ¼”

e. Scabbing

3. Chip or rub off fins exceeding 1/8” in height.

4. Provide Class 1 finish for:

a. Walls being waterproofed, painted, coated with some other material.

b. All exposed surfaces not specified to receive another finish.

C. Related Uniform Surfaces (Except Slabs):

1. Strike smooth tops of walls or buttresses, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces after concrete is placed.

2. Float surface to a texture consistent with that of formed surfaces.

3. Continue treatment uniformly across unformed surfaces.

D. Concrete Finishes for Horizontal Slab Surfaces:

1. General: Tamp concrete to force coarse aggregate down from surface. Screed with straightedge, eliminate high and low places, bring surface to required finish elevations; slope uniformly to drains. Dusting of surface with dry cement or sand during finishing processes not permitted.

2. Slab Finish shall be as follows:

a. Surfaces intended to receive damp proofing or water proofing membranes: Float finish.

b. Floors intended to receive floor coverings and MCC rooms: Trowel finish.

c. Sidewalks, garage floors, drive-throughs and ramps: Broom finish.

d. Exterior slabs, platforms, steps and landings, exterior and interior pedestrian ramps and interior stairs and all process equipment areas, not covered by other finish materials: Broom finish.

3. Deviation in finish surface shall not exceed ¼” in 10 ft.

4. No tolerance will be allowed that will result in the maximum running, or cross, slope exceeding the requirements of the Americans with Disabilities Act.

3.6 TESTING

A. Testing of concrete shall be as required by the Engineer and in accordance with ACI 301, Chapter 16.

1. All costs of initial testing will be paid by the Owner unless otherwise noted.

2. All costs involved, including those required by the Engineer, in retesting of concrete required because of a failure to meet these Specifications shall be at the expense of the Contractor.

3.7 WATERTIGHTNESS OF CONCRETE WORK

A. It is the intent of this Specification to obtain concrete and grout with homogenous structure, which when hardened will have the required strength, is watertight, and resistant to weathering.

END OF SECTION

SECTION 05500

FABRICATED METAL

PART 1 GENERAL

1.1 WORK INCLUDED

A. Provide metals work for:

1. Steel channel and/or angle frames and thresholds with anchors
2. Walkways, handrails, stairs and grating
3. Pipe supports with saddles, hangers, bracing and attachments as detailed and required, except as provided by other trades
4. Guard post assemblies for removable and stationary types
5. Miscellaneous iron and steel items indicated, specified, or required for completion of the Work, unless included under other Sections of the Specification
6. Miscellaneous connections, anchors, bolts, clips, spacers, nuts, washers, shapes and inserts, as required
7. Other miscellaneous metal work, complete as indicated, specified and required.

B. Galvanizing, shop primer finishes for work of this Section as specified or required, including field touchups.

C. All labor, materials, equipment, tools and incidentals necessary and required for the completion of the work

1.2 RELATED WORK

A. Section 03300 – Cast-In-Place Concrete

B. Section 03600 – Grout

C. Section 09900 – Painting

1.3 REFERENCES

A. Industry Codes and Standards

American Institute of Steel Construction (AISC)
Specification for the Design, Fabrication and Erection of Steel for Buildings
Code of Standard Practice for Steel Buildings and Bridges

American Society for Testing and Materials (ASTM)
American Welding Society (AWS)
AWS D 1.1 Structural Welding Code Steel

B. Government Regulations

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)
Cal/OSHA Standards

1.4 QUALITY ASSURANCE

A. Unless otherwise specified all work specified herein and shown on the Drawings shall conform to the applicable requirements of the following specifications and codes:

1. Fabricate and erect miscellaneous metal work in accordance with the latest edition of the AISC "Specification for the Design, Fabrication and Erection of Steel for Buildings," and "Code of Standard Practice for Steel Buildings and Bridges."

2. Inspections. Perform all field welding and field high strength bolting of structural steel assemblies under the inspection of the Engineer. Notify the Engineer at least 48 hours in advance of needed inspections. Provide copies of testing and inspection reports to the Engineer.

1.5 SUBMITTALS

A. Furnish submittals, samples and material data in conformance with Section 01300 – Submittal Procedures.

1. Shop Drawings and Erection Drawings. Show materials and specification list, construction and fabrication details, layout and erection diagrams and method of anchorage to adjacent construction. Give location, type, size and extent of welding and bolted connections and clearly distinguish between shop and field connections. Coordinate shop drawings with related trades to ensure proper mating of assemblies.

a. Catalog work sheets showing illustrated cuts of item to be furnished, scale details and dimensions may be submitted for standard manufactured items.

b. Where items must fit and coordinate with finished surfaces and/or constructed spaces, take measurements at site and not from Drawings. Where concrete, masonry or other materials must be set to exact locations to receive work, furnish assistance and direction necessary to permit other trades to properly locate their work. Where welded connectors, concrete, or masonry inserts are required to receive work, show on shop drawings exact locations required.

2. Shop Painting Data. Submit product list with product data sheets of intended shop coats. These products shall be compatible with the products and manufacturers with those systems Specified in Section 09900 - Painting.

PART 2 PRODUCTS

2.1 MATERIALS – GENERAL

A. Provide materials that are new, sound and conforming to the following:

Item	**ASTM Standard No.**	**Class, Grade Type or Alloy No.**
Cast Iron		
Cast Iron	A 48	Class 40B
Steel		
Galvanized sheet iron or steel	A 653	Coating G90
Black steel, sheet or strip	A 569 A 570	--
Coil (plate)	A 635	--
Structural plate, bars, rolled shapes, and miscellaneous items (except W shapes)	A 36	--
Rolled W shapes	A 992	Grade 50
Standard bolts, nuts and washers	A 307	--
High strength bolts, nuts and hardened flat washers	A 325 A 490	--
Eyebolts	A 489	Type 1
Tubing, cold-formed	A 500	--
Tubing, hot-formed	A 501	--
Steel pipe	A 53	Grade B
Stainless steel		
Plate, sheet and strip	A 240	Type 304* or 316**
Bars and shapes	A 276	Type 304* or 316**

Aluminum		
Flashing sheet aluminum	B 209	Alloy 5005-H-14, 0.032 inches minimum thickness
Structural sheet aluminum	B 209	Alloy 6061-T6
Structural aluminum	B 209 B 308	Alloy 6061-T6
Extruded aluminum	B 221	Alloy 6063-T42

*Use Type 304L if material will be welded

**Use Type 316L if material will be welded

1. Anchor bolts:

   a. Anchorages for all locations unless otherwise indicated on Drawings: Stainless steel, Type 316, Hilti HVA adhesive anchors, or Engineer approved equivalent.

   b. Chemical bond or adhesive type DBDs, if approved by the manufacturer and the Engineer, are acceptable for anchorage of vibrating machinery or equipment.

2. Expansion Anchors. .

   a. Hilti Kwik-Bolt, Standard Type or Engineer approved equivalent.

3. Galvanizing.

   a. Iron and Steel. ASTM A123, with average weight per square foot of 2.0 ounces and not less than 1.8 ounces per square foot.

   b. Ferrous Metal Hardware Items. ASTM A153 with average coating weight of 1.3 ounces per sq. ft.

   c. Touch-up Material for Galvanized Coatings. Repair galvanized coatings marred or damaged during erection or fabrication by use of DRYGALV as manufactured by the American Solder and Flux Company, Galvalloy, Galvion, Rust-Oleum 7085 Cold Galvanizing Compound, or Engineer approved equivalent.

4. Welding Electrodes. Use welding electrodes conforming to AWS D1.1.

5. Shop Prime Paint. To assure compatibility with deferred field-applied paint or coating systems, for ferrous metals other than stainless steel, galvanized steel and cast iron, provide surface preparations and use shop prime paint product and manufacturer as painting or protective coating system intended for field application specified in Section 09900 - Painting.

   a. Do not shop prime portions of work immediately adjacent to intended field welds, or portions intended for embedment.

PART 3 EXECUTION

3.1 GENERAL FABRICATION AND INSTALLATION REQUIREMENTS

A. Standards: Thoroughly clean ferrous metals of all loose scale and rust before being fabricated. Provide finished members free of twists, bends or open joints, and that present a neat workmanlike appearance when completed. Perform steel work conforming to the best practices set forth in the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction.

1. Perform aluminum work conforming to the applicable requirements of "Specifications for Aluminum Structures, Aluminum Construction Manual" of the Aluminum Association.

B. Welding: Perform all welding in accordance with the "Structural Welding Code-Steel," AWS D1.1.

1. Use only welders qualified by tests in accordance with AWS B 3.0.

C. Expansion anchors shall be installed in conformity with the manufacturer's instructions and ICBO Evaluation Report recommendations for maximum holding power, but in no case shall the depth of hold be less than four (4) bolt-hole diameters. The minimum distance between the center of any expansion anchor and an edge or exterior corner of concrete shall be at least four and one half (4-1/2) times the diameter of the hole in which the anchor is installed. Unless otherwise indicated on the Plans, the minimum distance between the centers of the expansion anchors shall be at least eight (8) times the diameter of the hole in which the anchors are installed.

D. General Fabrication and Installation

1. Using new stock of sizes specified or detailed, fabricate in shop producing high grade metal work. Form and fabricate to meet required conditions. Include clips, straps, bolts, screws, and other fastenings necessary to secure the work. Accurately make and tightly fit joining and intersections in true planes with adequate secure fastenings. Erect all metal work plumb, true on line and in its designated location. Grind and finish smooth field welds on exposed surface. Bolt or weld connections as indicated on Drawings. After installation, leave all work in a neat and clean condition, ready for field painting or coating.

a. The maximum misalignment tolerance for railing shall be 1/8 inch in 12 feet. Bent, deformed or otherwise damaged railings shall be replaced.

2. Coordinate work of this Section with related trades. Particular attention is required for items to be embedded in concrete work. Provide all punching

and drillings indicated or required for attachment of other work to that of this Section.

3. Compliance with Safety Requirements: Dimensions required for the fabrication and installation of handrails, ladders, grating, plate, pipe hangers and etc. which are not shown on the Drawings, shall conform to the requirements of the Division of Occupational Health and Safety.

E. Protection

1. Provide protection and repair of adjacent surfaces and areas which may become damaged as a result of work of this Section. Protect work performed hereunder until completion and final acceptance of project by the Owner. Repair or replace all damaged or defective work to original specified condition, at no additional cost to the Owner.

F. Painting

1. Apply all products in strict conformance with manufacturer's printed instructions.

2. Provide one or more shop coats of paint on all ferrous metals, except cast-iron, ductile iron, stainless steel and galvanized metals. Before priming, thoroughly clean surfaces. Allow shop coats to dry before materials are loaded for delivery to the job site. After erection, paint all areas where the shop coats have been rubbed off or omitted.

   a. See Section 09900 - Painting of these specifications for surface preparation, prime coatings, finish painting and coatings.

3. Isolate aluminum members from contact with dissimilar metals, concrete and masonry to provide protection from electrolytic deterioration. Use non-absorptive tape or gaskets, heavy brush coat of approved zinc chromate primer made with a synthetic resin vehicle; or apply a heavy coat of approved alkali-resistant bituminous paint.

END OF SECTION

SECTION 05550

ANCHOR BOLTS AND EXPANSION ANCHORS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of furnishing and installing all materials and equipment and providing all labor necessary to complete the work shown on the drawings and/or listed below and all other work and miscellaneous items not specifically mentioned but reasonably inferred for a complete installation, including all accessories and appurtenances required for a completed system.

B. Cast-in-Place anchor bolts, anchor bolts and threaded rod anchors for epoxy grouting.

C. Expansion anchors to be installed in hardened concrete.

1.2 RELATED WORK

A. Section 03300 – Cast In Place Concrete

B. Section 05500 – Fabricated Metal

1.3 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

1.4 GENERAL

A. Unless otherwise specified or indicated on the drawings, all anchor bolts shall be cast-in-place bolts, shall have a diameter of at least 3/4 inch, and shall be headed and shall include a square washer a minimum of 1/4 inch thick and 2 inches square.

B. Expansion anchors and threaded rod anchors indicated or accepted in lieu of cast-in-place anchor bolts for equipment or structural framing shall have a diameter of at least 3/4 inch and shall be ICBO Evaluation Report listed.

1. Unless otherwise specified or indicated on the drawings, or approved by the Engineer, all other expansion anchors shall have a diameter of at least 1/2 inch.

PART 2 MATERIALS

2.1 MATERIALS

A. Nuts and washers for anchor bolts and expansion anchors shall be the same material as the bolts or anchors they are used with.

Application	Reference
A. Anchor Bolts and Nuts	
1. Carbon Steel	ASTM A307
2. Stainless Steel	IFI-104, Grade 304 or 316
3. Galvanized Steel	Carbon steel bolts and nuts; hot-dip galvanized, ASTM A153 and A385.
B. Threaded Rod Anchors and Nuts	
1. Carbon Steel	ASTM A307 or A36
2. Stainless Steel	IFI-104, Grade 304 or 316
3. Galvanized Steel	Carbon steel bolts and nuts; hot-dip galvanized, ASTM A153 and A385
C. Flat Washers	ANSI B18.22.1; of the same material as anchor bolts and nuts.
D. Expansion Anchors	
1. For Concrete	Fed Spec FF-S-325; wedge type, Group II, Type 4, Class 1 or 2; self-drilling type, Group III, Type 1; or nondrilling type, Group VIII, Type 1 or 2; Hilti ICBO #3987 or 4627, ITW Ramset/Red Head ICBO #2391, Rawl Bolt ICBO #4514, or ICBO approved equivalent.

B. Anchor bolts and threaded rod anchors for buried service and in splash zones shall be stainless steel. Anchor bolts, threaded rod anchors, and expansion anchors for immersion service shall be stainless steel. Expansion anchors for buried service and in splash zones shall be stainless steel. All other anchor bolts, threaded rod anchors, and expansion anchors shall be galvanized steel unless otherwise specified or indicated on the Plans.

PART 3 EXECUTION

3.1 ANCHOR BOLTS

A. Anchor bolts shall be delivered in time to permit setting before the structural concrete is placed. Anchor bolts which are cast in place in concrete shall be provided with sufficient threads to permit a nut to be installed on the concrete side of the concrete form or supporting template.

B. Anchor bolts and threaded rod anchors which are to be epoxy grouted shall be clean and free of coatings that would weaken the bond with epoxy.

C. Two nuts, a jam nut, and a washer shall be furnished for anchor bolts and threaded rod anchors indicated on the drawings to have locknuts; two nuts and a washer shall be furnished for all other anchor bolts.

D. Anti-seize thread lubricant shall be liberally applied to projecting, threaded portions of stainless steel anchor bolts and threaded rod anchors immediately before final installation and tightening of the nuts.

3.2 EXPANSION ANCHORS

A. Expansion anchors shall be installed in conformity with the manufacturer's instructions and ICBO Evaluation Report recommendations for maximum holding power, but in no case shall the depth of hold be less than four (4) bolt-hole diameters. The minimum distance between the center of any expansion anchor and an edge or exterior corner of concrete shall be at least four and one half (4-1/2) times the diameter of the hole in which the anchor is installed. Unless otherwise indicated on the Plans, the minimum distance between the centers of the expansion anchors shall be at least eight (8) times the diameter of the hole in which the anchors are installed.

B. Anti-seize thread lubricant shall be liberally applied to threaded stainless steel components immediately before assembly.

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.1 WORK INCLUDED

A. Field painting including surface preparation, surface protection, clean up, and/or other appurtenant work as indicated in the Contract Documents.

B. All labor, materials, tools and equipment, and incidentals necessary and required for their completion.

1.2 RELATED WORK

A. Section 02610 – Pipes & Fittings

B. Section 02640 – Valves and Appurtenances

C. Section 03300 – Cast-in-Place concrete

D. Section 05500 – Fabricated Metals

E. Division 11 – Equipment

F. Division 16 - Electrical

1.3 SUBMITTALS

A. Shop Drawings, Product Data, and Samples: as specific in Section 01300 – Submittal Procedures.

1. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.

b. Performance criteria as required by the Engineer to determine quality.

c. Manufacturer's installation instructions and environmental parameters.

d. Material Safety Data Sheets.

e. Color samples.

1.4 AIR QUALITY REGULATORY COMPLIANCE

A. All paint shall conform to the applicable air quality regulations at the point of application. Any paint material which cannot be guaranteed by the manufacturer to comply, whether specified by product designation or not, shall not be used.

B. The volatile organic compound (VOC) of coatings materials limits set forth in Rule 460.1 of the San Joaquin Valley Unified Air Pollution Control District shall apply to this project. The manufacturers' products listed in paragraphs 09900-3.01 and 3.02 have been selected on the basis of their apparent compliance with Rule 460.1; however, it shall remain the Contractor's responsibility to ensure that all coatings materials furnished are in compliance with all regulatory agencies.

C. The product listed may meet the VOC requirement in the unthinned (as shipped) condition, but may exceed the VOC requirement if thinned to the manufacturer's allowable recommendations. In this situation, the product is not to be thinned beyond the limit indicated in Rule 460.1, and if the product cannot be suitably thinned for the intended application method or temperature requirements, it will be necessary to use another manufacturer's product subject to acceptance by the Engineer.

D. It shall be the responsibility of the Contractor to ensure the compatibility of the field painting products which will be in contact with each other or which will be applied over shop painted or previously painted surfaces. Paint used in successive field coats shall be produced by the same manufacturer. Paint used in the first field coat over shop or field primed surfaces, or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint.

E. All paint shall be lead-free and mercury-free.

1.5 QUALITY OF WORK

A. All finishes shall be applied by skilled workmen in accordance with the best practices and standards of the painting trade. Brushes, rollers, all equipment, and the techniques used in applying finishes shall be of sufficient quality to assure the specified results. Work not conforming to this Specification shall be corrected by touching up or refinishing as directed by the Engineer.

B. It is the purpose and intent of this Specification to cover the complete paint finishing of all exterior and interior surfaces as scheduled or specified and all surfaces which normally require a paint finish for corrosion resistance, weather protection, finished appearance or utility. Finished surfaces shall be of the type of finish, color sheen film thickness and quality specified.

1.6 DELIVERY AND STORAGE

A. Painting materials shall be delivered to site in manufacturer's original containers with labels intact and seals unbroken. Painting materials and equipment shall be stored and protected against freezing and mixed in rooms assigned for that

purpose. No chemicals, unauthorized thinners, or other materials, not included in the paint formulation shall be added to the paint for any purpose. All necessary precautions shall be taken to prevent fire. Rags or waste soiled with paint shall be removed from premises at end of each day's work, or shall be stored in covered metal containers.

1.7 EQUIVALENT PRODUCTS

A. Whenever a coating is specified using the name of a proprietary product or the name of a particular manufacturer or vendor, the specified coating shall be understood as establishing the type and quality of coating desired.

B. Other manufacturers' products will be accepted provided sufficient information is submitted to allow the Engineer to determine that the coatings proposed are equivalent to those named. Proposed coatings shall be submitted for review in accordance with the Section 01300 – Submittal Procedures.

C. Requests for review of equivalency will not be accepted from anyone except the Contractor, and such requests will not be considered until after the contract has been awarded.

D. Specific products for various applications shall be as specified in Part 2. In addition to the products named in Part 2, equivalent products of the following manufacturers will also be acceptable:

Ameron
Carboline
Devoe
PPG (Pittsburgh)
Sherwin Williams Co.
Sinclair
Tnemec
Valspar

E. Contractor shall provide verification that equivalent products are acceptable for the desired application.

1.8 REFERENCE STANDARDS

A. SSPC – Society of Protective Coatings, Pittsburgh, PA

B. ASTM – American Society For Testing And Materials, West Conshohocken, PA

PART 2 PRODUCTS

2.1 GENERAL

A. All paint shall be the product of a recognized manufacturer exclusively engaged in the manufacture of painting material. All paints for wood and metal surfaces shall be well-ground and shall not skin, liver, curdle, or body excessively in the containers.

B. The paint shall not show laps or unevenness of color or texture. When applied to vertical surfaces, it shall not sag.

C. All exposed surfaces, including sides and edges, shall be painted. Hangers, brackets, fastenings and other miscellaneous items shall be painted with the same system as the adjacent material. Paint systems shall be in addition to shop primers.

D. Paint shall be stored inside and shall be protected against freezing. No adulterant, unauthorized thinner, or other material not included in the paint formation shall be added to the paint for any purpose.

E. Paint used in successive field coats shall be produced by the same manufacturer. Paint used in the first field coat over shop painted or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint. Any paint system shall be the product of a single manufacturer.

F. All paint used for intermediate and finish coats shall be guaranteed by the paint manufacturer to be lead-free, mercury-free, and fumeproof. Where paint materials are referenced to Federal or military specifications, the reference shall define general type and quality required but is not intended to limit acceptable materials to an exact formulation.

G. For each paint, the Contractor shall follow the paint manufacturer's specific application instructions. Upon the Engineer's request, the Contractor shall furnish the following application instructions.

1. Surface preparation recommendations.

2. Type of primer to be used.

3. Maximum dry and wet mil thickness per coat.

4. Minimum and maximum curing times between coats.

5. Thinner to be used with each paint.

6. Ventilation requirements.

7. Atmospheric conditions during which the paint shall not be applied.

8. Allowable methods of application.

9. Maximum allowable moisture content and minimum age of plaster, concrete and wood surfaces at time of paint application.

10. Curing time before submergence in water.

H. The minimum number of coats and minimum total dry mil thickness of the system for each surface shall be as specified in the paint schedule.

2.2 PAINTING SCHEDULE

A. A schedule is appended to this section listing the surface preparation, primer, finish and dry mil thickness to be used on each surface to be coated.

2.3 PRIMERS AND PRETREATMENT

A. P-1 Epoxy Primer - Minimum dry thickness 4 mils. Devoe "Bar Rust 235H", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600”, or Tnemec 69-1211 "Hi-Build Expoxoline."

B. P-2 Rust Inhibitive, non-submerged - Minimum dry thickness 3 mils. Devoe "Devran 203 Waterborne Epoxy Primer", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600” or Tnemec 135 "Chem Build."

C. P-3 Rust inhibitive, submerged - Minimum dry thickness 4.0 mils. Devoe "Bar Rust 235H", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600” or Tnemec 136 "Chem Build.”

D. P-4 Primer for Wood – Maximum of 400 sq. ft/gal. Devoe 2010-1200 "Ultra- Hide Durus Exterior Acrylic Primecoat", Sherwin Williams “A-100 Wood Primer B42W41” or Tnemec 151 “Elaso-Grip.”

E. P-5 Wallboard Primer – Maximum of 400 sq. ft/gal. Devoe1060-1200 "Ultra- Hide Latex Primer- Sealer", Sherwin Williams “Preprite 200 Interior Latex Primer B28W200”, or Tnemec 51-792 "PVA Sealer."

F. P-6 High Build Acrylic – Maximum of 100 sq. ft/gal., Tnemec 180 WB Tneme-Crete, Sherwin Williams “Heavy Duty Block Filler B42W46”.

2.4 INTERMEDIATE AND FINISH PAINTS

A. F-1 Epoxy Resin - Minimum dry thickness 5 mils. Devoe "Bar Rust 235H", Sherwin Williams “Macropoxy 646 FC Epoxy B58-600”, or Tnemec 69 "Hi-Build" epoxy.

B. F-2 Gloss Acrylic Emulsion - Minimum dry thickness 2.0 mils Devoe “ Devflex 4208 Waterbone Acrylic Enamel”, Sherwin Williams “Shercryl Hi Performance Acrylic Gloss B66-300”, or Tnemec 1028.

C. F-3 Semi-gloss Acrylic Emulsion - Minimum dry thickness 2.5 mils Devoe “Devvflex 4216 HP Waterborne”, Sherwin Williams “Shercryl Hi Performance Acrylic Semi-Gloss B66-350”, or Tnemec 1029 “Tuf Cryl”.

D. F-4 High Build Epoxy (Substitute for Coal Tar) - Minimum dry thickness 6 mils. Devoe “Devtar 5A HS”, Sherwin Williams “Targuard Coal Tar Epoxy B69B60”, or Tnemec “V69F Black"

E. F-5 Polyurethane O - Minimum dry thickness 2 mils. Devoe “Devthane 379H Aliphatic Urethane Gloss Enamel”, Sherwin Williams “Hi Solids Polyurethane CA B65j-300”, or Tnemec 1075 "Endurasheild."

F. F-6 Acrylic Epoxy – Minimum dry film thickness 4 mils. Tnemec 113 Tneme-Tufcoat, Sherwin Williams “ Waterbased Tile Clad Epoxy B73-100”.

G. F-7 High Build Acrylic – Maximum of 100 sq. ft./gal.Tnemec 180 WB Tneme-Crete, Sherwin Williams “Heavy Duty Block Filler B42W46”.

2.5 SURFACES NOT TO BE PAINTED

A. Except as otherwise required or directed, the following surfaces are to be left unpainted:

1. Exposed surfaces of aluminum.

2. Polished or finished stainless steel. Unfinished stainless steel shall be painted.

3. Nickel or chromium.

4. Galvanized surfaces, except piping, and conduit.

5. Rubber and plastics, including fiberglass reinforced plastics.

6. Precast concrete.

2.6 PIPING COLOR

A. Final paint coat color shall be approved by the District.

PART 3 EXECUTION

3.1 PRELIMINARY EXAMINIATION

A. Notify the Engineer in writing of any uncorrected defects in surfaces to be painted. Do not proceed with the finishing of surfaces in question until any discrepancies are corrected. No work on any surface shall be started, unless the surface has been inspected and approved for painting by the Engineer.

3.2 SURFACE PREPARATION

A. The Contractor shall prepare the surfaces to be coated as specified under the paint schedule. Any surfaces to be coated which are not listed under the paint schedule shall be prepared in accordance with the manufacturer's instructions for the material to be applied.

B. All grease, oil, dirt, and other contaminants which may affect the bond between the coating and the surface shall be removed by a cleaning agent which will leave the surface clean and dry.

C. Cleaning and painting operations shall be performed in a manner which will prevent dust or other contaminants from getting on freshly painted surfaces.

D. Surfaces shall be free of cracks, pits, projections, or other imperfections which would prevent the formation of smooth, unbroken paint film, except for concrete block construction where a rough surface is an inherent characteristic.

E. When applying touch-up paint, or repairing previously painted surfaces, the surfaces to be painted shall be cleaned and sanded or wire brushed in such a manner that the edges of adjacent paint are feathered or otherwise smoothed so that they will not be noticeable when painted. All paint made brittle or otherwise damaged by heat or welding shall be completely removed.

F. Hardware items such as bolts, screws, washers, springs, and grease fittings need not be cleaned prior to painting if there is no evidence of dirt, corrosion, or foreign material.

G. All galvanized surfaces shall have a metal conditioner applied prior to the first prime coat.

H. All surfaces to be finished shall be clean and dry before any materials are applied. Use a moisture meter to determine moisture content as follows. The moisture content shall be less than 18% for wood; 8% for concrete or plaster.

1. Metal Surfaces - Where noted, the surface preparation for steel and other metals refer to the specifications for surface preparation by the latest revision of the Steel Structures Painting Council. All metal work shall be cleaned of grease, oil and dirt by solvent cleaning (SSPC-SP1). Do not use hydrocarbon based solvents for cleaning prior to use of acrylic materials.

   a. Method SP-2: Surface shall be wire brushed where required to remove loose rust and dirt, etc. (SSPC-SP2)

   b. Method SP-3: Removal of loose rust, loose mill scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders. (SSPC-SP3)

   c. Method SP-6: Blast cleaning until at least two-thirds of each element of surface area is free of all visible residues. (SSPC-SP6)

d. Method SP-10: Sandblast to near white condition. This method shall remove all rust and scale, but streaks and shadows in the metal will be acceptable. (SSPC-SP10)

2. Wood Surfaces

a. Method W-1: All unprimed millwork delivered to the jobsite shall be given the specified first coat on all surfaces immediately upon arrival. Give all unprimed woodwork the specified first coat as soon as possible following installation. Prime any wood surface that is to be in contact with concrete, or a caulking material, with the specified first coat material before installation. Unless specified otherwise, all casings and trim, and all woodwork shall be free of oil, dirt, loose fibers, etc., sealed with a sanding sealer recommended by the coating manufacturer, and sanded smooth and dusted thoroughly before application of the priming coat. Give all knots, pitch pockets and sappy areas a preliminary coat of Dutch Boy Knot Sealer, or approved equivalent, prior to application of the prime coat.

3. Galvanized Surfaces

a. Method G-1: All galvanized surfaces shall be prepared for painting in strict conformity with the instructions of the manufacturer. All galvanized shall be cleaned per SSPC-SP7.

4. PVC Pipe

a. Method V-1: All wax and oil shall be removed from PVC plastic surfaces by wiping with a solvent of the type used for the specified primer.

3.3 PAINT APPLICATION

A. Apply all finishes evenly, free from sags, runs, crawls, brush marks, skips or other defects. Apply products at the proper consistency and do not thin or otherwise alter them except in accordance with the manufacturer's printed directions. All coats shall be applied in such manner as to produce an even film of uniform thickness completely coating all corners and crevices. All painting shall be done by thoroughly experienced workmen.

B. Care shall be exercised during spraying to hold the nozzle sufficiently close to the surfaces being painted to avoid excessive evaporation of the volatile constituents and loss of material into the air, or the bridging over of crevices and corners. Spray equipment shall be equipped with mechanical agitators, pressure gauges, and pressure regulators. Nozzles shall be of proper size. Floors, roofs, and other adjacent areas and installations shall be satisfactorily protected by drop cloths or other precautionary measures. All over-spray shall be removed by approved methods or the affected surface repainted. Care shall be exercised to avoid lapping of paint on hardware of other unscheduled surfaces.

C. Each coat of material shall be thoroughly dry before the application of a succeeding coat. In no case shall paint be applied at a rate of coverage per gallon which is greater than the maximum rate recommended by the manufacturer. Paint films showing sags, checks, blisters, teardrops, or fat edges will not be accepted. Paint containing any of these defects shall be entirely removed and the surface repainted.

D. Sandpaper enamels and varnishes lightly between coats and dust thoroughly before the application of a succeeding coat.

E. If the finish coat is to be colored, the prime coat and the intermediate coat shall be tinted to have a slight variation in color from each other and from the finish coat.

3.4 PRIMING

A. Edges, corners, crevices, welds, and bolts shall be given a brush coat of primer before the specified spot or touch-up painting of metal surfaces. Special attention shall be given to filling all crevices with paint.

B. Abraded and otherwise damaged portions of shop applied paint shall be repainted. Welded seams and other uncoated surfaces, heads and nuts of field installed bolts, and surfaces where paint has been damaged by heat, shall be given a coat of the specified primer. This patch, spot, or touch-up painting shall be completed, and shall be dry and hard, before additional paint is applied.

3.5 LATEX PAINT

A. Latex paint shall be applied by brushing or rolling; spraying is not permitted. Latex paint shall not be thinned excessively.

3.6 MIXING AND THINNING

A. Paint shall be thoroughly mixed each time any is withdrawn from the container. Paint containers shall be kept tightly closed except while paint is being withdrawn.

B. Unless otherwise authorized, all paint shall be factory mixed to proper consistency and viscosity for hot weather application without thinning. Thinning will be permitted only as necessary to obtain recommended coverage at lower application temperatures. In no case shall the wet film thickness of applied paint be reduced, by addition of paint thinner or otherwise, below that represented by the recommended coverage rate.

3.7 FILM THICKNESS FOR FERROUS METALS

A. It is intended that the dry film thickness and the continuity of painted ferrous metal surfaces be subject to continual field check by the Engineer. Dry film thickness shall be measured by the Contractor, using an approved Thickness Gauge, at locations selected by Engineer. Testing equipment provided shall be provided by Contractor and kept on site.

B. Measurement of Dry Coating Thickness shall conform with paint application Standard SSPC-PA2

C. Thickness and Holiday Checking - Thickness of coatings and paint shall be checked with a non-destructive, magnetic type thickness gauge.

D. Holiday Checking of all interior coated surfaces shall be tested with an approved holiday detection device. Non-destructive holiday detectors shall not exceed 100 volts nor shall destructive holiday detectors exceed the voltage recommended by the manufacturer of the coating system. For thicknesses between 10 and 20 mils (0.25mm and 0.50mm) a non-sudsing type wetting agent such as Kodak Photo-Flo, shall be added to the water prior to wetting the detector sponge. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and re-tested. No pinholes or other irregularities will be permitted in the final coating. Holiday detection devices shall be operated in the presence of the Engineer.

E. Continuity shall be tested by a low voltage-wet sponge per RPO 188. Contractor shall perform continuity tests as required by the Engineer on surfaces that will be submerged.

3.8 ATMOSPHERIC CONDITIONS

A. Apply all material to dry and properly prepared surfaces when weather conditions are favorable for painting. No materials shall be applied when the temperature of the materials is below 50 degrees F, or when the temperature of the air, surface to be painted or substrate, is below (or likely to fall below) 50 degrees F. Final ruling on the favorability of weather conditions shall be in accordance with the recommendations of the manufacturer and/or the Engineer.

3.9 REPAIRING DAMAGED PAINT ON EQUIPMENT

A. Painted surfaces on equipment, which have become damaged prior to acceptance by the Owner, shall be repainted with the same or equivalent paint used in the original application.

3.10 PROTECTION OF SURFACES

A. Throughout the work the Contractor shall use drop cloths, masking tapes, and other suitable measures to protect all surfaces from accidental spraying, splattering, or spilling of paint. Contractor shall be liable for and shall correct and repair any damaged condition resulting from its operations or from the operations of all those who are responsible to the Contractor during the time its work is in progress and until the work is accepted. In case bituminous paints are spilled or dropped on any material except metals, the spots shall, after surface cleaning, be spot painted with aluminum paint prior to applying the specified paint. Any exposed concrete or masonry not specified to be painted which is damaged by paint shall be either removed and rebuilt or, where so authorized by the Owner, painted with two coats of masonry paint.

3.11 CLEANUP

A. All cloths and cotton waste which might constitute a fire hazard shall be placed in metal containers or destroyed at the end of each work day. Upon completion of the work all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer.

3.12 PAINTING SCHEDULE

		FINISH			
SYSTEM	SURFACE	SURF. PREP.	PRIME COAT	2ND COAT	3RD COAT
1.	New ferrous metal in submerged or damp environment including all submerged mechanical components.	SP-10	P-1	F-1	F-1
2.	All exterior exposed new structural and miscellaneous steel. All exterior exposed surfaces of new piping, pumps, motors, electrical equipment and other unsubmerged mechanical and structural items.	SP-2 or 3	P-2	F-2	F-2
3.	All surfaces of new structural and miscellaneous steel pipe, pumps, motors and electrical equipment panels exposed inside building.	SP-6	P-2	F-3	F-3
4.	All interior exposed new galvanized metalwork including electrical conduit inside buildings, including fittings, boxes, supports and accessories.	G-1	P-3	F-3	F-3
5.	All exterior exposed new galvanized metalwork including roof flashings ad other architectural items.	G-1	P-3	F-2	F-2
6.	Exposed new PVC piping	V-1	F-5	F-5	

7.	All new buried valves and flanged joints and other buried miscellaneous ferrous piping and metal surfaces (excluding case iron pipe). All exterior surfaces of new cast iron and steel piping exposed in manholes, wet wells and similar locations, including valves, fittings, flanges, bolts, supports, and accessories. Miscellaneous new castings, including manhole rings and covers and manhole steps. (One coat, if not foundry dipped.)	SP-10	F-4	F-4
8.	Interior wood	P-4	F-2	F-2
9.	Exterior wood	P-4	F-3	F-3
10.	Interior dry wall	P-5	F-6	
11.	Exterior concrete block	P-6	F-7	
12.	Concrete	P-6	F-7	

END OF SECTION

SECTION 11289

FLOW METERS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The Contractor shall provide all labor, materials, and equipment and perform all operations required to furnish and install, flowmeters and appurtenances as shown on the Plans and as specified herein.

1.2 RELATED WORK

A. Section 03300 – Cast In Place Concrete

B. Section 05550 – Anchor Bolts and Expansion Anchors

C. Division 11 - Equipment

D. Division 16 - Electrical

1.3 SUBMITTALS

A. As specified in Section 01300 – Submittal Procedures.

B. Acknowledgment that products submitted meet the requirements of standards referenced.

C. Operation and Maintenance Manual.

PART 2 PRODUCTS

2.1 PROPELLER FLOWMETER

A. Propeller flowmeters shall be McCrometer ML-04-D with TR28-2 4-20ma transmitter, or approved equivalent. The register shall indicate flow in cubic feet per second (CFS), totalizer shall read volume in ACRE-FEET (AF) and be equipped with a digital readout. The meter size shall match the pipe size.

PART 3 EXECUTION

3.1 INSTALLATION

A. Flowmeters shall be installed per manufacturer's specifications and installation instructions.

END OF SECTION

Attachment 3g

County of Fresno “Dummy” Encroachment Permit

Department of Public Works and Planning.
Maintenance & Operations Division
2220 Tulare Street, Sixth Floor
Fresno, California 93721

COUNTY OF FRESNO

APPLICATION FOR ROAD ENCROACHMENT PERMIT

Permit No _____

For Inspection Service
Telephone (559) 262-4107
Facsimile (559) 262-4166

In compliance with County of Fresno Ordinance Nos. 13.04.040, 13.08.010, 13.08.020 and Chapter 5.5 of Division 2 of the Streets and Highways Code, the undersigned hereby applies for permission to excavate, construct and/or otherwise encroach on the County right-of-way by performing the following work.

LOCATION OF PROPOSED WORK:

Adams and Academy Avenue, Fresno County near City of Parlier

DESCRIPTION OF PROPOSED WORK:

This permit will include traffic control at $95.00 plus $25.00 per day.

THIS APPLICATION IS YOUR PERMIT WHEN STAMPED HERE AND SIGNED BELOW

" DUMMY PERMIT "

PERMIT QUANTITIES & INSPECTON FEES

A. _____ L.F. Plowed Cable, pipe, etc.,

B. _____ L.F. Trenches (off pavement)

C. _____ L.F. Trenches (in pavement)

D. _____

_____ Estimated Starting Date

_____ Estimated Completion Date

Applicant's Name _____

Address _____

City _____ State _____ Zip _____

Signature (X) _____ Date _____

Home Phone _____ Work Phone _____

In consideration of the granting of this application, it is agreed that the applicant shall indemnify the County of Fresno and any and all of its officers, employees and agents and shall defend and hold them harmless from any and all claim or liability for personal injury or property damage due to any acts or failure to act in connection with any work permitted herein. Applicant further agrees to comply with all terms, conditions and specifications contained below and on the reverse side hereof.

PERMIT APPROVAL

Permission is hereby granted to perform the above described work subject to all terms, conditions and restrictions contained below and on the reverse side hereof. This permit is to be strictly construed and no work other than that specified is authorized hereby.

This permit is expressly conditioned upon performance of the work. Failure to so perform said work in accordance with County specifications shall be deemed an immediate revocation of this permit and without notice.

Work shall be subject to County Inspection. Permittee shall notify County Inspector _____ a minimum of 24 hours before starting work (Telephone 559/262-4107).

THIS PERMIT SHALL BE VOID UNLESS THE WORK HEREIN CONTEMPLATED SHALL HAVE BEEN COMPLETED BEFORE _____

To commence or complete work after said date requires approved application for permit renewal or time extension. Grantor reserves the right to complete the work to restore the right-of-way as provided in Section 10 on the reverse side hereof.

Traffic control shall be done in accordance with the "Accepted" traffic control plan, the latest edition of the California Manual on Uniform Traffic Control Devices and the provisions noted on the front and reverse sides of this permit.

Account No. _____
Work Code _____
Work Code _____
Mtce Area _____
Permit Fee _____

Alan Weaver, Director
Department of Public Works and Plannig.

By _____ Date _____
Abby Fox, Permit Engineer

F-83 (04/02)

Plus Traffic Control @ $95 + $25 a day

FOR OFFICE USE ONLY

WHITE - Office Copy **GREEN** - Inspector Copy **CANARY** - Permittee Copy **PINK** - Accounting Copy **GOLDENROD** - Area Supervisor Copy

GENERAL PROVISIONS

1. **Definition:** This permit is issued under Section 13.04.040, 13.08.010 and 13.08.020 of the County Ordinance Code, and Chapter 5.5 of Article 2 of the Streets and Highways Code. The term "Encroachment" is used in this permit as defined in said provisions. The term "Encroachment" is used in this permit as defined in said provisions. The term "Grantor" shall mean the Director of Public Works and Planning of the County of Fresno. (When this permit is issued for work to be performed in Special Districts, County Ordinance Code, Section 10.35 shall apply.)
2. **No Precedent Established:** This permit is granted with the understanding that no precedent shall be established on the question of permitting any certain kind of Encroachment within County rights-of-way.
3. **Specifications and Regulations:** All construction shall conform to established specifications and regulations of the County of Fresno. This permit does not constitute approval of any violations of ordinances or regulations. Unless specified otherwise, construction shall conform to applicable requirements of Fresno County Improvement Standards dated October 1966 as required.
4. **Keep This Permit On The Work:** This permit shall be kept at the site of the work and upon request be shown to any representative of Grantor or any Law Enforcement Officer.
5. **Permits From Other Agencies:** This permit covers only those portions of the work located within the County road right-of-way. Permittee shall, whenever required by law, secure a written order or consent to the doing of the work from the California Public Utilities Commission, or any other public board having jurisdiction and this permit shall not be valid or effective until such order or consent is obtained.
6. **Protection Of Traffic:** Protection and control of the traveling public shall be in accordance with the requirements set forth in the current issue of the "Manuel on Uniform Traffic Control Devices (MUTCD) with California Supplement approved by the Federal Highway Administration and the California Department of Transportation." Unless otherwise noted on permit, the work shall be carried out in such a manner that pubic traffic is not obstructed. Adequate warning devices shall be installed and maintained by Permittee until completion of work. Permittee agrees to reimburse Grantor for any costs that may be incurr3ed by Grantor for correcting inadequate signing (this is not intended to relieve Permittee of his/her responsibility to provide adequate warning devices.)
7. **Clean Up Right-Of-Way:** Upon completion of the work all lumber, scraps, and other surplus material shall be entirely removed and the right-of-way left in a clean condition satisfactory to Grantor. All excavations shall be properly backfilled and left in a safe condition. Clean up shall include any necessary sweeping or cleaning of roadway surfaces to remove earth and debris deposited by spillage or tracking from work area.
8. **Public Safety:** Excavations within the right of way shall comply with all applicable portions of Cal/OSHA requirements and California Code of Regulation Title 8 Section 1540 and following. Open trenches or pits shall not be allowed overnight and shall be protected from the public via placement of steel trench plating to cover the opening or with Type K temporary railing to maintain separation from the public. No plywood covering of open areas is allowed where deeper than 12".
9. **Supervision Of Grantor:** All work to be done shall be subject to inspection of and satisfaction of the Grantor. When requested by Grantor, Permittee shall immediately provide test reports or other certification specified by Grantor verifying compliance with the quality and performance requirements of the permit. Prior to commencing work, Permittee shall give 24 hours notice to Grantor, or the person specified on the revised site hereof, prior to starting work, resuming work after moving off the job and prior to paving. (Failure to notify the County as stated shall immediately terminate this permit).
10. **Liability For Damages:** Permittee shall indemnify the County of Fresno and any of its officers, employees, servants and agents and shall defend and hold them harmless from any and all claim or liability for personal injury or property damage due to any acts or failure to act in connection with the performance of the work performed herein. It will be the responsibility of the Permittee to determine the location of any existing underground facilities within the work area and to arrange for any necessary relocations.
11. **Making Repairs:** Permittee shall promptly repair any and all damage to right-of-way surfaces and roadway facilities including any injury to any portion of the right-of-way which would not have occurred had the permit work not been done or the encroachment placed therein, unless Grantor gives notice of its election to make such repairs itself. If Grantor gives such notice Permittee shall immediately purchase and have delivered at the site materials specified by Grantor. All payments for labor, equipment and other charges by Grantor, for an account of such works shall be made by Permittee within ten (10) days from the date of any bill, written order, or voucher sent by or approved by Grantor. Grantor may require a deposit in an amount sufficient to cover the estimated cost before starting such repairs.
12. **Maintenance, Repair And Relocation:** Permittee shall properly maintain and repair any encroachment authorized herein, unless such maintenance and repair by Permittee is exempted by law, and shall exercise reasonable care in inspecting for and immediately repairing any injury to the highway which occurs as a result of the existence of said encroachment or as the result of any work done, hereunder. If at any future date it is necessary, because of road relocation or changes in grade, to relocate this facility, the owner, his assigns, heirs and successors, hereby agrees to relocate the facility upon notice by the Grantor at no expense to the County, unless otherwise provided by law.
13. **Prosecution Of The Work:** Permittee shall diligently perform the work with the minimum interference to public traffic and adjacent properties. Access to adjacent properties shall be maintained at all times unless otherwise permitted by property owners. Unreasonable delays in completing the work may be cause for permit revocation and forfeiture of future permit privileges. Grantor reserves the right to require a performance bond of amount warranted by the nature of the work, prior to or during performance of the work.
14. Care of Drainage. Established drainage is not to be altered unless specifically authorized.
15. Submit Location Plan. Permittee shall furnish record drawings showing location and details of facilities installed by this permit unless exempted by Grantor in writing.

PIPES, CONDUITS, ETC.

16. **Crossing Roadway:** Service and other diameter pipes shall be jacked or otherwise forced underneath pavement without disturbing the surface thereof. Pavement or roadway shall not be cut or otherwise disturbed unless specifically permitted on the reverse side hereof. Service pipes are not permitted inside of culvert structures used as drainage facilities.
17. **Depth Of Pipes:** There shall be a minimum of three (3) feet of cover measured from finished grade over all pipes, conduits and cables unless authorized by Grantor in writing.
18. **Backfilling:** That the trench shall be filled as soon as possible and provide compaction as follows: (A) Under all surfaced roads and driveways, and in the area lying within five (5) feet beyond the edge of surfacing, all of the section of trench which lies two (2) feet below the road surface shall be compacted to 95% relative compaction (Calif. Test Method No. 216). (B) In those portions of the County right-of-way not included in paragraph (A) above, the trench shall be compacted to 90% relative compaction (Calif. Test Method No. 216) or to the density equal to the native soil density, whichever is greater.
19. **Pavement Resurfacing:** Pavement on traffic lanes shall be repaired on the same day excavation is made unless otherwise permitted by the Grantor. Temporary asphalt surfacing material four inches in thickness maybe used if provided. Permittee maintains same until final repair is made. Final repair shall be completed within 10 days unless extended by the Grantor.
20. **Maintain Surface:** Permittee shall maintain the surface over any and all structures placed hereunder for one year after acceptance by Grantor and any subsequent repair.
21. **Pipes Along Roadway:** Pipes and utilities paralleling the pavement shall be located at such depth from the pavement as specifically directed by Item 16 above. Cutting of tree roots is not permitted.
22. **Permission From Property Owner:** Permittee shall secure written permission from abutting property owners to enter and use their property.

BASE AND PAVEMENT REPAIRS, ETC.

23. **Grades And Specifications.** Base and pavement repairs and miscellaneous paving work shall be in accordance with the current specifications of the Fresno County Department of Public Works and Planning.

CONCRETE CURBS, GUTTERS, SIDEWALKS AND APPROACHES

24. **Concrete:** Portland cement concrete curbs, gutters, sidewalks and approaches shall be Class A concrete containing six sacks of cement per cubic yard of concrete.
25. **Standards:** All concrete work shall conform to Fresno County Improvement Standards. Modifications or changes shall not be made except as noted in this permit.
26. **Curing:** All exposed concrete surfaces shall be cured with a clear curing compound equal to Hunt's Process.
27. **Connection To Street:** A two-inch (2) thickness (compacted) of plant-mixed asphalt surfacing shall be placed between the driveway approach apron and the existing street surfacing.
28. **Finish Grading:** All necessary backfilling, excavating and grading between curb line and property line is considered part of the work and shall be completed by Permittee.
29. **Thickness:** A minimum thickness of two (2) inches (compacted of plant-mixed surfacing shall be placed over subgrade compacted to 95% relative compaction.
30. **Drainage:** The surfacing shall be placed to such grade that the existing drainage pattern is not obstructed. Unless specifically noted on this permit, the paved gutter elevation shall be a minimum of three (3) inches below the existing edge of pavement elevation.
31. **Compliance With Approach Width Standards:** The granting of permission to perform frontage paving is not intended to allow driveway approach widths to exceed standard maximum widths. In cases where the length of the frontage paving exceeds the allowable approach widths, the approach location(s), shall be defined by installation of six (6) inch barriers of other suitable means approved by Grantor.

N/A ~~FOG SEAL~~

A fog seal shall be placed on all roads (entire width) within the limits of construction. The County Inspector assigned to the project will determine the rate of application.

1. Reflectorized retractable delineators shall be placed by each well site. Delineators shall be maintained by permittee.
2. Appurtenances used for the well must not extend above ground elevation.
3. Fresno County reserves the right to cancel this permit at any time. Permittee agrees to remove or abandon the wells by a method approved by Fresno County. Permittee will not be compensated for any facilities placed within the limits of the road right-of-way.

Note

This permit does not authorize the installation of any facilities within the limits of any State Highway, incorporated city, railway or aqueduct.

DRIVEWAYS (RMS)

Prepare trench edges in a straight alignment. Restore area with (4") inches RMS over compacted material. Entire approach or frontage area within the limits of the road right-of-way shall receive a fog-seal. County Inspector assigned to project shall determine rate of application.

CONCRETE IMPROVEMENTS

1. No curb/gutter, approaches, valley gutters, or sidewalks shall be disturbed as a result of construction authorized under this permit.
2. Valley gutters disturbed shall be removed and replaced between construction joints at extreme ends of apron. Steel bars must be replaced and attached to existing bars in gutter area of returns.
3. Approaches that are damaged during construction shall be removed and replaced between construction joints.
4. Residential sidewalk that is damaged shall be repaired by saw-cutting at the nearest score line beyond the disturbed area and replacing the entire width of the walk.

IRRIGATION PIPES

Any irrigation pipes disturbed, within the County rights-of-way,during construction shall be replaced with R.C.P.-RG, Class III. Fresno County shall determine the limits of replacement.

DUST PALLIATIVE

Areas treated with a dust palliative shall meet or exceed pre-construction condition. County Inspector assigned to project shall determine limits of areas to be retreated.

TRAFFIC REQUIREMENTS

1. No road closures or detours are authorized under this permit. Such action must be approved by the County Permit Engineer and authorized under a Rider to this permit.
2. Construction area must be signed in accordance with the current State of California Manual of Traffic Control. Signs in place during hours of darkness shall be reflectorized for night time visibility in accordance with the above manual.
3. Permittee shall provide acceptable access at all times to properties along the construction route.
4. Permittee shall notify property owners along the route of construction that access to their properties may be closed to vehicular traffic. Said Permittee shall mitigate any problems resulting from closed access with the respective property owners.

COMPACTION TEST REQUIREMENTS

1. Permittee shall furnish Fresno County with compaction test results for structural backfill material in trenches. The County Inspector assigned to the project shall designate the number and location of tests.
2. Compaction tests shall meet the requirements of Item No. 17, on the reverse side of the permit form, under Pipes, Conduits, etc.

ROAD CROSSINGS

All road crossings shall be bored. Conduit/cable shall have a minimum cover of (36) inches. Bore and receiving pits shall be situated a minimum distance of (5) feet from the edge of the road pavement.
Exceptions (roads that may be open-cut):

TRENCH RESTORATION

1. Requirements for trench restoration are as follows: Permanent trench resurfacing shall consist of placing 7" HMA PG - 64-10 over compacted backfill material. Existing pavement shall be saw-cut beyond the limits of excavation, in a straight alignment, prior to trench restoration.
2. If greater than 50% of the road pavement width is disturbed, the entire road will be reconstructed to the above specified structural section. Fresno County will determine the limits of restoration.
3. If the width of road pavement between the edge of the area to be resurfaced and the edge of the road or lip gutter is less than (2) feet, that pavement shall be removed and restored with the trench surfacing.

DUST CONTROL

Dust control must be in conformance with Section 10 of the current State of California Department of Transportation Standard Specifications.

LANDSCAPING

Landscaping disturbed as a result of construction authorized under this permit shall be adequately restored or replaced. Mature trees and shrubs shall not be removed without the written consent of the adjacent property owner. Permittee shall provide Fresno County with a copy of the written consent.

DRIVEWAYS (A.C.) - OPTIONS

1. Driveways may be bored under.

OR

2. Driveways may be open cut and shall be restored as follows: Permanent trench resurfacing shall be restored by saw-cutting pavement at trench edges in a straight alignment and placing (2") of compacted A.C., or equal to existing, whichever is greater. The entire approach area between the edge of road and property line shall receive a (1") A.C. overlay.

GRAVEL DRIVEWAYS OR FRONTAGES

Areas contaminated with dirt as a result of construction shall be removed and restored with gravel.

Access

It is the responsibility of the Permittee to provide access to adjacent property owners during construction authorized under this permit.

MAINTENANCE, REPAIR AND RELOCATION

Permittee shall properly maintain and repair any encroachment authorized herein, unless such maintenance and repair by Permittee is exempted by law and shall exercise reasonable care in inspecting for and immediately repairing any injury to the highway which occurs as a result of the existance of said encroachment or as the result of any work done hereunder. If at any future date it is necessary because of road relocation or change in grade to relocate this facility, the owner, his assigns, heirs and successors, hereby agrees to relocate the facility upon notice by the Grantor at no expense to the County, unless otherwise provided by law.

LIABILITY FOR DAMAGES

Permittee shall indemnify the County of Fresno and any of its officers,employees, servants, and agents and shall defend and hold them harmless from any and all liability for personal injury or property damage due to any acts in connection with the performance of the work permitted herein. It will be the responsibility of the Permittee to determine the location of any existing underground facilities within the work area and to arrange for any necessary relocations.

POSTS

Any posts placed within the limits of the road right-of-way must be retractable and reflective.

APPURTENANCES

This permit does not authorize the construction of any facilities above ground elevation within the limits of the road right-of-way. Improvements of this nature must be submitted to this office in the form of a diagram and approved under a Rider to the permit.

BRIDGES

Cable/conduit mounted to structures must be placed on the field/stream side of structure, not on the road side.