OAKDALE IRRIGATION DISTRICT

CONTRACT DOCUMENTS
FOR
OAKDALE IRRIGATION DISTRICT
SOUTH MAIN CANAL IMPROVEMENTS
SEGMENT 4

Date: 5/1/19

Prepared by
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May 1, 2019
Condor Project No. 3818L1

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SECTION 00100

PROJECT DESCRIPTION

PROJECT DESCRIPTION

OAKDALE IRRIGATION DISTRICT
South Main Canal Improvements
Segment 4
Knights Ferry, California

INTRODUCTION

The existing Oakdale Irrigation District (OID, District, Owner) main canals and tunnels were originally completed in 1912 and were enlarged in 1947. Condor Earth (Condor, Engineer) performed hazard assessments starting in 2003 to identify areas in need of repair along OID's canal and tunnel alignments, one of which areas is the South Main Canal. Condor performed a hazards identification study along the section of the South Main Canal between the Downstream Portal of Two-Mile Bar Tunnel and Highway 108 (Project) which led to this improvement project.

The Project is located in Stanislaus County, California, near the town of Knights Ferry, as shown on Figure 1, Vicinity Map.

Water flows within the South Main Canal (from its source at Goodwin Pool behind Goodwin Dam) will be suspended during the winter months, from November 1, 2019 to February 28, 2020; the canal work covered by this Contract shall be completed during this period.

The ramp into the South Main Canal for Segment 4 is accessed from Sonora Road as shown on Figure 2, Site Map. Secondary access is available via Two Mile Bar Road and through the Two-Mile Bar Tunnel. Figure 2 shows the location of the laydown area for the Project, which is located in the vicinity of OID's Tunnel 7 upstream portal.

Although water flow from the canal source at Goodwin Dam will be suspended, stormwater runoff will collect and flow in the canal during construction. Circumventing schedule delay, and/or any damages to equipment, or materials used to conduct the work, due to stormwater flows in the canal during construction will be the responsibility of the Contractor. The Contractor shall also be responsible for all stormwater permitting compliance as required. The "Stormwater Management – Segment 4" memo, which is attached to this Section, provides pertinent information regarding site conditions the Contractor shall consider regarding stormwater management.

Scope of Work

The proposed Project will include improvements to areas of the South Main canal including: removing trees and loose rocks, constructing permanent cutslopes, performing minor regrading,

preparing the subgrade for new shotcrete wall liner on the upslope side of the canal, removing debris from the canal, placing drain strips and shotcrete liners over prepared subgrades on the upslope side of the canal, placing earth-retention shoring, placing drain strips and shotcrete liners over swales, placing concrete/shotcrete patches over the existing invert and liner, placing new concrete inverts, and placing concrete or shotcrete overlays on the invert and downslope side of the canal. The work will be performed from the downstream portal of the Two-Mile Bar Tunnel to the upstream portal of Tunnel 7 at Highway 108, along approximately 4,000 linear feet of canal.

Approximate Construction Contract Value

The canal improvements described herein shall be in one construction contract. Use of subcontractors and/or joint ventures is acceptable, provided however that only one entity is responsible for the Work. **A valid Class "A" Contractor's License is required to complete this Project**, and a responsible Bidder criteria and bonding capability will be established. **Bid Bond Security, Payment Bond and Performance Bond will be required for this work**. Construction quantities are approximate and based on field measurements and not surveyed values. Baseline bid costs will be determined based on current estimated quantities in the bid document and Contractor bid unit prices. The total contract price will be determined based on units consumed and lump sum items. **This Project requires the Contractor and Subcontractors to pay prevailing wages to all eligible employees**.

Unit Quantities

The Owner reserves the right to adjust unit quantities to greater or lesser than twenty-five percent (25%) of the Total Bid Schedule quantities without change to the Contractor's Bid Unit Price.

- END OF SECTION 00100 -

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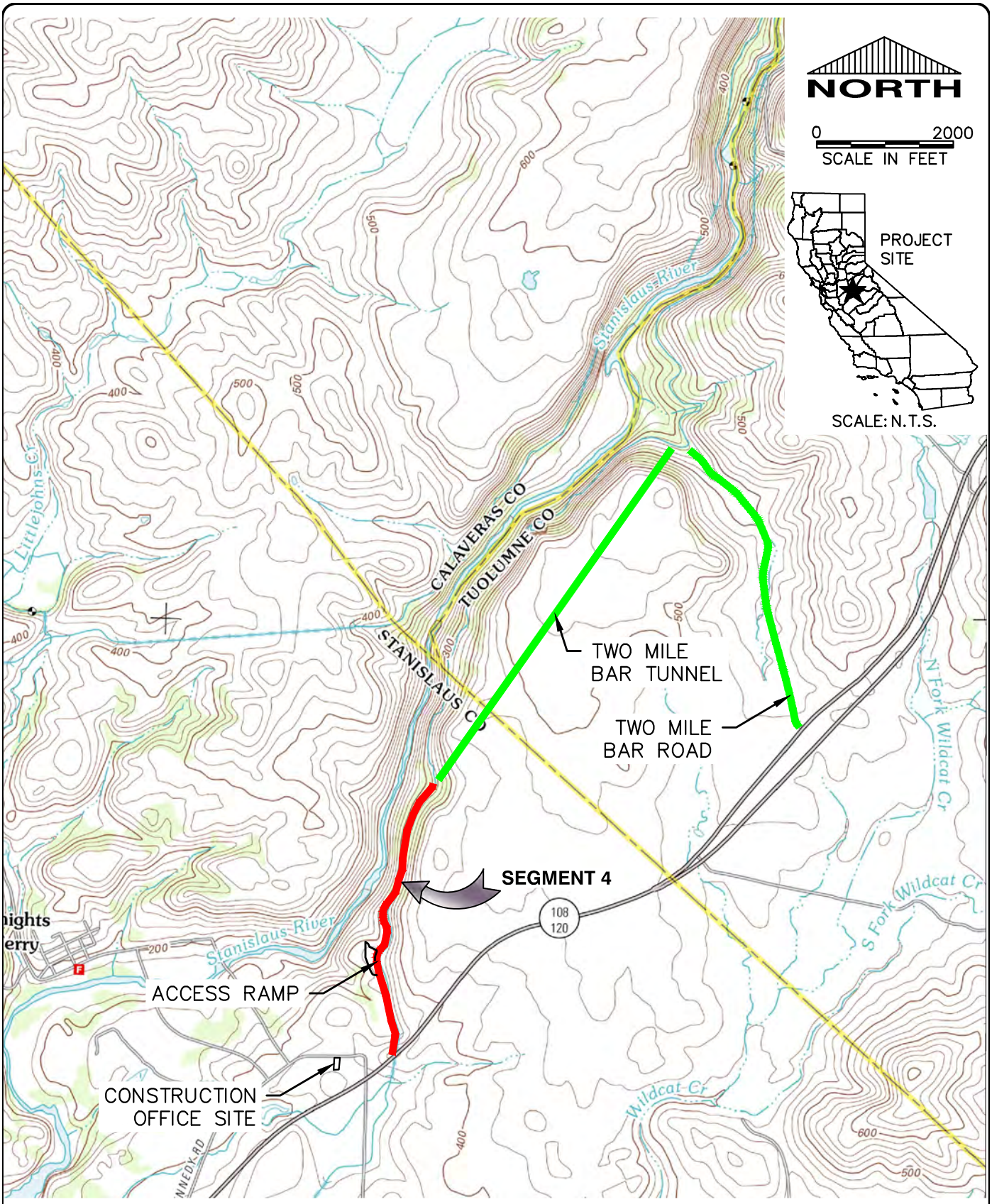

BACKGROUND IMAGE: USGS 7.5 MINUTE QUADRANGLE, KNIGHTS FERRY 2012

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Job No.	3818L	
Date	05 MAR 2019	
Scale	AS SHOWN	
Drawn	KGM	Chk'd ASK

VICINITY MAP
SEGMENT 4 SOUTH MAIN CANAL
OAKDALE IRRIGATION DISTRICT
STANISLAUS COUNTY
KNIGHTS FERRY, CALIFORNIA

FIGURE 1

3818L_F1

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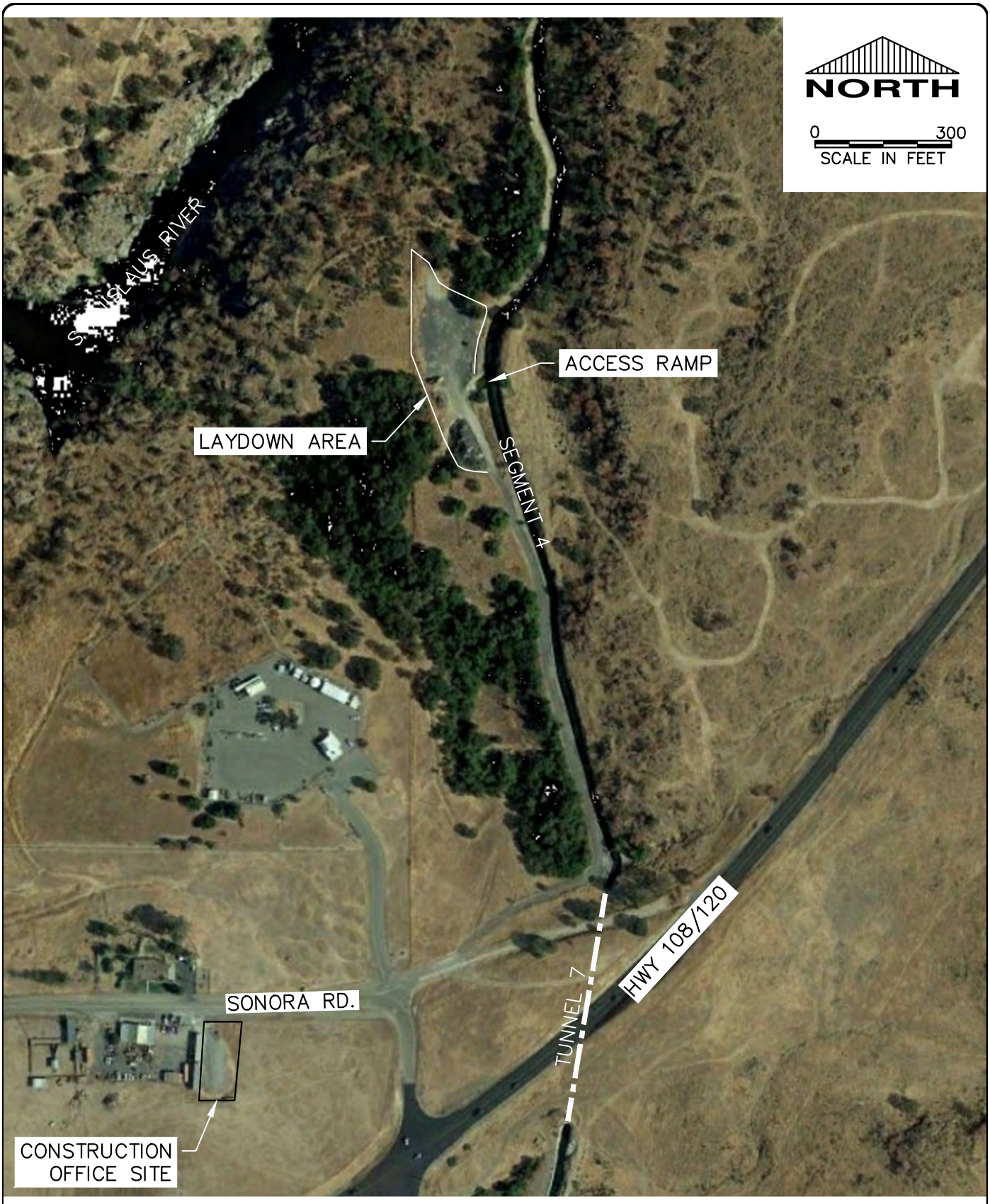

BACKGROUND IMAGE: GOOGLE EARTH 8/31/2018

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Chk'd	SWL

SOUTHERN SITE MAP
SEGMENT 4 SOUTH MAIN CANAL
OAKDALE IRRIGATION DISTRICT
STANISLAUS COUNTY
KNIGHTS FERRY, CALIFORNIA

FIGURE 2

3818L_F2

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MEMORANDUM
STORMWATER MANAGEMENT
SEGMENT 4
SOUTH MAIN CANAL IMPROVEMENT PROJECT

INTRODUCTION

This memorandum establishes the Contractor's and the Oakdale Irrigation District's (OID) responsibilities for the installation and management of the Stormwater Management Plan elements for Segment 4 of the South Main Canal Improvement Project. The runoff in the Project area can impact any construction operation if the necessary precautions are not taken to handle the runoff. In the Bid Documents, the Contractor is provided a precipitation log for the previous 14 years (Table 1).

The Contractor shall be aware and also shall manage the runoff during the construction phase of this Project. As stated, the historical records have been provided to the Contractor to develop and price the Stormwater Management for the Project. In order to do this effectively, the Contractor shall have certain responsibilities and OID will have certain responsibilities. These are addressed in the following narrative.

OID RESPONSIBILITIES

OID will open and lock the only spill between Goodwin Dam and the Project site, which is located at Two-Mile Bar (Sketch 1). This spill will be locked open for the duration of the Project. The spill located immediately upstream of Tunnel 7 (Sketch 3) will be locked in the closed position for the duration of the Project. OID will unlock the control valve at the canal plug located adjacent to the Two-Mile Bar downstream portal (Sketch 2); this valve shall be available for operation by the Contractor for the duration of the Project.

CONTRACTOR'S RESPONSIBILITIES

The Contractor shall be responsible for managing the stormwater runoff for the duration of the Project. The Contractor shall submit a Stormwater Management Plan within 2 weeks following the Notice-To-Proceed. As noted above, the only spill for stormwater above the Project site and below Goodwin Dam is at Two-Mile Bar. The Contractor shall provide a minimum 4-foot high check dam immediately downstream of the Two-Mile Bar spill, prior to November 15, 2019, to enhance stormwater spill flows at that location; the Contractor shall remove the check dam and restore the check dam site prior to Project Substantial Completion. The Contractor shall be capable of bypassing a minimum stormwater flow of 1,500 gallons-per-minute (3.3 CFS) through the canal jobsite. The Contractor shall be responsible for the design and implementation of all elements of the Stormwater Management Plan in the SWPPP submittal, which shall follow and be in compliance with the Best Management Practices (BMP's).

HISTORICAL RAINFALL

Records of rainfall are available since 1885 by month. Information for this Project has been provided to the Contractor for the period from 2005 to 2018. For informational purposes, the average historical rainfall is 13.55 inches per year for the period from 2005 to 2018. Again, for information, the maximum amount of rainfall occurred during the winter (December through March) of 2005-2006, was 37.11 inches. The minimum amount rainfall occurred during the winter of 2011-2012 and was 4.65 inches.

Also included in Table 1 is the average amount of rainfall by month. This shows the greatest amount of average rainfall will occur in the month of January, followed by December. The flow through the South

Main Canal from stormwater is not only dictated by rainfall, but also the duration and severity of the storm(s) as well as the saturation level of the ground in the surrounding water shed. The best construction schedule in terms of avoiding canal stormwater flows is to start immediately after the irrigation season ends on November 1 and complete as much work as possible before the end of December.

ATTACHMENTS

Table 1 – Monthly Precipitation by Year
Sketches 1, 2 and 3 – Segment 4 Stormwater Management

TABLE 1
Monthly Precipitation by Year
CIMIS Region San Joaquin Valley
Station - Oakdale (Station ID 194)

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total/Yr
2005	3.28	2.8	3.15	0.91	1.13	0.13	0	0	0.19	0.07	0.31	3.51	15.48
2006	28.44	0.86	4.3	3.2	0.93	0	0	0	0	0.24	0.9	2.07	40.94
2007	0.58	2.87	0.53	1.05	0.07	0	0	0	0.08	1.13	0.4	2.22	8.93
2008	5.07	1.65	0.05	0.01	0.1	0	0	0	0	0.26	0.95	1.59	9.68
2009	1.13	2.06	0.77	0.69	0.72	0.26	0	0	0.24	1.43	0.17	1.69	9.16
2010	3.83	2.64	1.63	2.6	1.07	0.09	0	0	0	1.33	2.31	3.67	19.17
2011	1.43	2.61	3.3	0.17	0.68	1.22	0	0	0	1.05	0.72	0	11.18
2012	1.22	1.06	2.37	1.93	0.01	0.2	0.01	0	0	0.24	2.13	4.07	13.24
2013	1.25	0.39	0.87	0.39	0.01	0.07	0	0	0.24	0	0.85	0.24	4.31
2014	0.01	2.66	1.93	0.77	0	0.02	0	0	0.13	0.78	1.24	5.02	12.56
2015	0.1	2.12	0.2	1.42	0.5	0	0	0	0	0.24	1.92	2.63	9.13
2016	4.78	0.52	3.83	1.74	0.23	0	0	0	0	2.07	0.03		13.20
2017	0.01	4.38	1.87	1.76	0.22	0	0	0	0	0.13	1.15	0.08	9.60
2018	2.65	0.24	2.7	2.67	0.24	0	0	0	0	0	2.68	1.99	13.17
Average	3.841	1.919	1.964	1.379	0.422	0.142	0.001	0.000	0.063	0.641	1.126	2.214	13.554

Inches

13.55 2005-2018 (14-year) Average Calendar Yr Total Precipitation

Inches

13.36 2005/06-2017/18 (13-year) Average Annual Total Precipitation

NORTH

0 100
SCALE IN FEET

BACKGROUND IMAGE: GOOGLE EARTH, IMAGERY DATED 8/31/2018

DISCLAIMER: THIS PLAN REPRESENTS FEATURES FOR ILLUSTRATION PURPOSES ONLY. IT IS NOT A LEGAL SURVEY AND IS NOT INTENDED FOR USE IN DETERMINING BOUNDARIES. ANY USE OF THIS PLAN FOR PURPOSES OTHER THAN LOCATION OF FEATURES IS DONE SO AT THE USER'S RISK AND WITHOUT THE CONSENT OF CONDOR EARTH.

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SKETCH
1

JOB#: 3818L1	DRAWN: KGM	SCALE: AS SHOWN
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NORTH

0 100
SCALE IN FEET

BACKGROUND IMAGE: GOOGLE EARTH, IMAGERY DATED 8/31/2018

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SKETCH 2

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NORTH

0 300
SCALE IN FEET

BACKGROUND IMAGE: GOOGLE EARTH, IMAGERY DATED 8/31/2018

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SKETCH 3

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SECTION 00200

NOTICE INVITING BIDS

Notice is hereby given that the Board of Directors of Oakdale Irrigation District will receive Bids for certain work performed in accordance with Contract Plans and Specifications (Contract Documents) on file at Oakdale Irrigation District, 1205 East F Street, City of Oakdale, County of Stanislaus, State of California. Work will consist of canal rehabilitation, including tree and loose rock removal, shotcrete of canal lining, construction of canal shoring, minor grading work, and other repair and construction work. Refer to Contract Documents Section 00300 for Instructions for Bidders.

Contract Documents for the work to be constructed may be seen at the office of the Oakdale Irrigation District (District) at the above address or in PDF format on the District's Website at www.oakdaleirrigation.com after May 1, 2019. The Contract for the Work advertised will be awarded to the lowest responsible Bidder, but the Board of Directors of Oakdale Irrigation District reserves the right to reject any and all Bids.

The following instructions are listed in detail in Contract Documents Section 00300 Instructions for Bidders, and listed here for reference and convenience:

- A mandatory pre-bid conference will be held at 9:00 am on May 15, 2019 at the District Office
- Questions regarding the bid shall be submitted no later than 5 working days prior to the bid deadline
- Addenda, reference documents and video pertaining to this Project will be made available on the District's website

Bids must be submitted and filed at 1205 East F Street, City of Oakdale, County of Stanislaus, State of California, before 2:30 p.m. on June 28, 2019, and will then be opened in public. The Bid must be on forms obtained at the District office at the address set forth above. Three (3) original Bids are to be provided in one sealed envelope marked "South Main Canal Improvements – Segment 4" and must be delivered to said office up to but not later than the specified time and date.

All Bids shall be accompanied by a cashier's or certified check payable to the order of the Oakdale Irrigation District, amounting to ten percent (10%) of the Bid, or by a bond in said amount and payable to the District signed by the Bidder and a corporate surety, or by the Bidder and two sureties who shall justify before any officer competent to administer an oath, in double the amount and over and above all statutory exemptions. In the event that the Bidder fails, within five (5) days after written notice that the Contract has been awarded to him, to enter into a Contract with the District, the District may award the Contract to the second lowest responsible Bidder. In such event, the amount of Bidder's security shall be applied by the District to the difference between

the Bidder's Bid and the second lowest responsible Bid, and the surplus, if any, shall be returned to the Bidder if cash or a check is used, or to the surety on Bidder's bond if a bond is used.

Contractor shall provide a Faithful Performance Bond and a Labor and Materials Bond, in the sum of one hundred percent (100%) of the contract price; the Bonds, if any, shall be in the format specified by the District. The Faithful Performance Bond will be retained by the District for twelve (12) months following final acceptance by the District of the improvements constructed to guarantee correction of failures attributable to workmanship and materials. Upon the final acceptance by the District, the amount of the Faithful Performance Bond may be reduced to twenty percent (20%) of the actual improvement construction costs.

Prior to commencement of work for the public project, the Engineer for the District shall prepare and file in the Engineer's office either complete and accurate plans and specifications or a work authorization describing the Work to be performed.

The Engineer is Condor Earth, located at 21663 Brian Lane, Sonora, California, telephone (209) 532-0361, attention Scott Lewis (email slewis@condorearth.com, copy to Kim Tarantino email ktarantino@condorearth.com).

Contractor may substitute securities in lieu of retained funds withheld by the District in accordance with California PCC § 22300.

Contractor agrees to pay to each craft, classification or type of workman the prevailing wage determined by the State of California, Director of Industrial Relations, in the published wage scale determination, a copy of which is available at the office of the Engineer for the District and at the office of the District, and to comply with California Labor Code §§ 1777.5, 1776.

Contractor shall possess a valid Class "A" Contractor's License at the time of bid, award of the Contract, and during performance of the Contract.

- END OF SECTION 00200 -

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SECTION 00300

INSTRUCTIONS FOR BIDDERS

1. OBTAINING COPIES OF CONTRACT DOCUMENTS

A. Bidders may view complete sets of the Contract Documents at the location designated in Contract Specifications Section 00200 Notice Inviting Bids. These same documents will be made available in PDF format on the Oakdale Irrigation District (OID) website via download for the convenience of the Bidder. The hardcopy at the location described in Contract Specification Section 00200 shall be the official Bid Set.

B. Bidders shall use complete sets of Contract Documents in preparing Bids.

C. OID makes copies of the Contract Documents available, on the above terms, for the sole purpose of obtaining Bids for the Work and does not confer a license or grant permission for any other use of the Contract Documents.

2. FORM OF BID

A. Bids must be made on the regular Bid Forms which are made a part of these Contract Documents. Three (3) original Bids are to be provided in one (1) sealed envelope marked as required in Contract Specifications Section 00200 Notice Inviting Bids. The Bids must be signed by the individual or by the proper officials of the firm or corporation by which the Bid is made. The right is reserved to reject any and all Bids and to waive technical defects as the interests of the OID require.

B. Bids must be valid for ninety (90) days following the date of the Bid.

C. Copies of the Bid Form may be obtained as described in Contract Specifications Section 00200. The Contractor is responsible for submitting complete and current Bid Forms.

D. The Bids shall include all portions of the following Sections:

00400	Noncollusion Affidavit
00503	Guaranty
00530	Bid
00531	Acknowledgment of Receipt of Addenda
00540	List of Subcontractors and Suppliers
00550	Bidder’s Responsibility Statement
00560	Allowance Pricing
00601	Bid Bond

3. INTERPRETATION OR CORRECTION OF CONTRACT DOCUMENTS

A. Bidder shall, before submitting its Bid, carefully study and compare the components of the Contract Documents and shall examine the Project Site, the conditions under which the Work is to be performed, and the local conditions.

B. In the event the Bidder has any question as to the meaning of any part of the Contract Documents, or Bidder finds any error, inconsistency, or ambiguity in the Contract Documents, Bidder shall make a written Request for Clarification prior to submitting its Bid. Requests for Clarification or interpretation of the Contract Documents shall be addressed only to the OID Representative – the Engineer – designated in Contract Specifications Section 00200 Notice Inviting Bids. It shall be the Bidder's responsibility to ensure that any such requests be submitted to the OID Representative in a timely manner, but no later than 5 working days prior to the Bid Deadline, in order to allow for the OID Representative to issue a written Addenda, if required.

C. If necessary, the Engineer shall make clarifications, interpretations, corrections, and changes to the Contract Documents by Addenda issued as provided below. Purported clarifications, interpretations, corrections, and changes to the Contract Documents made in any other manner shall not be binding on OID, and Bidders shall not rely upon them.

4. ADDENDA

A. Addenda will be issued by electronic mail. The OID Representative will make reasonable efforts to deliver Addenda to all Bidders who are known by OID to have received a complete set of Contract Documents and who have provided an electronic mail address for receipt of Addenda. OID makes no guarantee that all Bidders will receive all the Addenda.

B. Copies of Addenda will be made available for inspection at the office and on the website where the Contract Documents are on file for inspection, as indicated in Contract Specifications Section 00200 Notice Inviting Bids.

C. Addenda withdrawing the "Notice Inviting Bids" or postponing the Bid Deadline may be issued any time prior to the Bid Deadline. However, if any Addenda results in a material change to the Contract Documents, the Bid Deadline shall be extended by OID by not less than seventy-two (72) hours, pursuant to California PCC § 4104.5. All Addenda with material changes will be issued not less than seventy-two (72) hours of Bid due date and time.

D. Each Bidder shall be responsible for ascertaining, prior to submitting its Bid, that it has received all issued Addenda. Each Bidder shall acknowledge receipt of all Addenda as indicated in Contract Specifications Section 00531 Acknowledgement

of Receipt of Addenda on the Bid Form. Failure to acknowledge receipt of any Addenda **will** render the Bid non-responsive.

5. EXAMINATION OF SITE AND PLAN

A. The Bidders must satisfy themselves as to the location of the Work, transportation facilities, soil and rock conditions, underground conditions, groundwater, and all other matters which may influence their Bids. It will be assumed that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality and quantity of work to be performed and the material, equipment and other devices to be furnished and as to the requirements of these Contract Documents.

B. Any information derived from OID, the Engineer, or any of their employees or from any records of OID or the Engineer, will not relieve the Contractor from risks of the responsibility of fulfilling the terms of the Contract.

C. A report of existing conditions, ascertained by inspection by the Engineer, is available for review by Bidders at the OID District Offices, in report format entitled, *South Main Canal, Long-Term Improvements Project, Segment 4 Long-Term Repairs Assessment Report*, prepared by Condor Earth and dated January 20, 2017. This report will be made available for viewing or download in PDF format on the District's Website. Additionally, a drone video file is available for viewing on the District's Website.

D. **A mandatory pre-bid conference will be held at 9:00 a.m. on May 15, 2019, at the OID District Office** and will proceed to the site of the Work to review with prospective Bidders the conditions at the site and the Work to be performed under the Bid. Required safety gear includes hard hat, steel-toe boots, safety vest and eye protection.

6. FILLING IN BID FORMS BY BIDDERS

A. Bids shall be submitted on the Bid Form included with the Contract Documents. Bidder shall submit, concurrently with its Bid, all other information requested by these Contract Documents.

B. All blanks on the Bid Form shall be filled in by typewriter or printed legibly in ink.

C. Interlineations, alterations, and erasures must all be individually initialed by the Bidder.

D. Bidder shall acknowledge receipt of all Addenda on the Bid.

E. Bidder shall not modify or qualify the Bid Form in any manner.

F. The Bid Form shall be signed by a person or persons legally authorized to bind Bidder to the Contract. The individuals signing each document shall warrant that they are authorized to bind the legal entity of the Bidder.

7. BID GUARANTEE

A. All Bids shall be accompanied by a cashier's or certified check payable to the order of OID, amounting to ten percent (10%) of the Bid, or by a bond in said amount and payable to OID and signed by the Bidder and a corporate surety, or by the Bidder and two sureties who shall justify before any officer competent to administer an oath, in double the amount and over and above all statutory exemptions. In the event that the Bidder fails, within five (5) days after written notice that the Contract has been awarded to him, to enter into a Contract with OID, OID may award the Contract to the second lowest responsible Bidder. In such event, the amount of Bidder's security shall be applied by the District to the difference between the Bidder's Bid and the second lowest responsible Bid, and the surplus, if any, shall be returned to the Bidder if cash or a check is used, or to the surety on Bidder's bond if a bond is used.

B. The Bid security of the successful Bidder will be returned to him when he executes a satisfactory Contract accompanied by the proper bonds. The Bid security of other Bidders will be returned to them upon the award of the Contract to the successful Bidder, except that of the next higher Bidder which shall be returned to him upon the execution of a satisfactory Contract accompanied by the proper bonds by the lowest Bidder, or in case of his default, the surety of the next higher Bidder will be held until he executes a satisfactory Contract accompanied by the proper bonds.

8. WITHDRAWAL OF BID

A. Any Bid may be withdrawn at any time prior to 8:00 a.m. of the day fixed in the "Notice Inviting Sealed Bids" for the opening of the Bids provided that a request in writing executed by the Bidder or his authorized agent for such withdrawal is filed with the OID Representative. The withdrawal of any Bid shall not prejudice the right of a Bidder to file a new Bid prior to the established 2:30 p.m. deadline.

9. RESPONSIBILITY OF BIDDER

A. OID has absolute discretion to determine the lowest responsive, responsible Bidder. The Contract will not be awarded to any Bidder who cannot give satisfactory assurance of his ability to perform the Contract if it is awarded to him. Each Bidder may be required to furnish satisfactory evidence that he has sufficient means and facilities and has had ample experience in the type of work contemplated herein to deliver the materials, furnish the equipment and devices, and complete the installation in accordance with the Contract Documents and within the time limit guaranteed.

B. In determining whether or not a Bidder, including the Bidder's principals and upper management, is "responsible," OID may consider the following factors in relation to the Work to be performed for this Project:

1. Demonstrated financial strength including, but not limited to, resources available, bonding capacity, and available insurance.

2. Demonstrated safety record including, but not limited to, Experience Modification Rate.

3. Successful completion of projects of similar scope and size. In reviewing this factor, OID may consider elements including, but not limited to, contract amount of completed projects, experience on public works projects, experience implementing prevailing wage certified payroll requirements, timeliness of performance, and, if necessary, evaluation of Bidder's work by previous cities, districts, clients, design professionals, or subcontractors.

4. Sufficiency of contract administration and construction management systems including, but not limited to, proposed scheduling tools, proposed subcontract forms, proposed progress payment applications, and proposed certification of payroll documents.

5. History of claims, litigation, and termination or disqualification from projects.

OID will make its determination of responsibility based upon information submitted by Bidders contained in the Contract Specifications Section 00550 Bidder's Responsibility Statement, and, if necessary, interviews with previous cities, districts, clients, design professionals, or subcontractors with whom the Bidder has worked.

If a Bidder otherwise determined to be the lowest responsive Bidder is determined to be non-responsible by the OID Representative, that Bidder will be given notice of each finding by the OID Representative and shall have five (5) working days to present additional relevant evidence to the OID representative. The OID Representative shall make a recommendation to the Board which shall make a finding on the issue of non-responsibility as part of the process of Award of Contract.

C. The Contractor shall possess a valid Class "A" Contractor's License at the time of bid, award of the Contract and throughout Project completion. Bids will not be accepted from a Contractor who is not licensed in accordance with the laws of the State of California.

10. BID PROTEST

The lack of a prompt procedure to resolve disputes regarding the bidding process would impair the Owner's ability to carry out its purpose of constructing this project in a timely manner. Therefore, to the maximum extent authorized by law and notwithstanding any other procedures specified in documents referenced herein, all disputes and/or protests regarding the bidding process shall be subject to the following procedure. In submitting a Bid to the Owner for this project, the Bidder agrees to comply with and to be bound by this procedure.

Any Bid protest must be submitted in writing to Mr. Jason Jones, Support Services Manager, before 5:00 p.m. on the fifth (5^{th}) working day following Bid opening.

A. The initial protest document shall contain a complete statement of the basis for the protest, and all supporting documentation.

B. The party filing the protest shall have actually submitted a Bid for the Work. A subcontractor of a party submitting a Bid for the Work may not submit a Bid protest. A party may not rely on the Bid protest submitted by another Bidder but shall timely pursue its own protest.

C. The protest shall refer to the specific portion of the Contract Document that forms the basis for the protest.

D. The protest shall include the name, address and telephone number of the person representing the protesting party.

E. The party filing the protest shall concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

F. The Owner will give the protested Bidder five (5) working days after the receipt of the protest to submit a written response. The responding Bidder shall transmit the response to the protesting Bidder concurrent with delivery to the Owner.

G. The procedure and time limits set forth in this paragraph are mandatory and are the Bidder's sole and exclusive remedy in the event of Bid protest. The Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder but shall timely pursue its own protest.

H. If the Owner determines that a protest is frivolous, the protesting Bidder may be determined to be non-responsible and that Bidder may be determined to be ineligible for future contract awards.

I. The Owner will issue a written final decision by first-class mail and/or by electronic means, such as facsimile or e-mail, within fifteen (15) working days of receiving the initial protest documentation from the protesting party. This written decision will state the Owner's determinations after an investigation of all protest documentation received/related information and the actions that will or will not be taken in response to the protest received from the protesting party.

11. PROGRESS SCHEDULES – MATERIAL AND EQUIPMENT LISTS

A. The Contractor will be required to submit Baseline and weekly Updated Schedules satisfactory to the Engineer showing the time and daily work hours he proposes to spend in prosecuting the various major divisions of the Work and his proposed sequence or order of operation in accordance with Contract General Requirements Section 01320 Progress and Schedules of these documents.

B. The Contractor will be required, subsequent to the award of the Contract, to submit a complete statement of the origin, composition and manufacturers of any or all materials to be used in the construction of the Work together with such samples thereof as the Engineer may direct.

C. The Contractor may be required to submit for the "review-and-acceptance" of the Engineer lists of all materials, equipment and/or devices contemplated to be used on or incorporated in the Work.

12. CONTRACT BONDS

A. The Contractor shall furnish bonds, at his own expense, to the extent required by law or as set forth in the Contract Documents and shall utilize the forms specified in the Contract Documents.

13. INSURANCE

A. The Contractor shall provide, at his own expense, all insurance including, but not limited to, Workers' Compensation, Automobile, Public Liability and Property Damage, all insurance required by law, and any additional insurance as stipulated within the Contract Documents, or by the Owner.

14. AWARD OF CONTRACT

A. The right is reserved to reject any or all Bids. The award of the Contract, if it is to be awarded, will be made to the lowest responsible Bidder whose Bid complied with all of the prescribed requirements.

15. EXECUTION OF CONTRACT

A. The Contract shall be executed and signed by the Contractor and returned with the prescribed executed bonds and proof of insurance as required by the Contract Documents within the five (5) days after receipt by him of the Notice of Award. Failure to return the signed and executed Contract with the prescribed executed bonds and proof of insurance within the five (5) day limit shall be just cause for the annulment of the award and the forfeiture of the Bid security.

16. SUBCONTRACTOR AND SUPPLIER

A. Each Bidder must comply with California PCC § 4100 to 4113 (Subletting and Subcontracting Fair Practices Act) and must submit with his Bid on the form attached to the Bid Form, the name and location of the mill, shop or office of each proposed Subcontractor and Supplier who will perform work or labor or render services to the Contractor in excess of one-half of one percent (0.5%) of the Contractor's total Price or ten thousand dollars ($10,000), whichever is greater, and shall state the portion of the work which will be done and/or by each Subcontractor.

17. COMMENCEMENT OF WORK

A. The site work shall be commenced within thirty (30) calendar days after receipt of "Notice-to-Proceed" (with access to canal no sooner than November 1, 2019) and must be completed by January 17, 2020. The Construction Start Date shall be no later than November 1, 2019.

18. TAXES

A. The Bid price set forth in the Bid Form shall include all federal, state and local taxes applicable to the work or materials furnished and no claims for additional costs of any such tax shall be made.

19. SCHEDULE OF VALUES OR PRICES

A. The Contractor may be required or has the option to submit, upon award of Contract, a breakdown or schedule of lump sum and unit prices which is satisfactory to the Engineer to be used for monthly payment estimates.

20. GENERAL WAGE DETERMINATION

A. Pursuant to the State of California Labor Code 1770-1780, the rate of wages for each craft, classification or type of workman paid under this contract shall be at least that set by the wage scale as determined by the State of California, Director of Industrial Relations. Pursuant to State of California Labor Code 1773.2, a copy of these wage scale determinations is available at the Oakdale Irrigation District

Office, for the Contractor's use. The Contractor shall determine the Employer Payments and Worker Classifications prior to start of work.

21. DISCREPANCIES IN BIDS

A. Where there is any discrepancy in the written or numerical quotation of unit Bids or the extension of the quantities and unit prices, the products of the written quotation of unit price and the estimated quantity for the item will be the Bid considered correct by OID.

22. DELIVERY OF BIDS

A. Bids must be delivered to Oakdale Irrigation District Office up to but not later than the specified time as indicated in Contract Documents Section 00200 Notice Inviting Bids.

23. COMPLIANCE WITH BIDDING PROCESS

A. OID reserves the right to accept or reject any submitted Bid which fails to comply with any of the requirements as set forth herein.

24. AWARD OF CONTRACT

A. The Owner may award a Contract as the interests of the Owner may dictate.

25. COMPLIANCE WITH PROGRESS SCHEDULE

A. The Contractor is specifically directed to review Contract Documents Section 01196 of the General Requirements.

- END OF SECTION 00300 -

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SECTION 00400

"NONCOLLUSION" AFFIDAVIT

State of California
County of _____

_____, being first duly sworn, deposes and says under penalty of perjury under the laws of the State of California, that he or she has the right, power, legal capacity, and authority to execute this Affidavit, as_____ of _____ the party making the foregoing Bid, that the Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the Bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham Bid, or that anyone shall refrain from Bidding; that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the Bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the Bid price, or of that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the Bid are true; and, further, that the Bidder has not, directly or indirectly, submitted his or her Bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, Bid depository, or to any member or agent thereof to effectuate a collusive or sham Bid.

IN WITNESS WHEREOF, the undersigned represent and, warrant that they have the right, power, legal capacity, and authority to sign this document on behalf of the Bidder, and have caused this document to be executed by setting thereto their names, titles and signatures at _____, _____ County, in the State of _____.

BIDDER: _____
(Signature) (Date)

_____
(Name and Title of Signatories)

_____
(Legal Name Bidder)

_____

(Address)

_____

(Phone Number)

- END OF SECTION 00400 -

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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 designate certificate holder, agrees the following conditions (which conform to California Civil Code, Section 2782) 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 hold harmless, the Owner, Condor Earth, 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 subcontractors, 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.

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, and any additional insurance as stipulated within the Contract Documents, in a company or companies acceptable to the Owner. All insurance, excepting Workers' Compensation and Occupational Disease Insurance, shall include as additional insured: the Owner, Condor Earth, and their officers, employees, consultants and agents.

A. Worker's Compensation and Occupational Disease Insurance meeting the statutory requirements of the State in which the work is to be performed; and Employer's Liability Insurance in an amount of at least **$1,000,000.00**.

B. Comprehensive Liability Insurance with limits of:

   1. Bodily Injury, Property Damage and Personal Injury - **$1,000,000.00** each occurrence, **$2,000,000.00** aggregate.

   2. 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.

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

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

D. Builder's Risk Insurance is not required, but any damages due to fire, arson, vandalism or other causes typically covered under Builder's Risk Insurance during the construction period will be the full responsibility of the Contractor.

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

DATE: _____ ACCEPTED: _____
Owner, Partner or Officer

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

- END OF SECTION 00502 -

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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 reimburse the Owner upon demand, 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, or, upon demand by the Owner, to replace any such materials and to repair said work completely without cost to the Owner so that said work will function successfully as originally contemplated.

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.

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 00503 -

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SECTION 00520

CONTRACT

This CONTRACT is made and entered into this _____ day of_____, 2019, by and between the Oakdale Irrigation District (hereinafter "Owner") whose address is 1205 East F Street, Oakdale, CA 95361, and _____ (hereinafter "Contractor") whose U.S. postal address is _____ _____.

W I T N E S S E T H

That the Owner has awarded to the Contractor, upon Contractor Bid duly submitted, the Contract for doing the Work and furnishing the materials and equipment for the Work described in the Contract Documents bound herewith on the terms stated as follows:

1. Contractor Agrees:

   A. To do the Work and furnish the labor, material, equipment and appliances to complete the Work in accordance with the Contract Documents.

   B. To do and perform the Work diligently as directed by the Owner until completion is evidenced by written acceptance by the Owner.

   C. To start said site work within thirty (30) calendar days after receipt of Notice-to-Proceed (with access to canal no sooner than November 1, 2019) and to complete the Work on or before January 17, 2020.

   D. To remedy, at Contractor's expense, any defects in the work which shall appear within a period of twelve (12) months from the date of the final acceptance of the Work.

   E. To do and perform the Work contemplated hereby and furnish labor, material, appliances, equipment, tools and pay all taxes therefore, at the bid price specified in the Bid form submitted by the Contractor, a conformed copy of which is attached to and made a part of the Contract.

   F. To assume sole and complete responsibility for site conditions during the course of construction of this project, including safety of all persons and property; and that this requirement shall apply continuously and not be limited to normal working hours.

G. To maintain during the life of this Contract at the Contractors own expense Workers' Compensation, Automobile, Comprehensive Liability and Property Damage Insurance as set forth in any of the Contract Documents including, but not limited to Section 00502 Indemnity Agreement and in General Requirements Section 01172 Contractor's Insurance, or any additional insurance that may be required by the Owner for the Work. Certificates of such insurance shall be delivered to the Owner prior to the start of Work, and as may be otherwise specified within the Contract Documents. The Contractor must comply with California Labor Code §3700. All insurance, excepting Worker's Compensation and Occupational Disease Insurance, shall include as additional insured, the Oakdale Irrigation District, Condor Earth and the directors, officers, employees, consultants and agents of the aforementioned. The Contractor shall furnish evidence of the required insurance coverage to the Owner prior to execution of the Contract Documents. And in compliance with provisions of Section 1861 of the California Labor Code, the undersigned Contractor certifies as follows:

> I am aware of the provisions of Section 3700 of the California Labor Code, which requires 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 on this Contract.

H. Should the Contractor fail to complete the Work included in the Contract within the time limit agreed upon or such extensions thereof as may be granted, a deduction of **fifteen thousand dollars ($15,000) per day** will be made from amounts otherwise due to the Contractor for each and every calendar day, or fraction thereof, that the Work, or each stated portion, remains incomplete after the Substantial Completion Date.

2. The Owner will cause payment to be made to the Contractor for the Contract prices provided herein in the following manner:

A. Contractor shall submit draft payment request within 10 days following the end of preceding work period to the Engineer for review and acceptance. Upon acceptance of draft payment request by Engineer, the Contractor shall submit approved payment request with certified payroll and eCPR backup documentation for review and approval by the Engineer. The Engineer will review the submittal for payment request with certified payroll and eCPR documentation for accuracy and correctness and will submit approved pay request to the Owner for payment. Should the Engineer find errors in the backup documentation, the Engineer will respond to the Contractor within 5 work days requesting correction. If corrections are required by the Contractor, it is the Contractor's responsibility to re-submit corrected documentation for further review by Engineer. The Engineer shall review pay submittals and resubmittals within 5 work days. Corrections shall be required prior

to Notice-of-Completion. Each approved payment request submitted will be paid an amount equal to ninety-five percent (95%) of the value of all work completed, based on the quantities of work approved by the Engineer at the unit prices stated at the time of Bid, less the aggregate of all previous payments made to the Contractor. Owner will issue payment within 30 days upon the Engineer's submittal of the Contractor's approved submitted payment request.

B. Before issuance of the Notice-of-Completion, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, materials bills and other indebtedness connected with the Work have been paid, 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.

C. 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 Final Notice stating that the Work required by this Contract has been completed. The Owner then shall issue to the Contractor, the entire balance found to be due within **thirty-five (35) days** after the date of the Owner's Final Notice.

D. Contractor may substitute securities in lieu of retained funds in accordance with California PCC § 22300.

3. It is further agreed by the parties that before each payment is made as provided above, receipts and releases of liens of all kinds for all labor and materials and all other indebtedness connected with the Work shall be presented to the Owner by the Contractor, unless specified otherwise by the Owner.

4. It is expressly understood and agreed that a waiver of any of the conditions or covenants of this Contract shall not be considered a waiver of any of the provisions hereof.

5. Contractor agrees to submit for review and approval DAS forms 140 and 142 based on the State of California, Director of Industrial Relations time requirements.

6. Contractor agrees to pay to each craft, classification or type of workman the prevailing wage determined by the State of California, Director of Industrial Relations, in the published wage scale determination, a copy of which is available at the Oakdale Irrigation District office in Oakdale, California, and which the Contractor will post at the project site. Contractor agrees to comply with California Labor Code §§ 1777.5, 1776. Certified payroll documentation shall be submitted with all Contractor pay requests for review and acceptance by the Engineer as described in Section 2.A above. The Engineer will use the following check list for certified payroll review:

- Certified Payroll (CPR) and DIR eCPRs must be submitted for each payroll.

- Fringe Benefit Statement must be included with the first payroll and for any changes.
- Provide a copy and proof of submission of the DAS 140 prior to starting work on the project.
- Provide a copy and proof of submission of the DAS 142 as work progresses.
- If no work is performed, a Statement of Non-Performance (SNP) and DIR eCPR SNP must be provided for the payroll.
- Certified Payroll, DIR eCPRs, and Statement of Non-Performances must be numbered in sequence with no gaps in payroll periods.
- Provide a Statement of Compliance for each payroll.
- Certified Payrolls/eCPRs must contain the Craft/Classification as listed by the DIR
- Proof of training funds paid will be required.

7. If the Contractor should be adjudged a bankrupt, or if the Contractor should make a general assignment for the benefit of Contractor's creditors, or if a receiver should be appointed on account of Contractor's insolvency, or if Contractor or any of Contractor's Subcontractors should persistently violate any of the provisions of the contract, or if Contractor should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if Contractor should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, then the Owner may, upon certificate of the Engineer when sufficient cause exists to justify such action, serve written notice upon the Contractor and Contractor's surety of its intention to terminate the Contract, such notice to contain the reasons for such intention to terminate the Contract, and unless within five (5) days after the serving of such notice, such violations shall cease and satisfactory arrangements for correction thereof be made, the Contract shall, upon the expiration of said five (5) days, cease and terminate. In the event of any such termination, the Owner shall immediately 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 ten (10) 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 ten (10) 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 Contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and Contractor's 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 therefore. 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.

8. 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. Extra Work when ordered and accepted shall be paid for under a written Change Order in accordance with the terms therein provided. Payment for the Extra Work will be made at the unit price agreed upon by the Contractor and the Owner; or by force account. If the Work is done on force account, the Contractor shall receive the actual cost of all materials furnished by Contractor as shown by Contractor's paid voucher, plus fifteen percent (15%), and for all labor, equipment and tools that are necessary, Contractor shall receive the current prices in the locality, which shall have been previously determined and agreed to in writing. The price paid for labor shall include any compensation insurance paid by the Contractor. Mark up on Subcontractors work shall not exceed fifteen percent (15%). All Extra Work and force account shall be adjusted daily upon report sheets, prepared by the Contractor, approved and signed by the Engineer, and furnished to the Owner, which daily reports shall thereafter be considered the true record of extra or force account work done.

9. It is mutually agreed and understood that the complete Contract shall consist of this Contract, and the following component documents, all of which are fully a part hereof as if herein set out in full, or if not attached, as if attached, and which together constitute the Contract Documents:

   A. *Oakdale Irrigation District Contract Documents for South Main Canal Improvements – Segment 4, dated May 1, 2019, including Technical Specifications;*

   B. *South Main Canal Improvements – Segment 4 Contract Drawings dated May 1, 2019;*

   C. *Accepted Bid;*

   D. *Any Published Addenda or Supplements.*

10. The provisions of California Labor Code § 1777.5 and 1777.6 shall apply to the employment of apprentices by Contractor or any Subcontractor under Contractor.

11. If the total bid amount as set forth in the Bid is in excess of $25,000, then Contractor shall provide a faithful Performance Bond and Payment Bond each in the sum of one hundred percent (100%) of the Contract Price; the Faithful Performance Bond will be retained by Owner for twelve (12) months following final acceptance by Owner of the improvements

constructed to guarantee correction of failures attributable to workmanship and materials for a period of one year from final acceptance. Upon final acceptance by Owner, the amount of the Faithful Performance Bond will be reduced to twenty percent (20%) of the actual improvement construction costs.

12. All provisions of the California Occupational Safety and Health Act of 1973 (Cal OSHA), as amended, shall be the responsibility of the Contractor to adhered to.

13. The statutory provisions for penalties for failing to comply with the State of California wage and labor laws will be enforced, as well as that for failing to pay prevailing wages.

14. Owner shall, within ten (10) days of receipt by Owner of any third-party claim relating to this Contract, notify Contractor in writing of the receipt of such claim.

15. Eight (8) hours labor constitutes a legal day's work.

16. The Contractor shall guarantee the work for a period of one (1) year after the date of filing of the Notice-of-Completion. The faulty materials and/or workmanship, and any repairs made necessary by these causes shall be at Contractor's expense. A written manufacturer's warranty shall be provided for equipment supplied under this contract. The warranty shall cover all defects or failures of materials, or workmanship that occurs as the result of normal operation and service.

17. The Contractor shall indemnify, defend, and hold harmless the Owner, Condor Earth, the State of California and the directors, officers, agents, and employees of the aforementioned, and as outlined in Contract Specification Section 00502 "Indemnity Agreement," from any and all claims and losses accruing or resulting to Contractor and to any and all Subcontractors, materials, men, laborers, and any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this agreement, and from any and all claims and losses accruing or resulting to any person, firm, or corporation who may be injured or damaged by the Contractor in the performance of this agreement. To the extent required by applicable law, disputes 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 only after provisions for Dispute Resolution have been thoroughly exhausted.

18. Contractor and Owner shall attempt to resolve conflicts or disputes under this Contact in a fair and reasonable manner and agree that if resolution cannot be made an attempt will be made to mediate the conflict by a professional mediator (except for payment disputes which may be submitted directly to arbitration). If mediation does not settle any dispute or action which arises under this Contract or the subject matter of this Contract, it shall be subject to arbitration under the rules governing commercial arbitration as promulgated by the American Arbitration Association. All arbitration shall be subject to the Federal Arbitration Act.

19. 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.

20. 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.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed in duplicate, on the day and year first above written.

OAKDALE IRRIGATION DISTRICT
Oakdale, California

BY: _____

TITLE: _____

CONTRACTOR _____

BY:_____

TITLE: _____

- END OF SECTION 00520 -

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SECTION 00530

BID

Bid Opening: 2:30 p.m.,
on June 28, 2019
at Oakdale Irrigation District Office

NOTE: Sealed Bids must be delivered to
Oakdale Irrigation District
prior to 2:30 p.m., June 28, 2019

Dated: _____, 2019

TO: Oakdale Irrigation District
1205 East F Street
Oakdale, CA 95361

In response to your call for bids, the undersigned (also referred to as "Bidder") having examined the site of the Work, the Contract Documents, Contract Drawings, and documents attached thereto, or other documents that are otherwise implied, hereby proposes to furnish the labor, all equipment, all materials, all devices and other costs including federal, state, county and local sales or other taxes, to do the work for which prices are quoted below, and to complete all work ready for use in within the number of working days specified and in accordance with said Contract Documents.

In the following Bid, amounts shall be shown in figures for the bid items. The total base Bid Price shall be shown in both words and figures. In case of discrepancy between the words and figures, the words will govern.

Unit Quantities

The Owner reserves the right to adjust unit quantities to greater or lesser than twenty-five percent (25%) of the estimated quantities without change to the Contractor's Bid Unit Price.

OAKDALE IRRIGATION DISTRICT
South Main Canal Improvements – Segment 4
Schedule of Baseline Bid Prices

Bid Item	Bid Item Description	Estimated Quantity	Unit	Unit Price	Unit Price Extension
1. Mobilization and Demobilization					
1A	Site Mobilization	1	LS	$	$
1B	Site Demobilization	1	LS	$	$
1C	Staging Area Rental Allowance (Hunter Only) (see Note 1)		Mos.	$1,500	$
1.	**Subtotal Mobilization and Demobilization**				**$**

2. Stormwater Management					
2A	SWPPP, EPS, facilities, equipment, materials, operation, etc.	1	LS		$
2	**Subtotal Stormwater Management**				**$**

3. Tree Removal and Disposal					
3A	Tree removal and disposal (lump sum per tree)	25	EA		$
3	**Subtotal Tree Removal and Disposal**				**$**

4. Excavation, Surface Preparation, and Soil/Rock/Concrete Disposal					
4A	Cutslopes, minor re-grading above canal, shotcrete subgrade prep and debris removal in canal (includes excavation and off-site disposal of soil, rock and organic material; hydroseeding of exposed cutslopes is incidental)	5,553	CY		$
4B	Excavation for 4-in. invert and saw cuts/chipping of existing concrete invert liner edge (includes excavation and off-site disposal of soil, rock and concrete debris)	205	CY		$
4C	Invert Edge Prep (includes chipping and off-site disposal of concrete debris)	1,456	LF		$
4	**Subtotal Excavation, Surface Preparation, and Soil/Rock/ Concrete Disposal**				**$**

5.	**Shotcrete**				
5A	4-in. Thick Liner – Upslope Wall (includes fiber reinforcement, weep holes and drain strips; top of shotcrete liner Type A is incidental)	28,749	SF		$
5A-1	4-in. Thick Liner – Upslope Wall – Top of Shotcrete Liner Type B	35	LF		$
5B	4-in. Thick Liner – Swales (4 each; includes fiber reinforcement and drain strips)	1135	SF		$
5B-1	4-in. Wide x 10-in. Deep Down-Turned Liner Edge – Swale	151	LF		$
5C	9-in. Thick Shotcrete Shoring (includes WWF, drain strips; top of shotcrete liner Type B is incidental)	4,600	SF		$
5D	6-in. Thick Shotcrete Shoring (includes WWF, drain strips; top of shotcrete liner Type A is incidental)	1,200	SF		$
5E	2-in. Thick Patch (includes fiber reinforcement)	1,040	SF		$
5F	2-in. Thick Downslope Liner Overlay (includes fiber reinforcement)	8,230	SF		$
5G	2-in. Thick Invert Edge Overlay (includes fiber reinforcement)	2,060	LF		$
5	**Subtotal Shotcrete**				**$**

6.	**Drain Pipes**				
6A	Drain Pipes	20	EA		$
6	**Subtotal Drain Pipes**				**$**

7.	**Soil Nails/Rock Dowels**				
7A	24-ft Long Soil Nails	86	EA		$
7B	20-ft Long Soil Nails	60	EA		$
7C	14-ft Long Soil Nails	6	EA		$
7D	8-ft Long Rock Dowels	20	EA		$
7	**Subtotal Soil Nails/Rock Dowels**				**$**

8.	**CIP Concrete**				
8A	6-in. Footing (includes soil excavation, off-site disposal of soil, and footing concrete fiber reinforcement)	1,980	LF		$
8B	4-in. Thick Invert (includes fiber reinforcement)	5,639	SF		$
8C	2-Inch-Thick Invert Overlay (includes fiber reinforcement)	57,328	SF		$
8	**Subtotal CIP Concrete**				**$**

Notes:
1. Contractor shall provide duration and extend unit price of Item 1C if the Contractor chooses to use the Hunter Staging Area.
2. LS – Lump sum
3. EA – Each
4. CY – Cubic yard
5. LF – Lineal foot
6. SF – Square foot

Subtotal – Items 1 through 8		
1	**Mobilization and Demobilization**	**$**
2	**Stormwater Management**	**$**
3	**Tree Removal and Disposal**	**$**
4	**Excavation, Surface Preparation, and Soil/Rock/Concrete Disposal**	**$**
5	**Shotcrete**	**$**
6	**Drain Holes**	**$**
7	**Soil Nails/Rock Dowels**	**$**
8	**CIP Concrete**	**$**
Total Base Bid Price (in words) **_____** **_____** **Dollars**		**$**

Attached hereto and made a part hereof is United States Currency, Cashier's Check, Certified Check or Surety Bond No. _____ in the amount of $_____ which is not less than ten percent (10%) of the total amount of the total Bid, as a guaranty that the Bidder will enter into a Contract in the form bound with these Contract Documents within five (5) days after the Notice-of-Award of the Contract by the Owner.

The undersigned hereby agrees that, in case his Bid is accepted, he will within five (5) days after notice thereof, execute a Contract with the Owner in the form hereto attached and, if required by law, shall furnish a bond in the sum of the Contract price to secure the payment of all labor and material bills, and also a bond in the sum of the Contract price to secure the faithful performance of the Contract according to the terms and provisions therein; and in case of failure to execute the Contract and furnish the bonds within said period or such extension thereof as may be allowed by resolution duly passed and adopted, it is expressly agreed that the District may award the Contract to the second lowest Bidder and the amount of Bidder's security shall be forfeited to the District.

It is understood by the undersigned that the quantities of material of work specified in the "Notice Inviting Sealed Bids" are estimated and are given only for the purpose of comparing Bids and that the prices quoted are not conditioned upon the accuracy or approximate accuracy of the estimate.

It is understood that the Owner may award a Contract as the interests of the Owner may dictate.

Attached hereto and made a part of this Bid is a list of Subcontractors as required by the provisions of Sections 4100 to 4113 of the Government Code of the State of California.

CONTRACTOR: _____

BY: _____

TITLE: _____

ADDRESS: _____

_____

CONTRACTOR'S LICENSE NUMBER: _____

TELEPHONE NUMBER: _____

- END OF SECTION 00530 -

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SECTION 00531

ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

Please indicate receipt of any Addenda to the Contract Documents by filling in the appropriate Addendum number and filling in date received below. If there are any questions on any Addenda that may have been issued, please contact Scott W. Lewis, Project Manager, Condor Earth, 21663 Brian Lane, Sonora, California, 95370, telephone 209.536.7370, electronic mail slewis@condorearth.com copy to Kim Tarantino electronic mail ktarantino@condorearth.com.

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

A BID MAY BE RENDERED NON-RESPONSIVE IF THE BIDDER DOES NOT ACKNOWLEDGE THE RECEIPT OF ALL ADDENDA WHICH MAY HAVE BEEN ISSUED FOR THIS CONTRACT.

_____
Bidder's Names

_____
Name and Title of Signer

_____
Bidder's Street Address

_____
Bidder's City, State, ZIP

_____
Bidder's Telephone No.

_____ _____
Signature of Bidder of Authorized Representative Date

- END OF SECTION 00531 -

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SECTION 00540

LIST OF SUBCONTRACTORS AND SUPPLIERS

In compliance with the provisions of California PCC § 4100 to 4113, and any amendments thereof, each Bidder shall set forth below the names and locations of the mill, shop or office of each Subcontractor and Supplier who will perform work or labor or render service to the Contractor, in an amount in excess of one-half of one percent (0.5%) of the Contractor's total Price or ten thousand dollars ($10,000), whichever is greater, on or about the construction of the Work or improvement to be performed under these Contract Documents and the portion of the Work which will be done by each Subcontractor.

If the Contractor fails to specify a Subcontractor and/or Supplier for any portion of the Work to be performed under the Contract, he shall be deemed to have agreed to perform such portion himself, and he shall not be permitted to subcontract or purchase order that portion of the Work except under the conditions hereinafter set forth.

Subletting, subcontracting or purchase ordering of any portion of the Work as to which no Subcontractor and Supplier was designated in the original Bid shall only be permitted in cases of public emergency or necessity.

DIVISION OF WORK	**SUBCONTRACTOR/SUPPLIER**	**LOCATION**

DIVISION OF WORK	**SUBCONTRACTOR/SUPPLIER**	**LOCATION**

FIRM NAME: _____

BY: _____

TITLE: _____

- END OF SECTION 00540 -

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SECTION 00550

BIDDER'S RESPONSIBILITY STATEMENT

1. SCOPE OF THIS STATEMENT

In order to allow the Oakdale Irrigation District (OID) to make a determination of the Bidder's responsibility, the Bidder shall provide the following information as a part of its Bid. OID shall use the information contained in this Statement for the sole purpose of determining the Bidder's responsibility. If additional pages are required to respond to any of the questions set forth in this Statement, the Bidder shall describe and list the additional pages in Section 8 below.

2. EXPERIENCE

a. How many years has the Bidder been performing work as a contractor under the present business name?

b. If any of the experience listed in this document refers to work performed under a different name, list the different business names and describe the relationship to the present business name on a separate page (list the additional pages in Section 8 below).

3. CURRENT WORK IN PROGRESS

a. How many construction projects, which are currently under construction, is the Bidder under contract to perform?

_____

b. What is the total dollar amount of the construction contracts listed in Section 3.a. above?

_____

c. How many construction contracts listed in Section 3.a. are:

(i). In an amount of $500,000 or less?

_____

(ii). In an amount between $500,001 and $1,000,000?

_____

(iii). In an amount between $1,000,001 and $3,000,000?

_____

(iv). In an amount over $3,000,000?

_____

(v). List the name of the project and a client contact person, with telephone number, for three current active projects referred to in Section 3.c above.

Project Name: _____

Contract Amount: _____

Client Contact: _____

Name and Phone: _____

Project Name: _____

Contract Amount: _____

Client Contact: _____

Name and Phone: _____

Project Name: _____

Contract Amount: _____

Client Contact: _____

Name and Phone: _____

Project Name: _____

Contract Amount: _____

Client Contact: _____

Name and Phone: _____

4. COMPLETED WORK

Provide the requested information set forth below for the: (1) three most recent projects completed with a cost above $2,000,000 (do not list any projects listed in 3.c.(v) above); (2) three most recent shotcrete projects completed.

a. Three most recent projects completed above $2,000,000:

Project Name: _____

Project Description: _____

_____

_____

_____

Contract Amount: _____

Date Completed: _____

Contact Person: _____

Contact Person's Phone: _____

Project Name: _____

Project Description: _____

_____

_____

_____

Contract Amount: _____

Date Completed: _____

Contact Person: _____

Contact Person's Phone: _____

Project Name: _____

Project Description: _____

_____

_____

_____

Contract Amount: _____

Date Completed: _____

Contact Person: _____

Contact Person's Phone: _____

b. Three most recent shotcrete projects completed (may use completed projects above):

Project Name: _____

Project Description: _____

_____

_____

_____

Contract Amount: _____

Date Completed: _____

Contact Person: _____

Contact Person's Phone: _____

Project Name: _____

Project Description: _____

_____

_____

_____

Contract Amount: _____

Date Completed: _____

Contact Person: _____

Contact Person's Phone: _____

Project Name: _____

Project Description: _____

_____

_____

_____

Contract Amount: _____

Date Completed: _____

Contact Person: _____

Contact Person's Phone: _____

Contact Person's Phone: _____

5. CLAIMS HISTORY

a. Has any claim (whether mediated, arbitrated, or litigated) been made against your company in the past five (5) years?

_____

b. Has your company made any claim (whether mediated, arbitrated, or litigated) against any public entity or claim in the past five (5) years?

_____

c. If you answered "yes" to subsections 5.a. or 5.b. above, describe the claim(s) using the format below: (use additional sheets if necessary).

Project Name: _____

Claim Amount: _____

Other Party Contact: _____

Name and Phone: _____

Explanation: _____

_____

_____

_____

If more than one (1), describe on additional sheet (see Section 8 below).

6. CONTRACT TERMINATION

a. Has your company ever been terminated by a public entity or client, or rejected from bidding on a public works project in the last five (5) years?

_____. If yes, provide an explanation below:

Project Name: _____

Public Entity/Client Contact

Name and Phone: _____

Date of Termination/Rejection: _____

Explanation: _____

_____

_____

_____

If more than one (1), describe on additional sheet (see Section 8 below).

7. COMPLETION BY SURETY

a. Has your company ever failed to satisfactorily complete a construction contract, or has a surety ever completed any portion of a construction contract of your company within the last five (5) years?

_____. If yes, provide an explanation below:

Project Name: _____

Surety Contact
Name and Phone: _____

Date of Surety Took Over: _____

Explanation: _____

_____

_____

_____

If more than one (1), describe on additional sheet (see Section 8, below).

8. ADDITIONAL PAGES

The Bidder declares that the pages listed in this Subsection were added and included with these Bid Documents in order to accurately respond to the Bidding Requirements.

_____ (List Pages)

9. PENALTY OF PERJURY

Bidder hereby declares and certifies under penalty of perjury that the information contained herein is true, correct, and complete.

IN WITNESS WHEREOF, the undersigned represent and warrant that they have the right, power, legal capacity and authority to sign this document on behalf of the Bidder and have caused this document to be executed by setting hereto their names, titles and signatures.

BIDDER: _____ DATE: _____
(Signature)

_____
(Name and Title of Signatories)

_____
(Legal Name of Bidder)

_____
(Address)

_____
(Phone Number)

- END OF SECTION 00550 -

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SECTION 00600

BOND REQUIREMENTS

PART 1 - GENERAL

1.01 GENERAL

A. All bonds required, whether Bid bonds, Performance, Payment, or other bonds, shall be issued by an admitted surety insurer. The same admitted surety insurer must issue the Bid Bond, Performance Bond, and Payment Bond. 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, a or 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 Number 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 thirty (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 00600 -

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SECTION 00601

BID BOND

KNOW ALL PEOPLE BY THESE PRESENTS, that we the undersigned, _____ as Principal, and _____, an admitted California Surety, as Surety, are hereby held and firmly bound unto _____ as OWNER in the penal sum of _____ 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

_____

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 a BOND for Contractor's faithful performance of said Contract, and for the payment of all persons performing labor or furnishing material 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 or any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein state.

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

_____ California Certificate No. _____
Surety

_____
Contractor

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 where the PROJECT is located.

- END OF SECTION 00601 -

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SECTION 00602

PERFORMANCE BOND

Whereas, the Board of Directors of Oakdale Irrigation District, State of California, and _____ (hereinafter designated as "principal") have entered into an agreement whereby principal agrees to perform certain work, which said agreement dated _____ 2019, and identified as Contract Documents for South Main Canal Improvements – Segment 4, are hereby referred to and made a part thereof; and

Whereas, said principal is required under the terms of said agreement to furnish a bond for the faithful performance of said agreement.

Now, therefore, we, the principal and _____, as surety, are held and firmly bound unto Oakdale Irrigation District in the penal sum of _____ dollars ($_____) lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, successors, executors and administrators, jointly and severally, firmly by these presents.

The conditions of this obligation is such that if the above bounded principal, heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and will and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless Oakdale Irrigation District, its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses, fees, including reasonable attorney's fees, incurred by Oakdale Irrigation District in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

The surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the agreement or the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

In witness whereof, this instrument has been duly executed by the principal and surety above named on _____, 2019.

_____
Principal

By:_____

_____
Surety

By:_____

STATE OF CALIFORNIA)
COUNTY OF_____)

On _____, before me, _____, personally appeared _____, personally known to me (or 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.

WITNESS my hand and official seal.

Signature_____ (Seal)

- END OF SECTION 00602 -

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SECTION 00603

PAYMENT BOND

OAKDALE IRRIGATION DISTRICT
PAYMENT BOND

Whereas, the Board of Directors of Oakdale Irrigation District, State of California, and _____ (hereinafter designated as "Principal") have entered into an agreement whereby the principal agrees to perform certain work, which said agreement dated _____, 2019, and identified as Contract Documents for South Main Canal Improvement Project, Segment 4, are hereby referred to and made a part thereof; and

Whereas, under the terms of the agreement, the Principal is required before entering upon the performance of the Work, to file a good and sufficient payment bond with Oakdale Irrigation District to secure the claims to which reference is made in Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code of the State of California.

Now, therefore, the Principal and _____, as corporate surety, are held firmly bound unto Oakdale Irrigation District and all contractors, subcontractors, laborers, materialmen, and other persons employed in the performance of the agreement and referred to in Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code in the sum of _____ dollars ($_____), for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to this work or labor, that the surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, cost and reasonable expenses and fees, including reasonable attorney's fees, incurred by Oakdale Irrigation District in successfully enforcing this obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under Title 15 (commencing with

Section 3082) of Part 4 of Division 3 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

The surety hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the agreement or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

In witness whereof, this instrument has been duly executed by the principal and surety above named, on _____, 2019.

_____
Principal

By:_____

_____
Surety

By:_____

STATE OF CALIFORNIA)
COUNTY OF_____)

On _____, before me, _____, personally appeared _____, personally known to me (or 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.

WITNESS my hand and official seal.

Signature_____ (Seal)

- END OF SECTION 00603 -

SECTION 01005

SPECIFICATIONS

PART 1 - GENERAL

1.01 GENERAL

A. The Contractor shall keep at the jobsite a copy of the Plans and Specifications (Contract Documents) and shall at all times give the Owner and Engineer access thereto.

B. Anything mentioned in the Specifications and not shown on the Plans (Drawings) 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 Contract Documents 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:	Bidding Requirements, Division 00
Fourth:	General Requirements, Division 01
Fifth:	Plans (Drawings)
Sixth:	Technical Specifications, Division 02 through Division 03
Seventh:	State Standard Specifications
Eighth:	Reference Documents

E. Change Orders, supplemental agreements and/or approved revisions to Contract Documents will take precedence over documents listed above. Detailed Drawings shall have precedence over General Plans.

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

1.02 GENERAL CONDITIONS AND TECHNICAL SPECIFICATIONS

A. For definitions of the Specifications categorized as General Conditions (Division 01) and Technical Specifications (Division 02 through Division 03) refer to General Conditions Specification Section 01100, Article 01105 Definitions.

1.03 REFERENCE DOCUMENTS

A. For a definition of State Standard Specifications refer to General Conditions Specifications Section 01100, Article 01105 Definitions.

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 their 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), latest editions.

2. American National Standards Institute (ANSI), latest editions.

3. American Standards Associations (ASA), latest editions.

4. American Concrete Institute (ACI), latest editions.

5. Federal Specifications, latest editions.

6. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition.

7. Uniform Plumbing Code, latest edition.

8. National Electric Code, latest edition.

9. California Code Regulations, Title 8, Chapter 4, Division of Industrial Safety (Cal-OSHA), Subchapter 4 – Construction Safety Orders.

10. California Department of Transportation (Caltrans) Standard Specifications, 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 Project. The Engineer will give no consideration to any claimed ignorance as to what a cited Reference Document contains, because such Subcontractor on a project of this scope is deemed to be experienced and familiar with their own trade to be experienced and familiar with their own trades generally accepted published standards of quality.

D. Whenever references are made to any of the abovementioned 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.

1.04 LIST OF DRAWINGS

A. The Work shall conform to the following Drawings separately bound and titled: *Oakdale Irrigation District South Main Canal Improvements – Segment 4.*

1.05 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	Oakdale Irrigation District
Department	Oakdale Irrigation District
Director	General Manager
Engineer	Oakdale Irrigation District staff engineer or their engineering consultant acting on behalf of the District.
Department of Transportation	Oakdale Irrigation District
Contractor	The person or persons, co-partnership or corporation, private or municipal, who have entered into a contract with the Oakdale Irrigation District as party or parties of the second part, or his or her legal representative.

1.06 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 Contract Specifications, or the Contract Drawings will be brought to the attention of the Engineer.

1.07 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 an essential part 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 Contract Drawings and/or Contract 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 the Contractor shall bear all costs arising there from.

B. Where these Contract 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 01005 -

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SECTION 01013

BEGINNING OF WORK, TIME OF COMPLETION, LIQUIDATED DAMAGES

PART 1 - GENERAL

1.01 GENERAL

A. Attention is directed to the provisions in these General Requirements and the General Conditions Section 01100 of these Contract Documents for "Beginning of Work", "Time of Completion", and "Liquidated Damages."

1.02 BEGINNING OF WORK AND TIME OF COMPLETION

A. The Contractor shall begin site work within **thirty (30) calendar days** after receipt of the official Notice-to-Proceed (with access to canal no sooner than November 1, 2019) and to complete the Work on or before January 17, 2020. The Notice-of-Award is anticipated to be issued on **September 3, 2019**, and the Notice-to-Proceed is anticipated to be issued on **September 13, 2019**. The Construction Start Date shall be no later than **November 1, 2019**.

B. The Contractor shall diligently prosecute the Work to completion on or before the Substantial Completion Date indicated on the Notice-to-Proceed and specified in General Conditions Section 01100, Article 01193 Time of Completion.

1.03 LIQUIDATED DAMAGES

A. The Contractor shall pay to the local agency the sum of **FIFTEEN THOUSAND DOLLARS ($15,000.00)** per day for each and every calendar day delay in finishing the Work after the Substantial Completion Date.

- END OF SECTION 01013 -

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SECTION 01022

CHANGE ORDERS

PART 1 - GENERAL

1.01 GENERAL

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents.

B. Except as specifically modified herein, Section 4 of the State Standard Specifications in its entirety shall govern the procedures for processing changes, alterations or deviations in the Work. Definitions of changes in the Work and Extra Work and payment for same shall be as described therein.

C. The Owner reserves the right to contract with any person or firm other than the Contractor for any or all Extra Work. The Contractor's attention is especially called to the fact that the Contractor shall be entitled to no claim for damages for anticipated profits on any portion of the Work that may be omitted.

D. All changes which affect the cost of the construction or time of completion of the Project must be authorized by means of a Contract Change Order. The Contract Change Order will include Extra Work, Work for which quantities have been altered from those shown in the Bid Schedule (Section 00530 of the Contract Documents), as well as decreases or increases in the quantities of installed units which are different than those shown in the Bid Schedule because of final measurements.

1.02 COST OF THE WORK

A. Contractor will be allowed the following cost adjustments for Work executed under this Section that results in an increase in cost:

1. Based on Unit Prices where Work performed is similar to the Work included in the Bid Schedule as a Unit Price item.

2. To actual wages paid, a labor surcharge as specified in California Department of Transportation publication “Labor Surcharge and Equipment Rental Rates”.

3. To actual wages paid, including the Labor Surcharge, a fee of fifteen percent (15%).

4. To the costs incurred for material and equipment rental, a fee of fifteen percent (15%).

    a. Equipment rental rates shall be computed on the basis of California Department of Transportation publication "Labor Surcharge and Equipment Rental Rates"

5. To the costs incurred for subcontracted work, a fee of five percent (5%)

    a. Basis of cost shall be the Subcontractor's written quote.

    b. The Engineer shall have the right to require the Contractor to request additional subcontractor bids.

- END OF SECTION 01022 -

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SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 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. All materials shall be measured on the basis of "in-place" quantities paid for the units listed in the Bid Schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the Contract Drawings, will be the basis for computing quantities.

B. After the Work has been completed, the Contractor will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment, and the Engineer will verify and approve quantities. 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 and paid for.

1.02 INCREASED OR DECREASED QUANTITIES

A. Attention is directed to the provisions in Section 9-1.06 of the State Standard Specifications and these General Requirements.

B. All written requests for adjustment shall be made by the Engineer no later than five (5) working days after notification by the Contractor that the item of work is complete and pay quantities have been submitted.

1.03 FINAL PAY QUANTITIES

A. Final pay quantities will be based on quantities submitted by the Contractor and verified and approved by the Engineer.

1.04 PAYMENT OF WITHHELD FUNDS

A. The provisions in Section 9-1.16E of the State Standard Specifications shall not apply.

1.05 PARTIAL PAYMENT

A. Attention is directed to Section 9-1.16 of the State Standard Specifications which, except as modified herein, shall apply in its entirety.

1. The Owner shall withhold not less than 5 percent (5%) 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 sixty (60) days of delivery for payment eligibility.

B. Payment shall not relieve the Contractor from its obligations under the Contract Section 00520; 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 be 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 5-1.39 of the State Standard Specifications.

1.06 FINAL PAYMENT

A. Final payment will be due thirty-five (35) days after the acceptance and the filing of the Notice-of-Completion by the Owner also detailed in the Contract Section 00520 of the Contract Documents.

B. Payment for the Work will be made in accordance with the Standard Procedures of the Owner also detailed in the Contract Section 00520 of the Contract Documents.

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 Bid Price thereof as contained in the accepted Bid Schedule included in Section 00530 of the Contract Documents. Payments on account thereof will be made as set forth in the Contract Section 00520 of the Contract Documents Contract Documents.

- END OF SECTION 01025 -

SECTION 01026

WAIVER AND RELEASE SUBMITTALS

PART 1 - INSTRUCTIONS FOR WAIVER AND RELEASE (LIEN WAIVER) SUBMITTALS

1.01 GENERAL INSTRUCTIONS

A. Waiver and Releases must be submitted on forms attached at the end of this Section. Copies of said forms comply with Civil Code 3262. This applies to Contractor and Subcontractors.

B. Comply with Contract Documents Section 01025 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 a total amount reflecting 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**"

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

Upon receipt by the undersigned of a check from _____
(Maker of Check)

in the sum of $_____ payable to_____
(Amount of Check) (Payee or Payees of Check)

and when the check has been properly endorsed and has been paid by the bank upon which it is drawn, this document shall become effective to release any mechanic's lien, stop notice, or bond right the undersigned has on the job of

_____ located at _____
(Owner) (Job Description)

to the following extent. This release covers a progress payment for labor, services, equipment, or material furnished to

_____ through _____
(Your Customer) (Date)

only and does not cover any retentions retained before or after the release date; extras furnished before the release date for which payment has not been received; extras or items furnished after the release date. Rights based upon work performed or items furnished under a written change order which has been fully executed by the parties prior to the release date are covered by this release unless specifically reserved by the claimant in this release. This release of any mechanic's lien, stop notice, or bond right shall not otherwise affect the contract right, including rights between parties to the contract based upon the rescission, abandonment, or breach of the contract, or the right of the undersigned to recover compensation for furnished labor, services, equipment, or material covered by this release if that furnished labor, services, equipment, or material was not compensated by the progress payment. Before any recipient of the document relies on it, said party should verify evidence of payment to the undersigned.

DATE: _____ _____
(Company Name)

By: _____ _____
(Signature) (Title)

UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

The undersigned has been paid and has received a progress payment in the sum of $_____ for labor, services, equipment and/or material furnished to

_____
(Your Customer)

on the job of _____
(Owner)

located at _____
(Job Description)

and does hereby release any mechanic's lien, stop notice, or bond right that the undersigned has on the above referenced job to the following extent. This release covers a progress payment for labor, services, equipment and/or materials furnished to

_____
(Your Customer)

through _____ only,
(Date)

and does not cover any retentions retained before or after the release date; extras furnished before the release date for which payment has not been received; extras or items furnished after the release date. Rights based upon work performed or items furnished under a written change order which has been fully executed by the parties prior to the release date are covered by this release unless specifically reserved by the claimant in this release. This release of any mechanic's lien, stop notice, or bond right shall not otherwise affect the contract rights, including rights between parties to the contract based upon rescission, abandonment, or breach of the contract, or the right of the undersigned to recover compensation for furnished labor, services, equipment, or material covered by this release if that furnished labor, services, equipment, or material was not compensated by the progress payment.

DATE: _____ _____
(Company Name)

By: _____ _____
(Signature) (Title)

NOTICE: THIS DOCUMENT WAIVES 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 RELEASE FORM.

CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

Upon receipt by the undersigned of a check from _____
(Maker of Check)

in the sum of $_____ payable to _____
(Amount of Check) (Payee or Payees of Check)

and when the check has been properly endorsed and has been paid by the bank upon which it is drawn, this document shall become effective to release any mechanic's lien, stop notice, or bond right the undersigned has on the job of

_____ located at _____
Owner) (Job Description)

This release covers the final payment to the undersigned for all labor, services, equipment, or material furnished on

the job, except for disputed claims for additional work in the amount of $_____.
Before any recipient of this document relies on it, the party should verify evidence of payment to the undersigned.

DATE: _____ _____
(Company Name)

By: _____ _____
(Signature) (Title)

UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

The under signed has been paid in full for all labor, services, equipment or material furnished to

_____ on the job of _____
(Your Customer) (Owner)

located at _____and does
(Job Description)

hereby waive and release any right to a mechanic's lien, stop notice, or any right against a labor and material bond on

the job, except for disputed claims for extra work in the amount of $_____

DATE: _____ _____
(Company Name)

By: _____ _____
(Signature) (Title)

NOTICE: THIS DOCUMENT WAIVES 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 RELEASE FORM.

- END OF SECTION 01026 -

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SECTION 01052

ENGINEER'S STATUS DURING CONSTRUCTION

PART 1 - GENERAL

1.01 OWNER'S REPRESENTATIVE

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

1.02 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 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 visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in this Section, Article 1.05 Limitations on Engineer's Authority and Responsibilities. Particularly, but without limitation, during or as a result of Engineer 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 federal holidays, and hours worked by the reviewer other than those of the normal work day.

1.03 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 Time of Completion 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 Change 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 Change Order justifies an adjustment in the Contract Price or Contract Time of Completion, 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.

B. Clarification of specific details or contract requirements as needed by the Contractor shall be made by a Request for Information.

1.04 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.

1.05 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 or 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, 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 Resident Project Representative, if any, and assistants, if any.

- END OF SECTION 01052 -

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SECTION 01100

GENERAL CONDITIONS

01105 DEFINITIONS

A. The Contract Documents consist of the Contract (also referred to as "Agreement") and the following:

- Contract Documents dated May 1, 2019
- Contract Bidding Requirements
- Accepted Bid
- Faithful Performance Bond and Payment Bond
- Any Published Addenda or Supplements
- Contract Drawings including any amendments
- Contract General Conditions
- Contract Technical Specifications

B. The Owner and the Contractor are those mentioned as such in the Agreement.

C. The term Subcontractor, as employed herein, includes only those having a direct contract with the Contractor and it includes one who furnishes material worked to a special design according to the Contract Drawings and Specifications of this Work, or labor at the Project Site, but does not include one who merely furnishes material not so worked.

D. The Engineer, as employed herein, includes the Project Construction Manager and Engineer, Condor Earth (Condor). Condor shall serve as the Client Representative of the Owner at the Site.

E. Where in any of the Contract Documents or in the complete Contract there is any provision in respect to the giving of any notice, such notice shall be deemed to have been given (as to the Owner) when written notice shall have been placed in the United States mail addressed to the Owner at its place of business; (as to the Contractor) when written notice shall be delivered to the chief representative of the Contractor at the Site of the Project or by mailing such written notice in the United States mail addressed to the Contractor at the place stated in the papers prepared by Contractor to accompany the Bid as the address of Contractor's permanent place of business.

F. The term "Work" of the Contractor or Subcontractor includes labor or materials or both.

G. All time limits stated in the Contract Documents are of the essence of the Contract.

H. State Standard Specifications is defined as State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition.

01110 EXECUTION, CORRELATION AND INTENT OF DOCUMENT

A. The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include in the Contractor's Bid the costs of all labor and materials, equipment and transportation necessary for the proper execution of the Work. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

01115 DETAIL DRAWINGS AND INSTRUCTION

A. The Engineer shall prepare and file Plans and Specifications or a Work Authorization describing the Work to be performed, together with an approximate estimate of the unit quantities, prior to commencement of the Work.

B. The Engineer shall furnish with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the Work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof and reasonably inferable therefrom.

C. The Work shall be executed in conformity therewith and the Contractor shall do no Work without proper drawings and/or instructions.

01120 CONTRACTOR SUBMITTALS

A. The Contractor shall check and verify all field measurements and submit with such promptness as to cause no delay in Contractor's own work or in that of any other Contractor, six (6) copies of all shop drawings or material submittals and schedules required for the Work of the various trades (Submittals), and the Engineer shall pass upon them with reasonable promptness, making desired corrections, including all necessary corrections relating to artistic effect. In lieu of six (6) copies, the Contractor may submit one electronic submittal in Microsoft compatible program format. The Engineer's "review-and-acceptance" of Submittals shall not relieve the Contractor from responsibility for deviations from the Contract Documents, unless the Contractor has, in writing, secured the Engineer's "Acceptance" of such deviations, nor shall it relieve Contractor from responsibility for errors.

B. Contractor agrees that Submittals processed by the Engineer are not Change Orders; that the purpose of Submittals by the Contractor is to demonstrate to the Engineer that the Contractor understands the intent of the Contract Documents, that the Contractor demonstrates their understanding by indicating which equipment and material they intend to furnish and install and by detailing the fabrication and installation methods they intend to use.

C. Contractor further agrees that if deviations, discrepancies or conflicts between Submittals and Contract Documents are discovered either prior to or after Submittals are processed by the Engineer, the design Contract Drawings and Specifications shall control and shall be followed.

1. Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the Work.

2. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

3. The Contractor shall employ on the Work only workmen skilled in the Work assigned to them, and the Owner shall have the right to require the removal from this Work of any employee unacceptable to Owner.

01125 ROYALTIES AND PATENTS

A. The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and shall hold the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has information that the process or article specified is an infringement of a patent the Contractor shall be responsible for such loss unless the Contractor promptly gives such information to the Engineer or Owner. The approval of any method of construction, invention, appliance, process, article, device or material of any kind by the Engineer or Owner shall only be an approval of its adequacy for the work and shall not be an approval of the use thereof by the Contractor in violation of any patent or other rights of any third person.

01130 PERMITS, REGULATIONS AND TAXES

A. Permits and licenses necessary for the prosecution of the Work shall be secured and paid for by the Contractor unless otherwise specified.

B. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified in the Contract Drawings and Specifications. If the Contractor observes that the Contract Drawings and Specifications are at variance therewith the Contractor shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the Contract Documents for changes in the Work.

C. The Contractor shall not proceed with the performance of any such Work until such changes are agreed upon. If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, without such notice to the Engineer and such adjustments of changes as aforesaid, then the Contractor shall bear all costs arising from or in connection with such Work.

D. The Contractor shall pay for all federal, state and local taxes on all materials and labor services furnished by him and all taxes arising out of the operations under this Contract.

01135 PROTECTION OF WORK AND PROPERTY

A. The Contractor shall continuously maintain adequate protection of all their Work from damage and shall protect the Owner's property from injury or loss arising in connection with this Contract. Contractor shall make good any such damage, injury or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of the Owner. Contractor shall adequately protect adjacent property, including as provided by law and the Contract Documents, and shall make good any damage, injury or loss thereto arising in connection with this Contract.

01140 ACCIDENT PREVENTION

A. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery and equipment shall be guarded, and all hazards eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.

01145 INSPECTION OF WORK

A. The Engineer, Engineer's representatives, and the Owner's representatives shall, at all times, have access to the Work and the Contractor shall provide proper facilities for such access and for inspection and sample collection.

B. Re-examination of questioned Work may be ordered by the Engineer, and, if so ordered, the Work must be uncovered by the Contractor. If such Work be found in

accordance with the Contract Documents, the Owner shall pay the cost of re-examination and replacement. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs, unless they can show that the defect in the Work was caused by some other Contractor for whose work the Contractor herein is not responsible, and, in that event, the Contractor herein shall not be liable for such cost.

C. All work shall be under the direct inspection of the Engineer for Oakdale Irrigation District.

D. Where the Contract Drawings and Specifications do not state the amount and location of inspection, material sampling, and material testing, the Engineer shall determine the amount and location of such Work in accordance with the current edition of the California Building Code. The Engineer may make additions or reductions to the amount of testing and inspections where deemed appropriate.

01150 CONTRACTOR'S SUPERINTENDENCE AND SUPERVISION

A. Contractor shall keep on their Work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Engineer. The Superintendent shall not be changed except with the consent of the Engineer, unless the Superintendent proves to be unsatisfactory to the Contractor and ceases to be in Contractor's employ, or unless the Superintendent proves to be unsatisfactory to the Owner. The Superintendent shall represent the Contractor in the absence of Contractor's Project Manager or other senior representative, and all directions given to Superintendent shall be as binding as if given to the Contractor. Other directions shall be so confirmed on written request in each case.

B. The Contractor shall give efficient and competent supervision to the Work. Contractor shall carefully study and compare all Contract Drawings and Specifications, and other instructions and shall at once report to the Engineer any error, inconsistency or omission which Contractor may discover, but Contractor shall not be held responsible for their existence or discovery.

C. The Contractor shall be specifically responsible for the coordination of all Work performed under this Contract and exploration Work directed by the Owner or Engineer. Coordination shall be interpreted to include general layout of the structures, coordination of the layout and Work under various sections, scheduling the sequence of operations ensuring safety and cooperation between the trades, and the preparation of diagrams and drawings necessary to ensure proper and expeditious completion of all Work.

D. Each Subcontractor shall be responsible for the proper laying out of their own Work, shall coordinate their layout and Work with the Work of the other sections, and shall be responsible for any damage which may occur to the Work of any other Subcontractor or Contractor because of errors or inaccuracy. Neither the Engineer,

nor the Engineer's representatives, will, in any case, assume the responsibility for laying out the Work.

01155 CHANGES IN THE WORK

A. The Owner, without invalidating the Contract, may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract Sum being adjusted accordingly based on the unit prices submitted in the Bid, and also as per Section 01022 Change Orders. All such Work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted only when the project completion date cannot be achieved as contracted.

B. In giving instructions, the Engineer shall have authority to make changes in the work quantities up to a total Contract price difference of twenty-five percent (25%), not involving changes to unit prices, and not inconsistent with the purposes of the Project. No Extra Work or change shall be made unless in pursuance of a written order signed by the Owner and countersigned by the Engineer for lump sum items.

C. The value of any such Extra Work or change shall be determined in one of the following ways:

1. By unit prices contained in the original bid.

2. By an acceptable lump sum proposal.

3. On a cost plus limited percentage basis (defined as cost of labor, materials and equipment plus a specified percentage of these items, but not to exceed fifteen percent (15%) of the aggregate of the cost of such labor, materials and equipment).

01156 CLAIMS FOR EXTRA COST

A. All claims for extension, or extra costs of $375,000 or less, except those cost changes resulting by changes in unit quantities, which are not resolved by change order shall be resolved in accordance with California PCC § 20104, and following, a copy of which is attached to these General Conditions.

01157 DEDUCTIONS FOR UNCORRECTED WORK

A. If the Engineer and Owner decline to correct Work injured or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore.

01158 DELAYS AND EXTENSION OF TIME

A. If the Contractor be delayed at any time in the progress of the Work by neglect of the Owner or the Engineer, or of any employee of either, or by any separate Contractor employed by the Owner, or by changes ordered in the Work or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any cause beyond the Contractor's control, or by any cause which the Engineer shall decide justifies the delay, then the time of completion shall be extended for such reasonable time as the Engineer may decide.

B. No such extension shall be made for delay occurring more than seven (7) days before claim therefore is made in writing to the Engineer. In the case of a continuing cause of delay, only one claim is necessary.

C. If no schedule or agreement stating the dates upon which Drawings shall be furnished is made, then no request for delay shall be allowed on account of failure to furnish Drawings until one (1) week after demand for such Drawings and not then unless such request be reasonable.

D. If the Contractor foresees that actions by the Owner will be cause for delay, the Contractor shall notify the Engineer immediately.

01160 CORRECTIONS OF WORK BEFORE FINAL PAYMENT

A. The Contractor shall promptly remove from the premises all materials condemned by the Engineer as failing to conform to the Contract, whether incorporated in the Work or not, and the Contractor shall promptly replace and re-execute their own Work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good Work of other Contractors destroyed or damaged by such removal or replacement.

B. If the Contractor does not remove such condemned Work and materials within a reasonable time, fixed by written notice, the Owner may remove them and may store the material at the expense of the Contractor.

01161 CORRECTION OF WORK AFTER FINAL PAYMENT

A. Neither the final certificate nor payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship, and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damage to their Work resulting therefrom that shall appear within a period of one (1) year from the date of the acceptance by the Owner. The Owner shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be decided by the Engineer, subject to the right of either party to obtain judicial review.

01162 OWNER'S RIGHT TO DO WORK

A. If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of the Contract, the Owner, after three (3) days written notice to the Contractor, may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due to the Contractor; provided, however, that the Engineer shall approve both such action and the amount charged to the Contractor.

01170 PAYMENT

A. The Owner will cause partial payment to be made to the Contractor as provided in General Conditions Section 01025 Measurement and Payment and Contract Documents Section 00520 Contract on the basis of a duly certified approved estimate of the Work completed and certified payroll documentation submitted pursuant to this Contract and approved by the Engineer.

B. Waiver and Release submittals shall be provided from Contractor and Subcontractors with Contractor pay requests as per General Conditions Section 01026 Waiver and Release Submittals.

01171 OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

A. The Owner may withhold from agreed payments to the Contractor such an amount or amounts as may be necessary to cover:

1. Payments that may be earned or due for just claims for labor or materials furnished in and about the Work;

2. Defective Work not remedied;

3. Failure of a Contractor to make proper payments to their Subcontractors;

4. Reasonable doubt that the Contract can be completed for the balance then unpaid; and

5. Evidence of damage to another Contractor or the Owner.

B. In any of the above instances, the Owner shall disburse and shall have the right to act as agent for the Contractor in disbursing such funds as have been withheld pursuant to this paragraph to the party or parties who are entitled to payment therefrom. The Owner will render a proper accounting of all such funds disbursed.

01172 CONTRACTOR'S INSURANCE

A. The Contractor shall not commence Work under this Contract until he has obtained all insurance required under this section, and any additional insurance as stipulated within the Contract Documents, and such insurance, and companies carrying such insurance, have been approved by the Owner; nor shall the Contractor allow any Subcontractor to commence Work on the subcontract until all similar insurance required to the Subcontractor has been so obtained and approved.

1. Compensation Insurance: The Contractor shall take out and maintain during the life of this Contract, Workers' Compensation insurance for all of its employees employed at the site of the project and, in case any work is sublet, the Contractor shall require the Subcontractor similarly to provide Workers' Compensation insurance for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous Work under this Contract at the site of the project is not protected under the Workers' Compensation statute, the Contractor shall provide Employer's Liability Insurance for the protection of its employees not otherwise protected.

2. Comprehensive Liability and Property Damage Insurance: The Contractor shall take out and maintain during the life of this Contract such Comprehensive Liability and Property Damage insurance in which the Owner and Engineer shall be named as additional insured and which shall protect him and any Subcontractor performing Work covered by this Contract, from claims for damages for personal injury, including accidental death, as well as claims for property damages, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by either of them, and shall include a hold harmless agreement which will indemnify the Owner and the Engineer for loss or damage howsoever caused by the Contractor in performing the Contract, and the amounts of such insurance shall be as follows:

   Bodily Injury, Property Damage and Personal Injury - $1,000,000.00 each occurrence, $2,000,000.00 aggregate.

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

3. Automobile Insurance: The Contractor shall take out and maintain during the life of their Contract, Automobile Public Liability insurance in amounts not less than $1,000,000 per occurrence and Property Damage Liability

insurance in amount not less than $1,000,000, if any teams or motor vehicles are engaged in operations within the terms of this Contract on the site of the Work to be performed thereunder, covering the use of all such teams or motor vehicles, unless such coverage is included in the insurance required by sub-section 2 hereof.

B. It is understood that the Contractor will submit prior to the execution of the final Contract, Certificates of Insurance evidencing coverage as set forth herein and which shall name the Owner, which shall include the District, its directors, officers, employees and volunteers, and the Engineer and their employees as an additional insured under all such policies. Any and all amounts of deductible shall be assumed by the Contractor at its sole risk.

C. Cancellation Clause – All policies must provide for thirty (30) days cancellation notice in writing to the Owner and the Engineer before cancellation becomes effective.

D. The Owner may accept insurance covering a Contractor or Subcontractor in character and amounts less than the standard requirements set forth herein where such standard requirements appear excessive because of the character or extent of the Work to be performed by such Contractor or Subcontractor; but such acceptance as to any Contractor or Subcontractor shall not thereby relieve any other Contractor or Subcontractor of meeting the full extent of the requirements herein.

01173 INDEMNIFICATION OF OWNER AND ENGINEER

A. Contractor agrees to protect, indemnify, and hold the Owner and Engineer harmless from and against any and all liability, loss or expense (including attorney's fees) in connection with any claim, demand, action, or cause of action asserted against Owner or Engineer because of any injury to, or death of, any person or persons, and/or loss of, or damage to, any property, however caused, which results from or is alleged to result from, or occurs in connection with the performance of this Contract, whether before or after completion, by Contractor, its agents, employees, or subcontractors, except where such injury, death, loss, or damage, is caused by the sole negligence of Owner or Engineer.

B. As a part of such indemnification, Contractor agrees, if requested by Owner or Engineer, to assume, without expense to Owner or Engineer, the defense of any such claim, demands, actions or causes of action.

01174 SURETY BONDS

A. The Contractor shall furnish bonds covering the faithful performance of the Contract and the payment of all obligations arising thereunder, each in the amount of one hundred percent (100%) of the estimated or bid amount, whichever is greater, as stated in the Contract and in such form as the Owner may prescribe and

with such sureties as he may approve. The cost of the premium shall be paid by the Contractor.

01175 DAMAGES

A. If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or of anyone employed by party, then party shall be reimbursed by the other party for such damage.

B. Should the Contractor fail to complete the Work included in the Contract within the time limit agreed upon or such extensions thereof as may be granted, a deduction of **fifteen thousand dollars ($15,000) per day** will be made from amounts otherwise due the Contractor per day for each and every calendar day delay in finishing the Work after the Substantial Completion Date.

C. Claims under this clause shall be made in writing to the party liable within a reasonable time after the first observance of such damage and not later than the time of final payment, except as otherwise provided in the Contract Documents in the case of faulty work or materials.

01176 TRANSFER OF CONTRACT

A. The Contractor shall not transfer this Contract without the approval of the Owner. No transfer shall, under any circumstances relieve the Contractor of its liabilities and obligations under this Contract. No transfer shall be made until after the Surety has been given due notice of such transfer and has furnished written consent thereto.

01177 SUBCONTRACTORS AND SUPPLIERS

A. The Contractor shall submit with the Bid a list of all Subcontractors and Suppliers who will perform Work in excess of one-half of one percent (0.5%) of the Contractor's total Price or ten thousand dollars ($10,000), whichever is greater, and the Contractor shall not employ any that the Engineer may within a reasonable time object to as incompetent or unfit.

B. The Contractor agrees that they are fully responsible to the Owner for the acts and omissions of its Subcontractors and of persons either directly or indirectly employed by them, as well as for the acts and omissions of persons directly employed by him.

C. Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Owner.

D. The Contractor shall not substitute Subcontractors and Suppliers without prior notification to the Engineer, and in accordance with the Contract Documents.

01180 ENGINEER'S STATUS

A. The Engineer shall have general supervision and direction of the Work as provided in Engineer's Contract with the Owner. The Engineer is an agent of the Owner only to the extent provided in the Contract Documents and when in special instances the Engineer is authorized by the Owner so to act, and in such instances Engineer shall, upon request, show the Contractor written authority. The Engineer has authority to stop the Work whenever such stoppage may be necessary to insure the proper execution of the Contract.

B. As the Engineer is in the first instance, the interpreter of the conditions of the Contract and the judge of its performance he shall side neither with the Owner nor with the Contractor but shall use their powers under the Contract to enforce its faithful performance by both.

01181 ENGINEER'S DECISIONS

A. The Engineer shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all other matters relating to the execution and progress of the Work or the interpretation of the Contract Documents.

B. The Engineer's decisions, in matters relating to artistic effect, shall be final, if within the terms of the Contract Documents.

01182 DISPUTES

A. Any disputes, claims or questions arising under the Contract or any documents thereof shall be resolved pursuant to California PCC §§ 20104 – 20104.6, a copy of which is attached.

01190 CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT

A. The Contractor shall conduct their operations in accordance with the rules and regulations of the California Division of Industrial Safety and the current requirements of the California Occupational Safety and Health Administration (CAL/OSHA), Construction Safety Orders.

B. The Contractor shall submit to the Engineer at the pre-construction meeting written copies of a Site Specific Safety Work Plan (Safety Plan). The Contractor will not be permitted to commence any Work until the Engineer has "reviewed" the Safety Plan (the Engineer is not obligated to approve the Contractor's Safety Plan). The Safety Plan shall include but not be limited to work procedures, material and equipment to be used, hazard prevention, method of rescue, prevention of injury, protection of personnel by use of protective garments, and other health and safety standards. The Safety Plan shall also include, at a minimum, a detailed description of safety measures for soil and rock excavation, concrete construction, and work in

canals. Describe all safety precautions to be undertaken and identify any special protective gear and equipment to be utilized.

C. The Contractor shall do whatever Work is necessary for safety and be solely and completely responsible for conditions on the job site, including safety of all personnel (including Owner and Engineer's employees) and Owner's property during the Contract period. The requirement shall apply continuously and not be limited to normal working hours.

D. The Safety Plan includes operations in accordance to California Code of Regulations, Title 8, Construction Safety Orders and all applicable state safety statues in the performance of work hereunder so as not to cause loss or delay. To the extent allowed by law, the Contractor shall indemnify and hold both the District and the Engineer harmless from any liability, claim, demand, fire or loss whatsoever resulting from arising out of or connected with Contractor's failure or alleged failure to comply with such statues, including, but not limited to attorney's fees and expenses arising directly or indirectly out, or by reason, of said compliance. Should the Contractor be found to be in serious violation of any Cal/OSHA safety requirements and/or in imminent danger, the Engineer is obligated to stop the Work immediately. No further Work shall be permitted until the Contractor can demonstrate to the Engineer's satisfaction that Work can be completed in accordance with safety requirements. The Engineer or Owner shall not be held responsible for lost work costs and time for a "stop work order" resulting from a proven Contractor's safety violation.

E. The Contractor shall submit at the preconstruction meeting, in addition to a Site Specific Safety Plan, an Injury and Illness Prevention Program (IIPP) and a Hazard Communication Program for the Engineer to "review." The IIPP shall include but not be limited to work procedures, materials and equipment to be used, hazard preventions, fire prevention, method of rescue, prevention of injury, protection of personnel by use of protective garments, and other health and safety standards.

F. Contractor's employees and Subcontractors must be under the direct supervision of a "Competent Person" at all times for the protection of personnel. "Competent Person" is defined in California Code of Regulations, Title 8, Construction Safety Orders, Article 2, Section 1504 – Definitions.

G. Daily inspections of excavation and all work shall be made by a "Competent Person" for the protection of construction personnel.

H. The Contractor shall prevent public access to unauthorized personnel from entering the job site during construction. The Contractor shall provide construction signs stating that public access is strictly prohibited. The public access prevention requirement shall apply continuously and shall not be limited to normal working hours.

01191 DIFFERING SITE CONDITIONS/EXCAVATION REQUIREMENTS

A. If the Contract involves excavations that extend below the surface, the Contractor shall:

1. Promptly, and before the following conditions are disturbed, notify the public entity, in writing, of any:

a. Material that the Contractor believes may be hazardous waste, as defined in Section 25117 of the California Health and Safety Code that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

b. Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

B. The Engineer and/or Owner shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work shall issue a Change Order under the procedures described herein. In the event that a dispute arises between the public entity and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. The Contractor shall retain any and all rights provided herein which pertain to the resolution of disputes and protests between the contracting parties.

01192 UTILITY RELOCATION

A. The Contractor shall notify Underground Service Alert (USA) as required by law prior to any excavation or utility relocation work. If the Contractor fails to notify USA, the responsibility of the Owner and Engineer described in this Section shall be nullified.

B. Owner shall assume the responsibility for the timely removal, relocation, or protection of existing main or trunk line utility facilities that may be located on the Site if either Owner or Engineer fails to identify the utilities in the Contract Drawings and Specifications made a part of the Notice Inviting Bids, and Owner shall compensate Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Contract Drawings and Specifications with reasonable accuracy, and for equipment on the project necessarily idled during such

work. If the Contractor while performing the Contract discovers utility facilities not identified by the public agency in the Contract Drawings and Specifications, or USA request, he shall immediately notify Owner or Engineer in writing.

C. Contractor shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the public agency or the owner of the utility to provide for removal or relocation of such utility facilities.

D. Nothing herein shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as structures, meter and junction boxes, ditches on or adjacent to the site of the construction.

01193 TIME OF COMPLETION

A. The Contractor shall commence site work within thirty (30) calendar days after receipt of Notice-to-Proceed. The Contractor shall complete the Contract Work within the time limit (or prior to the required Substantial and Final Completion Dates) specified herein:

Substantial Completion Date – January 17, 2020
Final Completion Date – March 31, 2020

01194 UNFAIR BUSINESS PRACTICES CLAIMS

A. In entering into this Contract, Contractor 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. SeciS) 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 public works contract or subcontract. This assignment is made and becomes effective at the time the Owner tenders final payment to the Contractor, without further acknowledgment by the parties.

01195 OWNER'S RIGHT TO TERMINATE, AMEND, OR MODIFY CONTRACT

A. Contractor shall not be responsible for the cost of repairing or restoring damage to the Work, which damage is determined to have been proximately caused by an act of God, in excess of five percent (5%) of the Contract amount, provided, that the Work damaged is built in accordance with accepted and applicable building standards, the current edition of the California Building Code and the Contract Drawings and Specifications of the awarding authority. "Acts of God" shall include only the following occurrences or conditions and effects: earthquakes in excess of a magnitude of 3.5 on the Richter Scale, precipitation or wind storm events greater

than a 25-year event as determined by a local public agency or a national weather agency or other event designated a Disaster Area by FEMA.

B. Owner may make changes in the Contract in the course of construction to bring the completed improvements into compliance with environmental requirements or standards established by state and federal statutes and regulations enacted after the Contract has been awarded or entered into. Contractor shall be paid for the changes in accordance with the provisions of the Contract governing payment for changes in the Work or, if no provisions are set forth in the Contract, payment shall be as agreed to by the parties.

C. Owner may, by mutual consent of the contracting parties, terminate, amend, or modify the Contract. The compensation payable, if any, for amendments and modifications shall be determined as the parties so agree. The compensation payable, if any, in the event the contract is so terminated shall be determined as the parties so agree or under applicable statutory provision providing for the termination.

D. Owner may, at its discretion, terminate the Contract for environmental considerations, whether or not such considerations were foreseen at the time the parties entered into the Contract.

E. If the Contractor should be adjudged bankrupt, or if they should make a general assignment for the benefit of their creditors, or if a receiver should be appointed on account of their insolvency, or if Contractor should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if they should fail to make prompt payment(s) to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certification of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the Contractor seven (7) days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method the Owner may deem expedient. 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 expense of finishing the Work including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such 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 the damage incurred through the Contractor's default, shall be certified by the Engineer.

01196 SCHEDULE AND OWNER'S RIGHT TO TERMINATE

A. Owner and Contractor agree that it is extremely important that Owner, as an irrigation district organized under the laws of the State of California, and serving numerous entities and citizens with water, have the Work completed in time to flow water through its canals. Therefore, in addition to any damages as set forth in Section 01175 of these General Conditions, Contractor shall adhere strictly to the Progress Schedule required to be submitted in accordance with Section 00300, Paragraph 10 of the "Instructions for Bidders", and any failure to do so is agreed to be a material breach of this Contract, and Owner shall be entitled to terminate this Contract without liability to Contractor except for payments due and not then paid, and, further, such failure to strictly adhere to the Progress Schedule is agreed to be a default under the Performance Bond and Payment Bond required pursuant to this Contract, and shall entitle Owner to require the Surety specified in such bonds to pay for the Completion of the Works specified in the Contract in accordance with the terms of said bonds.

CERTIFICATION BY CONTRACTOR

I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.

CONTRACTOR: _____

BY: _____

TITLE: _____

CONTRACTOR'S LICENSE NUMBER: _____

TELEPHONE NUMBER: _____

- END OF SECTION 01100 -

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PUBLIC CONTRACT CODE - PCC

DIVISION 2. GENERAL PROVISIONS [1100 - 22355] *(Division 2 enacted by Stats. 1981, Ch. 306.)*

PART 3. CONTRACTING BY LOCAL AGENCIES [20100 - 22178] *(Part 3 added by Stats. 1982, Ch. 465, Sec. 11.)*

CHAPTER 1. Local Agency Public Construction Act [20100 - 20929] *(Chapter 1 added by Stats. 1982, Ch. 465, Sec. 11.)*

ARTICLE 1.5. Resolution of Construction Claims [20104 - 20104.6] *(Article 1.5 added by Stats. 1994, Ch. 726, Sec. 22.)*

20104. (a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b) (1) “Public work” means “public works contract” as defined in Section 1101 but does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) “Claim” means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work

which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

(Amended by Stats. 2010, Ch. 697, Sec. 47. (SB 189) Effective January 1, 2011. Operative July 1, 2012, by Sec. 105 of Ch. 697.)

20104.2. For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively,

and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

(Added by Stats. 1994, Ch. 726, Sec. 22. Effective September 22, 1994.)

20104.4. The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

(Amended by Stats. 2004, Ch. 182, Sec. 54. Effective January 1, 2005. Operative July 1, 2005, by Sec. 64 of Ch. 182.)

20104.6. (a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.

(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

(Added by Stats. 1994, Ch. 726, Sec. 22. Effective September 22, 1994.)

SECTION 01200

PROJECT MANAGEMENT, ADMINISTRATION AND FACILITIES OPERATION

PART 1 - GENERAL

1.01 SCOPE

A. Work Specified – This Specification section covers the Work necessary to manage and administrate the project. This Section also covers the costs to operate and maintain the facilities and equipment not directly involved with the individual Work activities or items, i.e., the Bid Items. Traditionally, the Contractors refer to this work as the "Project Indirects".

B. Work Inclusions – The Work shall include all management and administrative labor and indirect consumables, equipment, and facilities and incidentals to perform the Work specified in this Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Project is anticipated to take approximately two and a half (2.5) months to complete. The Project has many individual Work activities and Bid Items. Some are relatively large in scope and cost, while others are small. Work activities will be located a relatively short distance from the Contractor's Project field office facilities. The cost for "Project Indirects" will not be paid for as a separate line item but should be incorporated into the unit prices in a uniform manner.

1.03 DEFINITIONS

A. Indirect Costs – Project management staff, administrative staff and salaries burdens, and office and equipment operation costs, and indirect equipment, i.e., pick-up trucks and maintenance costs for Project Management, Administration and Facilities Operation.

B. Project Work Duration – November 1, 2019 through January 17, 2020.

C. Planning and Progress Review (PPR) Meeting – A weekly meeting held between the Contractor and the Engineer (and the Owner) to discuss, review plans, coordinate and agree on items of Work relating to the Project, such as design, methods and means, schedules and progress, third party coordination, quality control and testing, safety and contract administration.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified or stated in this General Requirements Section or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. American Society for Testing and Materials (ASTM).

2. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition.

3. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition.

4. OID Standard Specifications and Drawings.

1.05 RELATED WORK SPECIFICATIONS SECTIONS

01320 Progress and Schedules
02050 Mobilization and Demobilization

PART 2 - PRODUCTS

2.01 CONSTRUCTION MATERIALS

A. Refer to Section 01250 Quality Control and Assurance.

2.02 SUBMITTAL FORMAT AND INSTRUCTIONS

A. Refer to Section 01330 Submittals.

PART 3 - EXECUTION

3.01 MATERIALS PROVIDED

A. The Contractor shall provide site office(s) and staff as needed to perform this Work, including the Resident Engineer/Owner facility. Refer to Section 02050 Mobilization and Demobilization.

B. The Contractor shall provide traffic control devices and signage as needed to facilitate construction traffic at entry/exit points along State Highway 108 and along county roadways. Contractor to determine based on Contractor's logistics whether a flagman (men) is (are) required and include with the base price.

3.02 PLANNING AND PROGRESS REVIEW (PPR) MEETINGS

A. Senior supervisory staff members of the Contractor and its relevant Subcontractors shall attend and be active participants to every weekly PPR meeting.

B. PPR meetings shall be held every week as agreed to by the Contractor, Engineer and Owner in the Resident Engineer's facility.

C. The day previous to agreed meeting day, for the duration of the Work, the Contractor shall submit its agenda items, Look Ahead/Behind Schedule and other relevant documentation to the Resident Engineer and Engineer's Project Coordinator to incorporate into the PPR meeting.

D. The Resident Engineer/Engineer's Project Coordinator is responsible for publishing a weekly agenda, conducting the meeting and publishing the meeting minutes. The Contractor is responsible for providing agenda items and weekly schedules/progresses, bringing relevant supervisory personnel and Subcontractors/Suppliers to the meeting on time, being active participants during the meeting, and reading and commenting on the PPR's meeting minutes.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. This item not applicable per Article 1.02.

4.02 BASIS OF PAYMENT

A. This item not applicable per Article 1.02.

- END OF SECTION 01200 -

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SECTION 01250

QUALITY CONTROL AND ASSURANCE

PART 1 - GENERAL

1.01 SCOPE

A. This Section includes the general requirements for quality control and assurance of erection and installation of materials, equipment, systems, and assemblies, and construction of the Contract Work. The requirements specified in this Section are in addition to quality control and assurance requirements specified elsewhere in these Contract Documents.

B. The Contractor shall establish a quality assurance and control program: (a) to insure sufficient supervision, examination; inspection and testing of specified items of Work at appropriate intervals, including those of Subcontractors and suppliers; and (b) to control conformance to the applicable Contract Documents with respect to identified products, workmanship, construction, maintenance while idle, finish and functional performance. At a minimum, Contractor's quality control program shall include checking, approval and coordination of submittal and oversight of specified tests; and it shall specifically assign to the Contractor personnel the obligation to notify the Engineer to verify and inspect when items of Work are completed that cannot be later located or inspected without uncovering Work. Contractor shall accurately annotate data on the record documents.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Project has a wide range of dissimilar tasks that shall be completed within a limited time frame of approximately two and a half (2.5) months during the winter season. In addition, some work activities may be located at relatively long distances from the Contractor's Project field office facilities, lending to possible difficulties in supply, and communication issues. These factors have numerous unknowns that must be accounted for. To account for these unknowns and to limit their impact on the final project completion, strict measures of quality assurance and quality control shall be implemented. Field technicians, provided by the Engineer and paid by the Owner, will use field quality control methods to verify adequate quality in the Work. Contract Documents will be issued to the Contractor describing dimensions and workmanship for the installation and manufacturer of the Work. High standards shall be set by the Contractor, and all codes must be met or exceeded by the Contractor to ensure that the Work is successfully completed.

1.03 DEFINITIONS

A. Independent Materials Testing Laboratory – Materials testing laboratory which is not owned and/or operated by the Contractor, employer, or one of Contractor's Subcontractors performing related Work. The laboratory shall be certified in accordance with ASTM C1077 (Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for use in Construction and Criteria for Laboratory Evaluation) and ASTM E329 (Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction). Test work performed in the field and at the laboratory by the Independent Laboratory personnel shall be born by the Contractor unless approved otherwise in writing in advance of the testing by the Owner.

B. Engineer's Materials Testing Laboratory – Either of two, Condor's laboratories, which have been certified in accordance with ASTM C1077 (Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for use in Construction and Criteria for Laboratory Evaluation) and ASTM E329 (Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction). The Engineer's laboratory is considered "independent" and has the following capabilities: shotcrete, concrete, grout aggregates, soils and rock testing.

C. Quality Assurance – Program for systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met.

D. Quality Control – Maintenance of proper standards by regular inspection of the product within a laboratory or controlled environment. Aggregate of activities (as design analysis and inspection for defects) designed to ensure adequate quality, especially, in the Work.

E. Field Quality Control – Maintenance of proper standards by a certified inspector away from a laboratory or controlled environment of the Work.

F. Code – Comprehensive and systematically arranged body of rules, standards, and conduct or procedures that dictate the way a product or the Work is manufactured, inspected, installed and/or performed.

G. Specifications – A statement of particulars, describing materials dimensions and workmanship for the construction, installation and/or manufacture of the Work.

H. Standards – Process or protocol for manufacture, installation, or construction of a product or the Work, accepted as a basis for comparison.

I. Reports – Detailed and formal account of findings.

J. Specialty Subcontractor – Business firm contracted to perform part of another's entire contract that specializes in a certain task(s) or procedure(s).

K. Major Supplier – As listed and defined in Contract Specifications Section 00540 and General Requirements Section 01100, Article 01177.

L. Contractor Design Tests – Tests required by the Contract Documents for the Contractor to perform to develop his design products, mixes, etc. to meet the contract technical specifications. The tests are performed by an independent materials testing laboratory.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified or stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. American Society of Testing and Materials (ASTM).

   a. C1077 – Standard Practice for laboratory testing concrete and concrete aggregates for use in construction and criteria for laboratory evaluation.

   b. E329 – Standard Specification for agencies engaged in testing and/or inspection of materials used in construction.

2. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition.

3. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition.

4. OID Standard Specifications and Drawings.

5. California Code Regulations, Title 8, Chapter 4, Division of Industrial Safety (Cal OSHA), Subchapter 4 – Construction Safety Orders.

1.05 RELATED SPECIFICATION SECTIONS

01200 Project Management, Administration and Facilities Operation
01330 Submittals

1.06 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. The Contractor shall provide a Quality Assurance Supervisor for the Work. This person may have other collateral duties on the Project. This person shall have a background of administrative and engineering capabilities. This person shall have direct access to the Contractor's president and/or a corporate officer with the Contractor's company or joint venture, preferably to the Quality Assurance and Control Corporate Officer.

B. The Contractor shall have its Quality Control and Assurance work plan readily available on site.

C. Quality Control and Assurance Work Plans shall be required of specialty Subcontractor and major suppliers. Their plans shall flow smoothly and seamless into the Contractors Work Plan.

1.07 CONTRACTOR SUBMITTALS

A. Pre-Construction

1. The Contractor shall submit the qualifications of its Quality Control and Assurance Supervisor designated for this Work, for "review-and-acceptance" by the Engineer.

2. Submit the name and direct contact information, i.e., postal mail address, voice telephone number and facsimile number, for Contractor's Corporate Quality Control and Assurance Office to the Engineer for "review-and-information."

3. Submit the Contractor's Quality Control and Assurance Work Plan for "review-and-acceptance".

   a. Provide an acceptance method and means to track non-conformance Work deficiencies to their abatement issued by the Contractor, the Engineer and third parties.

4. Submit to the Engineer for review and possible comment all instructions issued by the manufacturers for all products to be incorporated into the permanent Work.

B. Construction

1. Submit non-conformance reports and abatements.

   a. Provide a listing of abated and outstanding non-conformances every week prior to the Planning and Progress Review (PPR) meeting.

2. The Contractor shall submit as-built Contract Drawings and Shop Drawings for "review-and-edit" by the Engineer.

C. Close-Out

1. The Contractor shall submit a final set of as-built Contract and Shop Drawings of all known changes, deviations, additional information and locations, etc., for the Engineer's "review-and-acceptance."

1.08 SPECIAL CONDITIONS AND REQUIREMENTS

A. Inspection and Testing Laboratory Services

1. The Owner has chosen to employ the Engineer's Materials Testing Laboratory to perform inspections and testing required by the Engineer to ensure that Work meets the requirements of the Contract.

2. Costs for tests beyond the capability of Engineer's Materials Testing Laboratory required by the Contract Documents will be reimbursed by Owner upon approval of invoices from the testing firm selected by the Engineer.

3. The Contractor shall bear the cost of any tests specified as Contractor design and/or performance tests and non-conformance re-testing as required.

B. Critical Specialty Qualifications, Subcontractors and Suppliers

1. Shotcrete Applicator

a. The Contractor shall submit the qualifications for its Shotcrete Applicator designated for this Work, for "review-and-acceptance" by the Engineer.

2. Concrete and Shotcrete Ready-Mix Supplier(s)

a. The Contractor shall submit the qualifications for its concrete and shotcrete ready-mix supplier(s) designated for this Work, for "review-and-acceptance" by the Engineer.

3. Ground reinforcement installer

a. The Contractor shall submit the qualifications for its ground reinforcement installer designated for this Work, for "review-and-acceptance" by the Engineer.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor and its Subcontractors and Suppliers shall provide and maintain quality-control program(s), regulation methods, procedures and processes to ensure compliance with standards of quality required by the Contract Documents. The Contractor shall submit to the Engineer description(s) of the quality control program(s).

B. Submittals are required for all items in each category, even those which the Contractor intends to furnish or fabricate as shown on the Contract and/or Shop Drawings to confirm compliance with the designs.

C. The Contractor shall obtain field measurements required for the accurate fabrication and installation of the Work included in this Contract. Exact measurements are the Contractor's responsibility.

D. The Contractor shall also furnish or obtain templates, patterns and setting instructions as required for the installation of the Work. Dimensions shall be verified in the field.

E. Unless otherwise indicated or specified in the Technical Specifications, manufactured materials, products, installed or applied shall be in accordance with the manufacturer's instructions, directions and/or specifications. The installation or application shall be in accordance with printed instructions furnished by the manufacturer of the material considered for use under conditions similar to those at the Project Site. The Contractor shall furnish instruction to the Engineer for "review-and-acceptance" before Work is begun.

F. Any deviation from the Contract Documents and/or the Manufacturer's printed recommendations shall be explained and acknowledged as correct and appropriate for the circumstances in writing by the particular manufacturer.

G. The Contractor will be held responsible for installations contrary to the manufacturer's recommendations.

H. Shop and Field Work shall be performed by mechanics, craftsmen, and workers skilled and experienced in the fabrication and installation of the work involved.

I. The Work for this Contract shall be performed in accordance with the best accepted practices of the various trades involved and in accordance with these Contract Documents and "reviewed and accepted" Shop Drawings.

J. The Work shall be erected and installed plumb, level, square and true, or true to indicated angle, and/or in proper alignment and relationship to the work of other trades. Finished work shall be free from defects and damage.

K. The Engineer reserves the right to reject material and Work quality that are not considered to be up to acceptable industry standards of the various trades involved. Such inferior material or Work quality shall be repaired or replaced, as directed, at no additional cost to the Owner.

3.02 INSPECTIONS, TESTS AND FIELD QUALITY CONTROL

A. The Owner, Engineer and/or other Owner/Engineer designated inspection and testing agency may perform inspections, tests and other services at its discretion.

B. The Engineer will report observations and results of tests indicating compliance or non-compliance with Contract Documents to the Contractor, to the Owner and to the Agency and/or third party which owns and/or governs within the Project Site.

C. Contractor shall cooperate with Engineer in furnishing samples of materials, design mix(es), equipment, tools, storage and other assistance as requested.

D. Testing and inspection of the Work required by the Contract Documents shall be arranged by the Engineer and paid for by the Owner, unless specifically indicated otherwise on the Contract Documents.

E. Special inspections to be performed by the Engineer as specified in the Contract Documents, or, as required, to comply with a code or other agency having jurisdiction shall be performed at the Owner's expense. Contractor shall give the Engineer, the Engineer's Materials Testing Laboratory and special inspectors a minimum of two (2) work days' notice, excluding weekends and holidays, of when and where such special inspections are required, in order for the Engineer to arrange for the appropriate inspectors and observers be present to perform the necessary inspections or tests.

F. The Engineer reserves the right to modify the scope of, or to reassign any of the testing and inspection services specified in the various sections of the Contract Documents to be performed by a testing agency or consultant retained by the Engineer and/or Owner in connection with the Work.

G. If the public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included in Article A above, the Engineer will order the performance of such services by qualified independent

testing agencies or consultants as may reasonably be required. The Owner shall bear such costs, except as otherwise provided in Article H below.

H. If such procedures for testing, inspection or approval reveal failure of the portion of the Work to comply with requirements of the Contract Documents, Contractor shall bear all costs made necessary by such failure including costs of repeated procedures and compensation for the Owner's/Engineer's testing and inspection services and expenses.

1. If the Engineer's observation of any inspection or testing undertaken pursuant to this Article 3.02 reveals a failure in any one of a number of identical or similar items or elements incorporated in the Work to comply: (i) with the requirements of the Contract Documents or (ii) with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction with respect to the performance of the Work, then the Engineer will have the authority to order inspection and testing of all such items or elements of the Work, or of a representative number of such items or elements of the Work, as it may consider necessary or advisable.

2. Contractor shall bear all costs thereof, including reimbursement to the Owner for the Owner's/Engineer's additional testing and inspection services if any are required, made necessary thereby. However, neither the Engineer's authority to act under General Requirements Section 01100, Article 01180, nor any decision made by the Engineer in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Engineer and/or Owner to Contractor, any Subcontractor, or any of their agents or employees, or any other person performing any of the Work.

I. Neither observation by the Engineer nor inspections, tests or acceptance by the Engineer's inspectors or testing agencies and consultants shall relieve Contractor from Contractor's obligation to perform and provide quality control services to assure that the Work conforms to the requirements of the Contract Documents.

J. Unless otherwise required by the Contract Documents, required certificates of testing, inspection or approval shall be secured by Contractor and furnished to the Engineer in accordance with the Contract Documents.

K. If observation or testing is required outside Stanislaus County the Contractor shall bear the travel-related costs, including transportation, lodging, meals, long-distance telephone calls, and associated expenses occurred by the Engineer.

L. The Contractor shall provide promptly all facilities, labor, and material reasonably needed for performing such safe and convenient inspection and test as may be required by the Engineer. Tests or inspections conducted pursuant to the Contract Documents will be made promptly to avoid unreasonable delay in the Work.

M. The Owner reserves the right to charge the Contractor any additional cost of inspection or test when the Work, material or workmanship is not ready for inspection at the specified time.

3.03 UNCOVERING OF WORK

A. No Work shall be covered until inspected by the Engineer.

B. If part of the Work is covered prior to the Engineer's inspection, Contractor shall uncover it for the Engineer's observation and subsequently replace it at no additional cost to the Owner and without change in the Contract Duration.

C. Should the Engineer and/or the Owner wish to re-inspect a portion of the Work that has been covered, Contractor shall uncover it on request. If the Work conforms to the requirements of the Contract Documents, the Owner will pay the costs of uncovering and replacement. If the Work does not conform to the requirements of the Contract Documents, Contractor shall pay said costs, including related disruptions and delays.

3.04 CORRECTION OF NON-CONFORMING WORK

A. Upon receipt of written notification from the Engineer, Non-Conforming Work shall be removed from the Project Site and replaced promptly by the Contractor with Work that conforms to the Contract Documents, regardless of when the Non-Conformance is determined. Contractor shall pay all claims, costs, losses, and damages, including the Owner's and/or Engineer's expenses at the labor rates included in the contracts between the Owner and the Owner's and/or Engineer's testing and inspection services, of removal and replacement including but not limited to all costs of repair or replacement of Work of others.

B. If Contractor fails to correct Non-Conforming Work or to proceed with corrections within five (5) days of the date of written notification from the Engineer, the Owner may correct the Non-Conforming Work in accordance with General Requirements Section 01100, Article 01162, or may remove it and store the salvageable materials or equipment at Contractor's expense. If Contractor does not pay the costs of such removal and storage within seven (7) days after written notice, the Owner may sell, auction, or discard such materials and equipment. The Owner will credit Contractor's account for the excess proceeds of such sale, if any. The Owner will deduct from Contractor's account the costs of damages to the Work, rectifying the Non-conforming Work, removing and storing such salvageable materials and equipment, and discarding the materials and equipment, if any. If the proceeds fail to cover said costs and damages, the Contract Sum shall be reduced by the deficit. If the current Contract unpaid balance and retention is insufficient to cover such amount, Contractor shall reimburse the Owner.

C. Contractor shall repair or replace Non-Conforming Work or damage resulting from such Non-Conforming Work promptly at no additional cost to the Owner, whether due to: (i) faulty materials or workmanship; or (ii) defective installation by Contractor of materials or equipment manufactured by others; or (iii) disturbance of, or damage to, Owner or Third Party improvements by Contractor's operations contrary to the Contract Documents; or (iv) other failure to conform to the requirements of the Contract Documents. Such repair or replacement shall commence within five (5) days of the date of the Engineer's written notification of occurrence of such Non-Conforming Work and shall forthwith be diligently prosecuted to completion during the following correction periods, or such longer period of time as may be prescribed by laws and regulations or by the terms of any applicable guarantees required elsewhere in the Contract Documents, as applicable:

1. Any time during construction of the Work; or

2. One (1) year following the date of the Notice of Final Completion for Non-Conforming Work or damage resulting therefrom in any part of the surface Work or in surface improvements of the Owner such as building superstructures, pavements, curbs, walks, tracks, walls, stairways, poles, mechanical and electrical equipment, materials, appurtenances and accessories, or other surface structures; or

3. Two (2) years following the date of the Notice of Final Completion for Non-Conforming Work or damage resulting therefrom in any part of subsurface Work or in subsurface improvements of the Owner not included in the Work, such as building foundations, sewers, side sewers, culverts, other drainage structures, pipes, valves, conduits, conductors, or other subsurface structures.

D. This requirement to correct Non-Conforming Work shall continue until one (1) year after the date of correction of repaired or replaced Items.

E. This requirement to correct Non-Conforming Work and all similar requirements applicable to equipment of Subcontractors or Suppliers used in or as a part of the Work (whether on equipment of the nature above specified or otherwise) shall inure to the benefit of the Owner without necessity of separate transfer or assignment thereof.

F. The remedies provided for in this Article 3.04 shall not be restrictive but shall be cumulative and shall be in addition to all other legal remedies the Owner may possess with respect to latent defects or frauds.

G. If, in the judgment of the Engineer, replacement of any defective or Non-Conforming Work is undesirable or impractical, the Contract Bid shall be reduced by such amount as the Owner or its authorized representatives deem equitable, or Contractor shall rebate moneys previously paid by the Owner be taken as the basis

of claims for Extra-Work. The Contractor shall have no claim for damages or extension of time due to any delay resulting from making required revisions to Contract Documents and/or to Shop Drawings. The review of these drawing(s) by the Engineer shall apply to general design only and shall in no way relieve the Contractor of responsibility for errors or omissions contained therein nor shall such review operate to waive or modify any provision or requirement contained in these Contract Specifications or on the Contract Drawings. The Engineer's notation shall be included in the "As-Built" Contract and/or Shop Drawings.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Aspects in this Section 01250 Quality and Control Assurance will not be measured for payment. The work required in this Section shall be considered incidental to Section 01200 Project Management, Administration and Facilities Operation and other technical specifications.

4.02 BASIS OF PAYMENT

A. The Contractor shall be paid for Quality Control and Assurance Administration and Technical Specialization Quality Control under Section 01200 Project Management, Administration and Facilities Operation and the associated Technical Specification Sections, respectively.

- END OF SECTION 01250 -

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SECTION 01320

PROGRESS AND SCHEDULES

PART 1 - GENERAL

1.01 SCOPE

A. This Specification Section describes the requirements and procedures for preparing, revising and reviewing the Contractor's construction schedules used for planning, managing and following construction activities. The schedules provide a basis for determining the progress status of the project relative to the completion time, specific dates and for determining the acceptability of the Contractor's progress payment estimates.

1.02 BACKGROUND AND SITE CONDITIONS

A. The South Main Irrigation Canal can only be shut down during the winter months when irrigation is not required by the consumers within the Oakdale Irrigation District. The normal shutdown period for the canal is from November 1 to February 28. The rehabilitation work in the canal must be done during the canal's shut down period of this 2019 – 2020 winter season.

1.03 DEFINITIONS

A. Critical Path Method (CPM) – A CPM schedule is a planning technique based on network flow theory and is specifically used for well-defined projects. It is based on a fixed schedule determined for each activity and based on realistic time estimates, which are the result of experience. A CPM flow network shall then be derived from the actual performance of the task or activity.

B. Program Evaluation and Review Technique (PERT) – A PERT schedule is a planning technique based on network flow theory. PERT is specifically used for massive programs with hard-to-define objectives and overlapping responsibility divided among many organizations. PERT projects also could involve wide geographic dispersal and a large degree of time and cost uncertainty. A PERT schedule is established based on the probability of finishing the work within a certain period of time. The PERT flow network shall then be derived from the occurrences of events.

C. Float – Float is the total amount of delay that the activity may experience and still not become critical.

D. Contract Float – If the schedule anticipates early completion of all or any part of the Work, Contract Float is the number of calendar days between Contractor's anticipated date for early completion of all or any such part of the Work and the corresponding specified Contract Time.

B. Total Float – Number of calendar days by which the Work or any part of the Work may be delayed without necessarily extending a pertinent Contract Time. Total Float is by definition at least equal to Contract Float.

C. Business Day – Any day except Saturdays, Sundays and Holidays observed by the Owner and/or the Engineer.

D. Calendar Day (CalDay) – Every day shown on the calendar, including Saturdays, Sundays and Holidays.

E. Day – Same as Work Day.

F. Critical Path – The sequence of work activities and events in series taking the longest time to complete. Each work activity must be complete before the next activity can start. The critical path has no float.

G. Holidays – The recognized Holidays and their periods for this Project are as follows:

Holiday	Period	Days
Veterans Day	NOV 11, 2019	SAT through MON
Thanksgiving	NOV 28 – DEC 1, 2019	THU through SUN
Christmas	DEC 24 – 25, 2019	TUE through WED
New Years	JAN 1, 2020	WED
Martin Luther King, Jr.	JAN 20, 2020	SAT through MON
Presidents	FEB 17, 2020	SAT through MON

The Engineer takes Holiday periods as Holidays or leave (vacation) as listed in this Article, except for Veterans Day and Martin Luther King, Jr. weekend. The Contractor may work those exception days, except Sundays, without backchargeable inspection. If the Contractor wishes to perform "production-type" Work on Engineer non-working days, the Contractor shall be backcharged according to the attached schedules for additional services and inspections (Attachment A following the end of this Section).

H. Baseline Schedule – A computer generated schedule using common scheduling software, i.e., Primavera, with Microsoft® Windows ™ operating software, or a manually produced schedule, based on CPM and showing Critical Path.

I. Updated Schedule – A schedule and progress up to date, using the same method as the Baseline Schedule. The Contractor submits the monthly Updated Schedule

showing progress to date and the future schedule duration activities and logic links. This schedule is for the Engineer's "review-and-comment."

J. Look Ahead/Behind Schedule – A bar chart schedule manual or computer generated showing past Work performed for one (1) week back and showing future Work activities which are to be continued or started for the next two (2) weeks ahead. The schedule is submitted every week until the Project is complete. This schedule is for the Engineer's "review only."

K. Work Day – Normal working hours shall be between the hours of 6:00 a.m. and 6:00 p.m., Monday through Saturday, excluding Holidays. Any days anticipated to require extended work hours or Sunday/Holiday work shall be clearly shown on the Baseline and Updated Schedules, and shall, at a minimum, be submitted to the Engineer for "review-and-acceptance" at least one (1) week in advance. If unanticipated extended work hours are required, the Engineer shall be notified immediately. No work shall be allowed during hours of darkness without proper lighting.

L. Substantial Completion – Occurs on a date when all the Contract Work inside and outside the canal is finished, and all debris and obstructions are removed from the conveyance structures, and the Owner can release irrigation water into the South Main Canal.

M. Final Completion – Final Completion occurs on a date when the Contractor has finished all of the Contract Work outside the canal satisfactory to the Engineer and the Owner, has completely demobilized from the Project Site(s), has completed all the contractual documentation, and has signed the final Change Order to the Contract.

1.04 CONTRACTOR SUBMITTALS

A. Pre-Construction

1. Within three (3) days of Contract Award the Contractor shall submit a Baseline Schedule for "review" by the Engineer and the Owner.

2. Within three (3) days of receipt the Engineer shall return the Contractor's Baseline Schedule with a request for corrections or adjustments.

B. Construction

1. At the end of each month or on each monthly date set by the Engineer until Substantial Completion the Contractor shall submit an Updated Schedule for "review-and-comment" by the Engineer.

2. The Contractor shall submit a Look Ahead/Behind Schedule to the Engineer on a weekly basis.

PART 2 - PRODUCTS

2.01 PROGRESS/SCHEDULE COMPUTER PROGRAM

A. The Contractor shall provide copies of the baseline schedule and updated schedule(s) in PDF format or provide software and software licenses to the Engineer as needed to view the schedules in the format provided.

PART 3 - EXECUTION

3.01 SCHEDULES

A. Baseline Schedule

1. The Contractor shall prepare a Baseline Schedule. The schedule shall depict all significant construction activities including mobilization, critical submittals, key construction milestones, demobilization and cleanup. The schedule shall include all items of Work, as a minimum, listed on the Contract Bid Schedule descriptions and, if "submitted, and review-and-accepted", a Contractor's Schedule of Values.

2. Substantial Completion Time and Date is 6:00 p.m., January 17, 2020. Final Completion Date is projected to be March 31, 2020. Both milestones and dates shall be shown on the Baseline Schedule and Updated Schedules. The dependencies between activities shall be indicated so that it may be established what effect the progress of any one activity has on the schedule. Changes to the anticipated Substantial and Final Completion dates shall be noted and explained.

3. The Baseline Schedule shall be presented to all attendees at the Preconstruction Meeting.

4. The Baseline and Updated Schedules shall be represented in Work Days for activity durations and in Calendar Days along the X axis depiction.

5. Key events and milestones shall be shown on the Baseline and Update Schedule(s). The following, as a minimum, shall be shown as key events and milestones:

Description	Date
Notice-of-Award	SEPT 3, 2019

Notice-to-Proceed	SEPT 13, 2019
Contractor Mobilization Start	By Contractor
Canal irrigation water shut down	NOV 1, 2019
All holiday periods	Previously stated
Substantial Completion	JAN 17, 2020
Demobilization Start	By Contractor
Canal water release	MAR 1, 2020
Final Completion	MAR 31, 2020

B. Updated Schedules

1. The Contractor shall prepare Updated Schedules from the "review-and-accepted" Baseline Schedule.

2. The Updated Schedules shall be revised schedules showing construction activities progress, work days ahead or behind the Baseline Schedule, and milestone and completion dates, whether they have changed or not. The Updated Schedules shall show and indicate any duration changes in Work Days.

3. The Updated Schedules shall be submitted on a monthly basis prior to the end of each month, unless mutually agreed upon by the Engineer and the Contractor.

C. Narrative accompanying Baseline and Update(s) Schedules.

D. Look Ahead/Behind Schedule

1. The Contractor shall prepare a simple bar graph manually, computer assisted or computer generated schedule each week.

2. The Look Ahead/Behind Schedule shall show planned, scheduled activities projected at least two (2) weeks ahead and show progress of activities, completed and started but not finished, at least one (1) week behind. The division separating ahead and behind Work activities shall be at the end of Production Work one (1) day prior to the Progress and Planning Review (PPR) meeting day for that week.

3. The Contractor shall submit the Look Ahead/Behind Schedule each week and at least twenty-four (24) hours before the PPR meetings.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Schedules shall not be measured for payment.

4.02 BASIS OF PAYMENT

A. The time-and-materials to produce project schedules shall be considered incidental to Section 01200 Project Management, Administration and Facilities Operation.

- END OF SECTION 01320 -

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CONDOR EARTH
PREVAILING WAGE SCHEDULE OF FEES
2019

STAFF MEMBER	RATE PER HOUR ($)
PRINCIPALS/PROJECT MANAGEMENT	
Senior Principal	235.00
Principal Tunneling Consultant	225.00
Principal Engineer/Geologist	210.00
Project Director	200.00
Construction Manager	195.00
Project/Senior Manager	175.00
TECHNICAL	
Senior Geotechnical Engineer	200.00
Certified Hydrogeologist/Engineering Geologist	190.00
Senior Geologist/Engineer/Environmental Specialist	180.00
Unmanned Aerial System (UAS) Specialist	150.00
Resident Construction Inspector	145.00
Associate Geologist/Engineer/Environmental Specialist	145.00
Staff Geologist/Engineer/Environmental Specialist	130.00
Field Environmental Specialist (Group 2)	125.00
Engineering Assistant	105.00
Draftsperson	95.00
MATERIALS TESTING	
Material Technician (Group 1*)	133.00
Material Technician (Group 2*)	128.00
Material Technician (Group 3*)	123.00
Material Technician (Group 4*)	118.00
MTSI Project/Laboratory Manager	110.00
Senior Materials Technician (non-PW)	90.00
SUPPORT STAFF	
Administrative Specialist	100.00
Project Coordinator	100.00
Technical Editor	75.00
Administrative Assistant	70.00
MISCELLANEOUS	
Overtime (all Saturday work is overtime)	(1.3 times rate)
Double-time (all Sundays and Holidays)	(1.7 times rate)
Shift Pay** (Night Shift)	(1.3 – 1.7 times rate)
Litigation Support	300.00 – 400.00

NON-LABOR CHARGES

Vehicle charge ..... $55 per day plus 50 cents per mile
Laboratory Charges per Condor Laboratory Fee Schedule
Billable Field Equipment per Condor Billable Field Equipment Schedule

OUT-OF-POCKET EXPENSES

Billed at cost plus 15% and includes such items as travel expenses, equipment rental, laboratory fees, subcontractors, postage and freight, subcontracted printing or reproduction fees, supplies, etc.

CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS GROUP CLASSIFICATIONS

Group 1	Group 2	Group 3	Group 4
ASNT Level II-III	AWS-CWI	Geotechnical Driller	ACI
DSA Masonry	ICC Certified Structural Inspector	Soils/Asphalt	Drillers Helper
DSA Shotcrete	NICET Level III	Earthwork Grading	ICC Fireproofing
Lead Inspector	Shear Wall/Floor System Inspector	Excavation and Backfill	Proofload Testing
NICET Level IV	Building/Construction Inspector	NICET Level II	Torque Testing
NDT Level Two			NDT Level One

*California Prevailing Wage increase effective October 1, 2019 for Group 1 and Group 2 (All Shifts) of $3.20; Group 3 and Group 4 of $3.00. Condor bill rates for these staff types will increase by these amounts on the effective date.

**Shift Pay: A night shift is a shift which commences after 2:00 p.m. or before 4:00 a.m. during any twenty-four (24) hour period commencing at 12:01 a.m.

SECTION 01330

SUBMITTALS

PART 1 - GENERAL

1.01 SCOPE

A. The Work specified in this Section summarizes requirements and procedures for submitting documents for "review-and-acceptance" by the Engineer.

1.02 RELATED WORK SPECIFICATIONS

01320 Progress and Schedules

1.03 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified or stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. American Society for Testing and Materials (ASTM)

2. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition

3. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

4. OID Standard Specifications and Drawings

1.04 DEFINITIONS

A. Shop Drawings – Fabrication or layout drawings required by individual Specification Section(s) for permanent incorporation in the Work and to be placed and/or in the as-built Contract Drawings.

B. Working Sketches – The Contractor's plan Drawings for temporary equipment or structures such as decking, temporary bulkheads, support of excavation, support of utilities, ground water control, and forming and false work; and for such other work as may be required for construction, but do not become an integral part of permanent Work. Working Sketches may require a Professional Engineer to sign and seal associated calculations and the sketch(es), as required by the Technical

Specification Sections of the Contract Documents for temporary work which will not become a part of permanent structures included in this Contract.

C. Work Plans – A narrative with or without Working Sketches that discusses the Contractor's procedures, methods and means, and products to execute and complete the Work.

D. Samples – Samples of materials or equipment submitted to Engineer and/or Owner for "review-and-acceptance," prior to incorporating the item in the Work as required by individual Specification Sections.

E. Certification – As identified in each section, certificates or certified test results submitted which demonstrates proof of compliance with Specifications for products, materials, equipment, systems, and qualifications of personnel, manufacturers, fabricators and installers.

F. Calculations – Where required by individual Specifications Sections, signed and sealed by a specific branch Professional Engineer registered in the State of California.

G. Test Procedures and Reports – Test procedures for "review-and-acceptance" by the Engineer before commencement of testing. Test reports shall be in a format for "review-and-record only" by the Engineer.

H. Documentation – Documents required to be submitted by the Specifications, including miscellaneous items such as delivery tickets, batch tickets and bills of materials for "record only."

I. Product Data – Manufacturer's literature, catalog cuts, and Material Safety Data Sheets submitted for "review-and-acceptance" by the Engineer.

J. Operations and Maintenance Manuals – Operations and maintenance manuals for equipment and systems, as required by the Specifications for the Engineer to "review-and-deposition" and for the Owner to keep.

K. Construction Schedules – Refer to Specification Section 01320 Progress and Schedules.

L. Substitution – Approved substitution is an item of the Work which include methods and means of construction, products, supplies materials, and equipment which are specified in the Contract Documents. The Contractor has requested a change in writing. The Engineer has "reviewed-and-accepted" the item substitution in writing.

M. Changes – Changes proposed by the Contractor to items listed in the Contract Documents and/or in the Contractor's submittal(s) after "review-and-acceptance"

will not be permitted unless those changes have been "submitted, reviewed-and-accepted" in writing by the Engineer.

N. Equals – When the Contract Documents state, "or equal," the Contractor may submit a product which is equal to the product(s) specified for "review-and-acceptance" by the Engineer.

1.05 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Prepare Shop Drawings, Working Sketches and record documents to acceptable industry standard of quality.

PART 2 - PRODUCTS

2.01 MASTER LIST OF SUBMITTALS

A. Identify submittals required and determine the date on which each submittal is required in conformance with "reviewed-and-accepted" schedules. Within ten (10) days after the effective date of Notice-to-Proceed, furnish a master list of submittals required by the Contract Documents, with corresponding submittal dates which match the dates listed in the detailed Contract Schedule to be "reviewed-and-accepted" by the Engineer. Allow no less than ten (10)-day cycles for review of each submittal by the Engineer. Note: the individual specification sections may indicate longer lead time for the "review-and-acceptance" by the Engineer before Work may begin. The Contractor shall not start Work on items until required submittals are "reviewed-and-accepted" by the Engineer unless otherwise "accepted" by the Engineer. The Contractor's key and critical submittals for composition and "review-and-accept" shall be placed on the Contractor's Baseline Schedule.

2.02 SUBMITTAL FORMAT AND INSTRUCTIONS

A. Shop Drawings and Working Sketches to show the following information:

1. Title block.

2. Drawing title, date and revision dates, scale and consecutive drawing numbers.

3. Contract title and number.

B. Submittals to show the following information when applicable:

1. Cover sheet with a title.

2. Names of Contractor, Subcontractors, Suppliers, Manufacturers and, when applicable, the seal and signature of an engineer, currently registered in the State of California, for the discipline involved.

3. Identification of product by either description, model number, style number, serial number or lot number, and finish numbers.

4. Subject identification by Contract Drawing and/or Specification reference.

5. Relation to adjacent structures or materials.

6. Field dimensions, clearly identified as such.

7. Applicable standards, such as ASTM or Federal Specification numbers.

8. Identification of deviations from the Contract Documents.

9. On cover page, Contractor's stamp, signed and dated, certifying:

   a. Review of submittals for compliance with the Contract Documents.

   b. Verification of field measurements.

   c. Verification of Subcontractor's work for accuracy.

   d. Statement that submittal does not or does deviate from Contract Documents.

C. Make submittals sufficiently in advance so "review-and-acceptance" may be made by the Engineer at least ten (10) calendar days before commencement (includes subsequent submittals) of Work and Related Work.

D. Allow five (5) calendar days of each resubmittal for "review-and-acceptance" by the Engineer.

E. Ship submittals prepaid, email or hand carry to the Engineer.

F. Accompany submittals and Drawings with a Contractor Transmittal Form containing the following information:

1. Contractor's name, address, telephone number for home office or field office.

2. Transmittal date sent by Contractor and "blank" for date received by the Engineer.

3. Submittal number based on individual Specification Section number.

4. Contract title and number.

5. Supplier's, Manufacturer's and/or Subcontractor's name, address and telephone number.

6. Subject identification.

7. Copy of Subcontractor's or Supplier's transmittal to Contractor.

G. Provide sufficient data with subsequent submittals initiated by the Contractor for consideration of corrective procedures for review. Make subsequent submittals in the same manner as initial submittals.

H. Incomplete or partial submittals will be returned to the Contractor without review.

I. Illegible facsimile copies of any portion of a submittal may not be accepted.

2.03 ELECTRONIC MAIL FORMAT

A. The use of email is encouraged to speed up turn-around of submittals and to clarify and answer questions posed by the Engineer and the Contractor. Hard paper copies of emails shall be attached to accepted and/or returned submittals.

2.04 QUANTITIES

A. One electronic submittal in PDF format of all shop drawings or material submittals and schedules required for the Work of the various trades, and the Engineer shall pass upon them with reasonable promptness, making desired corrections.

B. One electronic submittal in PDF format of manufacturers' standard schematic Working Sketch(es) and/or Shop Drawing(s).

C. One electronic submittal in PDF format of manufacturers' calculations, and of manufacturer's standard data.

D. One electronic submittal in PDF format of manufacturers' printed installation, erection, application and placing instructions.

E. Three (3) samples of each manufactured item when sample submittal is specified in the various Specification Sections, unless otherwise specified. The required quantities may be reduced upon written approval of the Engineer.

F. One electronic submittal in PDF format of inspection reports and test reports.

G. One electronic submittal in PDF format of engineer's calculations, with seal and signature of the Professional Engineer currently registered in the State of California for the discipline involved.

H. One electronic submittal in PDF format of operations and maintenance manuals.

I. One (1) Contractor's Transmittal Form.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review submittals, stamp and sign as reviewed-and-approved, before submission to the Engineer. Failure to comply with this requirement may result in immediate return of the submittal without review.

3.02 ENGINEER'S AND OWNER'S REVIEW

A. Submittals will be reviewed for conformance to requirements of the Contract Documents. Review of a separate item will not constitute review of an assembly in which the item functions. Review will not relieve Contractor from Contractor's responsibility for accuracy of submittals, conformity of submittals to requirements indicated, compatibility of described product with contiguous products and the rest of the system, or for prosecution and completion of the Contract in accordance with the Contract Documents.

B. The Engineer will review submittals for general conformance with the Contract Documents and mark, sign and date the "review-and-disposition".

C. Action communication shall have the following meanings:

1. REVIEWED AND ACCEPTED is an acceptance, and means every illustration and description appears to conform to the respective requirements of the Contract Documents; fabrication, assembly, manufacture, installation, application and erection of the illustrated and described product may proceed. Another submittal does not need to be resubmitted.

2. REVIEWED AND ACCEPTED AS NOTED – NO RESUBMITTAL is an acceptance, and means every illustration and description appears to conform to the respective requirements of the Contract Documents upon incorporation of the reviewer's corrections:

a. If the Contractor accepts the corrections then fabrication, assembly, manufacture, installation, application and erection of the illustrated

and described product may proceed. Submittals so marked need not be resubmitted. Show the reviewer's corrections on the As-Built Shop Drawings or Working Sketches.

b. If the Contractor challenges the validity of the reviewer's exception, no Work on this issue will be allowed until there is a written resolution to the challenge. Upon resolution, a resubmittal may be required. Show the reviewer's corrections on As-Built Shop Drawings or Working Sketches.

3. DISAPPROVED MAKE CORRECTIONS – RESUBMITTAL REQUIRED is not acceptable as submitted and means corrections that may be noted in the Comments section of Engineer's response to the submittal need to be addressed and resubmittal is required.

4. DISAPPROVED AS NOTED DEVELOP REPLACEMENT – RESUBMITTAL REQUIRED is not acceptable as submitted replacement of submitted information and resubmittal is required.

5. REVIEWED-AND-PARTIALLY ACCEPTED – REVIEWER'S REMARKS NOTED – RESUBMITTAL REQUIRED is a partial acceptance. The Contractor must revise those portions of the submittal, which the reviewer deemed incorrect – that does not conform to the respective requirements of the Contract Documents.

6. PARTIALLY REVIEWED – ADDITIONAL INFORMATION REQUIRED AS NOTED – SUBMIT INFORMATION is not acceptable at this stage.

7. INCOMPLETE. COMPLETE AND RESUBMIT – RESUBMITTAL REQUIRED is submittal is incomplete for approval consideration and complete information and resubmittal is required.

8. INCOMPLETE. SUBMIT MISSING PORTIONS – RESUBMITTAL REQUIRED is submittal is incomplete with portions of the submittal missing for approval consideration and complete information and resubmittal is required.

9. RECORD ONLY means the submittal was reviewed, but not for acceptance, and was received for information only.

10. REVIEWED-and-REJECTED is a rejection, and means the submittal is deficient to the degree the reviewer cannot correct the submittal with a reasonable degree of effort, has not made a thorough review of the submittal, and the submittal is to be deleted. An entirely new submittal is warranted.

D. One (1) marked up PDF of Shop Drawings and Working Sketches, one (1) copy of product data, and one (1) sample will be returned to the Contractor.

E. The Engineer shall review-and-return initial submittals with an "action" within ten (10) calendar days after submittals have been received. Resubmittals will be returned within five (5) calendar days.

3.03 CONTRACTOR'S RESPONSIBILITIES

A. Coordinate each submittal with requirements of the Work – Place particular emphasis upon ensuring each submittal of one trade is compatible with other submittals of that trade and submittals of other trades.

B. Format submittals as outlined in Article 2.02 of this Specification Section, or other format accepted by the Engineer.

C. "Review and Acceptance" by the Engineer of submitted drawings and submittals, and associated calculations does not relieve the Contractor from responsibility for errors or omissions in their drawings, sketches and submittals, and their associated calculations, or from deviations from the Contract Documents, unless such deviations were specifically called to the attention of the Engineer, in the writing, submitted with the drawings, sketches and submittals. The Contractor is responsible for correctness, accuracy and completeness of their drawings, sketches and submittals, for shop fits and field connections, dimensions and quantities and for results obtained by use of such drawings and submittals.

D. Distribution of Submittals After Review – Distribute prints of "reviewed and accepted" submittals, bearing the Engineer's signature, to concerned subcontractors, suppliers and fabricators, and to concerned members of Contractor's workforce.

E. Contractor's liability to the Engineer and/or Owner, in case of deviations in the submittals from requirements of the Contract Documents, is not relieved by the Engineer's "review and acceptance" of submittals containing deviations, unless the Engineer and Owner expressly approves deviations by issuing a Change Notice and or Order.

F. The Contractor shall not start Work for which submittals are required, until submittals bearing the Engineer's signature indicating "review and complete or partial acceptance" have been received.

G. Before making submittals, ensure products are available in quantities required by the Contract.

H. Verify field measurements, catalog numbers and similar data.

I. Resubmittals – Make any corrections required by the Engineer and resubmit for "review and acceptance." Direct specific attention in writing, on resubmitted Working Sketch or Shop Drawing to revisions other than the corrections by the Engineer on the previous submittal.

3.04 SHOP DRAWING

A. Prepare Shop Drawings to a scale large enough to easily depict and annotate each of various items.

B. Submit Shop Drawings for "review and acceptance."

C. When the Work is completed, submit a final, corrected, reproducible of each Shop Drawing. Show the Work as actually installed, placed, erected and applied on each Shop Drawing. Mark each Shop Drawing "AS-BUILT."

3.05 PRODUCT DATA

A. Modify manufacturers' standard schematic Working Sketches to delete information which is not applicable to the Contract. Supplement standard information with additional information applicable to this Contract.

B. Modify manufacturers' standard catalog cuts, brochures, diagrams, schedules, performance charts, illustrations, calculations, and other descriptive data to delete information which is not applicable to the Contract. Indicate dimensions, clearances, performance characteristics, capacities, wiring and piping diagrams, controls, and other information as required.

C. Modify manufacturer's printed installation, erection, application and placing instructions to delete information which is not applicable to the Contract.

D. Failure to modify the above items contained in Articles A, B and C may result in rejection of the submittal.

E. Include appropriate information as required herein and by the Specification sections.

F. Submit Certificates of Compliance only for those products called out in these Specifications not later than thirty (30) days before products are installed. Have copy of certificate accompany the product for which the certificate is prepared. Include on the certificate:

1. Affirmation that the product complies with respective requirements indicated.

2. Submittal date, Contractor's name and address, Contract Title and Number, product represented and its location in the Contract, producer's name, product trade name and catalog number, place of product origin, test date, testing organization's name and address, quantity of the product furnished, and related Contract Drawing and Specification Section numbers.

3. Signature of an officer or other authorized representative of the manufacturer or producer.

3.06 SAMPLES

A. Submit samples of sizes and quantities to clearly illustrate full color range and functional characteristics of products and materials, including attachment devices. Indicate country of origin.

B. Erect field samples and mock-ups at the Worksite as specified in Specification Sections and as may be necessitated by the Contractor submitting value engineering proposals or substitutions, at locations "reviewed and accepted" by the Engineer.

C. Include appropriate information as required and indicate the Specification Section. Have product data accompany samples.

D. The Engineer reserves the right to require submission of samples or site mock-ups of any material whether or not particularly mentioned in Specification Sections.

3.07 WORKING SKETCHES

A. Identify Working Sketches by a submittal number based on Specification Section number and provide reference to Contract Drawing numbers.

B. If required by Contract Specifications or Drawings, have Working Sketches prepared, stamped and signed by an engineer of the involved discipline, currently registered as a Professional Engineer in the State of California.

C. Verify field measurements and, where applicable, coordinate with pertinent Contract Documents from other Contracts.

D. Do not begin Work that require Working Sketches and associated calculations until Working Sketches and calculations have been "reviewed and accepted" by the Engineer; the Engineer's exceptions, if any, have been addressed; and submittals have been returned to the Contractor with the required "review and acceptance" signature.

E. Distribute copies of Working Sketches and calculations after "review and acceptance" by the Engineer.

3.08 CALCULATIONS

A. Have calculations, required by Technical Specification Sections, stamped and signed by a Professional Engineer of the involved discipline, registered in the State of California. When calculations accompany drawings and sketches in a submittal, the body of the calculations must contain cross references to the individual drawing to which the page of the calculations pertain.

3.09 SUBSTITUTIONS

A. Substitutions indicated, or implied, on Shop Drawings and Working Sketches or in product data submittals will not be considered unless a request for substitution has been submitted in conformance with this Specification Section.

B. The list of materials, products and supplies, and the list of methods of construction for substitution of those indicated will be considered only if those requests have been submitted. “Review and acceptance” of substitute items or methods will be only for characteristics and the use named in the “acceptance.” This “acceptance” shall not be interpreted as a modification of Contract Specifications or Contract Drawings, nor to establish “acceptance” of products and methods for other portions of the Owner’s Project. “Acceptance” of a substitution does not relieve the Contractor of responsibility of fulfilling requirements of the Contract Documents. The Engineer will judge quality and suitability of substitute items or methods and its decision is final. If use of substitute products or methods involves redesign of other parts of the Work, perform redesign and submit for “review and acceptance” by the Engineer. Bear both the cost of redesigning by the Contractor and its Engineer and the cost of evaluating the substitutions by the Engineer.

C. Include the following information with documentation for materials, products and supplies:

1. Complete data substantiating compliance of proposed substitution with requirements of the Contract Documents.

2. Identification of materials, products or supplies, including manufacturer’s name, address, catalog name and number.

3. Installation characteristics, installation Shop Drawings and Working Sketches and manufacturer’s literature, including product description, performance and test data, and reference standards if pertinent.

4. Name and address of projects on which the product was used under similar circumstances, and date of installation.

5. Itemized comparison of proposed substitution with the item specified. Include in a tabular form differences in materials, size, finish, estimated life,

estimated maintenance, availability of spare parts and repair services, energy consumption, performance capacity, salvage ability and manufacturer's warranties.

6. Effect of change on the "accepted" Baseline Construction Schedule. State time savings, time delays or "no change in schedule."

7. Accurate cost data for the proposed substitution in comparison with the product specified.

8. Equitable adjustment (cost or credit) which the Contractor proposes to offer the Owner.

9. When applicable or requested by the Engineer, provide off-the-shelf samples of the specified item and the proposed substitution.

D. Certify the following when making a request for substitution:

1. The Contractor has personally investigated the proposed item and determined it to be equivalent, or superior, to that indicated; and update information as new or different data becomes known to Contractor.

2. Furnish the same, like or reasonable warranty for substitution as for the product specified.

3. Coordinate installation of the "reviewed and accepted" substitution into the Work, and make those changes, subject to "review and acceptance" by the Engineer, required for the Work to be complete in all respects.

4. Waive claims for additional costs related to the substitution.

5. Provide complete cost data, including related costs, except the costs of "review and acceptance" and possible redesign by the Engineer of the Contractor's design.

E. Substitutions indicated, or implied, on Shop Drawings and Working Sketches or product data submittal will not be considered unless a request for substitution has been submitted in conformance with this Specification Section.

F. Include the following information in documentation for construction methods:

1. Detailed description of proposed methods.

2. Working Sketches illustrating the methods.

3. Itemized comparison of proposed substitute methods with methods shown, with product implied or specified. Include differences in estimated time for execution, labor, materials, revisions to construction process, and cost.

3.10 EQUALS

A. If the Contract Documents state products and have "or equal" or "or similar" the Contractor has the option to use the product stated in the Contract Documents and not make a submittal on the product or to propose an equal or similar product by submitting the products description data and specifications. The Engineer shall "review-and-disposition" on the product.

3.11 WORK PLANS

A. When specified in the Contract Documents, the Contractor shall submit narrative(s) with Working Sketch(es) on the methods-and-means, products, materials and equipment used and execution procedures to build and complete the work. The Engineer shall "review" work plans for the Contract Documents conformance. The Engineer shall disposition work plans according to Contract Documents conformance only. The Engineer may provide recommendations and suggestions on the Contractor's method-and-means which are not specified in the Contract Documents. The Contractor is not obligated to follow the Engineer's recommendations and/or suggestions.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. The Work of this Section will not be measured separately for payment unless the contractor submits a "schedule-of-values" that is "reviewed and accepted" by the Engineer for measuring progress on submittals.

4.02 BASIS OF PAYMENT

A. Payment will be made under Specification Section 01200 Project Management, Administration and Facilities Operation. A lump sum contract value may be proportioned if a "schedule-of-values" is proposed by the Contractor and "reviewed and accepted" by the Engineer.

- END OF SECTION 01330 -

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 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. Recognition of these temporary facilities and activities is provided only to allow the Contractor to identify necessary additional costs in planning the Work. The following items are of concern to the Owner and are representative of the temporary facilities, utilities and activities which are solely the Contractor's responsibility.

1.02 TEMPORARY OFFICES

A. Project Offices

1. The Contractor shall maintain on the Project Site a suitable Contractor's office at or near the site of the Work, in which shall be kept project copies of the Contract Documents, project progress records, project schedule, shop drawings, and other relevant documents which shall be accessible to the Owner and Engineer during normal working hours.

2. The office shall be the headquarters of the Contractor's representative authorized to receive drawings, instructions and other communications or articles. Any communication given or delivered to the said representative at the Contractor's office in the Contractor's absence shall be deemed to have been delivered to the Contractor.

B. Owner/Engineer Project Office – Refer to Specification Section 02050 Mobilization and Demobilization.

1.03 TEMPORARY UTILITIES

A. Electrical Service

1. The Contractor shall arrange with the local utility to provide adequate temporary electrical service to provide all power for heating, lighting, operations of Contractor's plant or equipment and for any other use by Contractor. The Contractor shall then provide adequate jobsite distribution

facilities conforming to applicable codes and safety regulations. Contractor shall provide, at Contractor's own cost, all electric power required for construction, testing, general and security lighting, and all other purposes whether supplied through temporary or permanent facilities.

B. Water

1. The Contractor shall pay for and shall construct all facilities necessary to furnish water for Contractor's use during construction.

   a. The Contractor may make arrangements with the Owner to use non-potable water where appropriate during construction.

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.

C. Temporary Lighting

1. The Contractor shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by Cal/OSHA standards. As permanent lighting facilities are completed they may be used in lieu of temporary facilities, provided however, that bulbs, lamps, or tubes of such facilities used by the Contractor shall be replaced prior to final acceptance of the Work.

D. Heating and Ventilation

1. The Contractor shall provide means for heating and ventilating all work areas as may be required to protect the Work from damage by freezing, high temperatures, weather, or to provide a safe environment for workers. Unvented direct fire heaters shall not be used in areas where freshly placed concrete will be exposed to the combustion gases until at least two (2) hours after the concrete has attained its initial set.

E. Sanitary Facilities

1. The Contractor shall provide suitable and adequate sanitary conveniences for the use by Contractor's 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, if the Work is federally funded 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.

1.04 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 an 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.

1.05 TEMPORARY CONSTRUCTION FACILITIES

A. Construction hoists, elevators, scaffolds, stages, 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 licensed in California 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 (1) hour before sunset each day to one (1) 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 the 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 the Contractor's property and leave the site in such condition as specified, as directed by the Engineer, and/or as indicated on the Plans.

1.06 PROTECTION OF EXISTING ITEMS

A. The Contractor shall protect all existing 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 structures, roadways and walkways, work, materials, or equipment because of Contractor's operations and shall repair or replace any damaged structures, roadways and walkways, work, materials, or equipment to the satisfaction of, and at no additional cost to, the Owner.

1.07 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. Except as otherwise provided, the Contractor shall enclose the site of the Work with a fence as needed that is adequate to protect the Work and temporary facilities against acts of theft, violence or vandalism.

C. In locations where the probability of such acts is reasonably remote, this fencing requirement may be limited to the temporary offices and storage areas. The Contractor shall bear the responsibility for protection of plant and material on the site of the Work.

D. 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.

E. In the event all or part of the site is to be permanently fenced, this permanent fence or a portion thereof may be built to serve for protection of the Work site, provided however that any portions damaged or defaced shall be replaced prior to final acceptance.

F. Temporary openings in existing fences shall be protected to prevent intrusion by unauthorized persons. During night hours, weekends, holidays, and other times when no Work is performed at the site, the Contractor shall provide temporary closures or guard service to protect such openings. Temporary openings shall be fenced when no longer necessary.

1.08 ACCESS ROADS AND STAGING AREA

A. The Contractor shall maintain adequate access roads on the Project Site to provide for delivery of material and for access for construction. For a road to be considered adequately maintained, it shall be reasonably dust free.

B. Adequately maintained access roads shall be maintained to all storage areas and other areas to which frequent access is required. Similar roads shall be maintained to all existing facilities on the site of the Work to provide access for maintenance and operation. Where such temporary roads cross buried utilities that might be injured by the loads likely to be imposed, such utilities shall be adequately protected by steel plates or work planking, or bridges shall be provided so that no loads shall discharge on such buried utilities.

C. The Contractor shall limit the location of their storage of equipment and materials outside of the Project Site. The Contractor shall make its own arrangements for space that may be required and bear all associated costs.

D. The Contractor shall provide any additional temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

E. 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 in 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.

1.09 TRAFFIC CONTROL

A. Contractor shall conduct Contractor work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways or 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.

1.10 SPECIAL CONTROLS

The Contractor shall take all reasonable means to minimize inconvenience and injury to the public by dust, noise, diversion of stormwater, or other agencies under their control.

A. Dust Control

1. The Contractor shall take whatever steps, procedures, or means as are required to limit dust generated by Contractor operations during the Work. 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 that the Contractor or any of Contractor's 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.

B. Noise Abatement

1. In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation. In residential areas, special measures shall be taken to suppress noise generated by repair and service activities during the night hours.

C. Drainage Control

1. Care shall be taken to disturb the pre-existing drainage pattern as little as possible. Particular care shall be taken not to direct drainage water onto private property or into streets or drainage ways inadequate for the increased flow. Drainage means shall be provided to protect the Work.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION – (NOT USED)

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD FOR MEASUREMENT

A. No measurements for Temporary Facilities shall be made.

4.02 BASIS OF PAYMENT

A. All work under this Section is incidental and is not subject for payment or is paid for under another Specification Section.

- END OF SECTION 01500 -

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SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 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.

1.02 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 Work, all unused and rejected materials, surplus earth, concrete, shotcrete, and debris, excepting select material that may be required for refilling or grading.

1.03 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 surplus material, and equipment belonging to him or used under Contractor's direction during construction, any and all temporary facilities remaining at the completion of the project.

1.04 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.

1.05 PROJECT RECORD DOCUMENTS

A. The Contractor shall maintain at the site, available to the Owner and Engineer, one (1) 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.

1.06 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

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION – (NOT USED)

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD FOR MEASUREMENT

A. No measurements for Contract Closeout shall be made.

4.02 BASIS OF PAYMENT

A. All work under this Section is incidental and is not subject for payment or is paid for under another Specification Section.

- END OF SECTION 01700 -

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SECTION 02050

MOBILIZATION AND DEMOBILIZATION

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements for moving in personnel and equipment, set up Temporary Facilities, i.e., offices, shop buildings, storage buildings, Staging and Laydown Areas, and other temporary structures. It also specifies requirements for:

1. Temporary utilities, i.e., electric power, construction and potable waters, sanitary services, trash and garbage services, high-speed internet service, and security services.

2. Photograph and Video documentation of pre-construction Project Site conditions.

3. Preparations of the Project Site prior to handling or movement of any equipment, materials or hazardous materials and wastes.

4. Demobilization of the Temporary Facilities and temporary services.

B. Work Inclusions – The Work shall include all labor, materials, equipment and incidentals to perform the Work specified in this Specification Section.

1. If used, Contractor shall provide a $7,500 allowance for five (5) months of rental at the Staging Area under mobilization.

2. The Staging Area or Laydown Area shall host the Construction Facilities including the Engineer's and Contractor's Office(s).

3. Where installed, fences shall be removed upon Final Completion.

4. Upon Final Completion the entire area(s) shall also be restored in-kind to its prior pre-construction condition.

5. The area(s) shall be in compliance with appropriate environmental mitigation measures as is required in order to receive payment under this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Project Site is accessed from California State Highway 108/120 as shown on the Contract Drawings. The Staging Area is accessed from Sonora Road.

B. Project Site access shall be negotiated by the Owner, where necessary.

C. The location of Temporary Facilities shall be determined by the Contractor, as approved by the Owner. Location options are shown on the Contract Drawings.

D. Power services are available in proximity to the Staging Area.

1.03 DEFINITIONS

A. Completion – Date at which all Work has been completed, including demobilization and cleanup, as approved by Owner.

B. Demobilization – Removal of all personnel, equipment, materials, temporary facilities, and wastes.

C. Double Lock – Two separate padlocks locked in series with each other, allowing two separate persons with two different keys to enter the same restricted area.

D. Laydown Area – A portion of the site at locations shown on the project plans to be prepared as indicated in this Specification, and where storage of construction equipment and materials is permitted.

E. Mobilization – Move in of all personnel, equipment, materials, and temporary facilities.

F. Project Boundary Limits – Within fifty (50) feet of the canal centerline (one hundred (100) feet total width), unless noted or otherwise shown on the Contract Drawings, which are the Owner's right-of-way limits.

G. Project Site – Areas occupied by the Contractor, equipment, and materials during mobilization, construction, and demobilization, including the improvement construction areas within the Project Boundary Limits shown in the Contract Documents, Staging Areas, Laydown Areas, and access ways.

H. Site Preparation – Site work necessary to facilitate Mobilization.

I. Staging Area – A portion of the site shown on the Contact Drawings to be prepared as indicated in this Specification Section, and where placement of Temporary Facilities is permitted.

J. Substantial Completion – Date at which the Work defined in the Contract Documents and along the Project Boundary Limits must be completed.

K. Temporary Facilities – Any container, trailer, building, utilities, fences, or other facility placed by the Contractor to facilitate this Project, that must be removed by the Contractor after completion of construction, unless otherwise noted in the Contract Documents.

L. Test-Pitting and Pot-Holing – Techniques used to investigate soil conditions and to locate exact positions of utilities, low ground structures and alike at shallow depths by use of either light machinery and/or hand digging. Dig to an adequate depth to allow a soils engineer or geologist to enter the pit to make observations and to allow the Contractor to locate utilities and other fragile structures.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports, and their latest published edition.

1. California Building Code (CBC), latest edition, California Code of Regulations, Title 24, Part 2, Volumes 1 and 2.

2. OID Standard Specifications and Drawings

3. Standard Specifications for Public Works Construction (Green book), latest edition.

4. California Code of Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 – 1939).

5. U.S. Federal Occupational Safety and Health (Fed-OSHA) Regulations (Standard – 29 CFR), Safety and Health Regulations for Construction.

6. Best Management Practices for Construction, California Stormwater Quality Association, January 1, 2003, with latest edition updates.

RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
02210	Site Preservation and Materials Disposal
02280	Erosion, Sediment and Pollution Control
02290	Stormwater Management
02320	Earthwork

1.05 DESIGN PARAMETERS – (NOT USED)

1.06 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Refer to Contract Specification 01250 Quality Control and Assurance.

1.07 SAFETY AND SECURITY REQUIREMENTS

A. Work shall be completed in compliance with applicable federal and state safety and health regulations (Fed/OSHA and Cal/OSHA).

B. California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 – 1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 – 6184) are the most applicable regulations for this Section.

C. The Contractor is responsible for safety and health of personnel including Contractor's employees, Subcontractor employees, and Supplier employees while on the Project, and shall prepare a written Project-specific Safety Plan.

D. The Engineer's and Owner's employees while on the Project will work under and abide by the Contractor's safety and health program.

E. The Contractor is responsible for security for Contractor facilities, equipment, incidentals, and the Engineer's and Owner's facilities within the Project area.

F. All facilities and utilities materials shall be installed according to manufacturers' instructions.

G. A licensed Electrician in the State of California shall perform electrical work. A licensed Plumber in the State of California shall perform plumbing work.

1.08 ENVIRONMENTAL REQUIREMENTS

A. During the life of the Work, environmental protection shall be provided and maintained to control pollution that may develop during the normal construction process.

B. The natural resources within the Project Boundary Limits, Staging Areas, Laydown Areas, access roads and paths, and any other areas occupied by the Contractor, equipment, and/or materials and outside the limits of permanent Work shall be preserved or restored to an equivalent or improved condition that is equal to the pre-construction condition or an improved condition upon completion of the Project Work. Construction activities shall be confined to within the limits of the Work indicated or specified or by written permission from the Engineer and/or Owner.

C. Fish, birds, and wildlife shall not be disturbed or harassed. Water flows and native habitat adjacent to the Project that is critical to the survival of fish and wildlife shall not be altered or otherwise significantly disturbed.

D. Work areas shall be managed and reclaimed to prevent sediment from entering the nearby surface drainages and water courses.

E. Traces of temporary construction facilities such as access ways, work areas, structures, stockpiles of excess or waste materials, and other signs of construction shall be removed and disposed of properly. Inorganic spoil from the earth excavations, and minor shotcrete and concrete spoils may be deposited at the clean spoil area(s) as indicated on the Contract Drawings. Impacted land surface areas shall be reclaimed using appropriate re-vegetation and watering techniques. No grading work is to be performed to re-contour existing lands.

F. Oily or other hazardous substances shall be prevented from entering the ground, canals, tunnels, drainage areas, or local bodies of water. Temporary fuel, oil or petroleum storage tanks shall be surrounded with a suitable containment of sufficient size and strength to contain the contents of the tanks in the event of leakage or spillage, pursuant to all applicable law. The Engineer shall approve such containers.

G. The fueling and lubricating of equipment and motor vehicles shall be conducted in a manner to protect against spills and evaporation. Lubricants to be discarded and excess oil shall be disposed of properly off-site.

H. Solid waste shall be picked up, controlled, and disposed of off-site. Food shall not be prepared, cooked, or disposed of in the Project Boundary Limits, Laydown Areas, or access ways. Contamination of the site or other areas shall be prevented when handling and disposing of wastes.

I. Chemical toilets or comparably effective units shall be provided for the workers.

J. Upon completion of Work, the Project Site shall be left clean and acceptable to both the Engineer and the Owner. The access ways to the Project Site shall be restored and left clean in accordance with state and county requirements.

1.09 CONTRACTOR SUBMITTALS

A. Pre-construction

1. Shortly before “Notice-to-Proceed,” the Contractor shall submit a Work Plan with Working Sketches showing the proposed layout of the Contractor's Staging Area(s), drainage and dewatering facilities, stockpile areas, disposal areas, haul roads, temporary contaminated spoil area(s), temporary offices, storage areas, and all other temporary facilities. Prior to

"Notice-to-Proceed," the Engineer will review a submitted Work Plan and Working Sketches and provide the Contractor a disposition at or shortly after "Notice-to-Proceed."

2. If the Contractor proceeds without an accepted Work Plan, he does so at Contractor's own risk and is subject to removal and/or relocation of the facilities at Contractor's own cost.

3. Submit the Contractor's Safety Plan to the Engineer for "review-and-acceptance."

4. Mobilization "Schedule-of-Values" – as per Article 4.01.C of this Specification Section and as required by Division 00 Bidding Requirements and Division 01 General Requirements.

5. Pre-construction photograph and video surveys according to Article 3.02.A and 3.02.B of this Specification Section.

    a. Submit to the Engineer for "review-and-acceptance."

1.10 SPECIAL CONDITIONS AND REQUIREMENTS

A. No person employed by the Contractor and its Subcontractors and its Suppliers shall set up and/or provide living quarters within the Owner's usage and Project Boundary Limits, without written permission from the Owner via the Engineer.

B. Existing Fences and Gates – All existing fences and gates within the project usage and Project Boundary Limits shall be repaired and placed back into service in a condition equal to or better than that prior to "Notice-to-Proceed." The Engineer shall determine the extent of repairs. Fences and gates outside the project usage and Project Boundary Limits damaged by the Contractor and its Subcontractor and its Supplier shall be repaired immediately by the Contractor and its Subcontractor and its Supplier at its expense.

C. Winter Canal Outage Period – Irrigation water will not be flowing in the Oakdale Irrigation District's South Main Canal between November 1, 2019 and February 28, 2020. Start and end dates of the Winter Canal Outage Period shall be determined by the Owner.

D. No spoils, unused materials, or Contractor tools or equipment shall remain in the canal as of the Substantial Completion Date.

E. Stormwater Management – Refer to Division 00, Section 00100 Project Description of these Contract Documents.

PART 2 - PRODUCTS

2.01 MATERIALS – (NOT USED)

2.02 CONSTRUCTION FACILITIES AND EQUIPMENT

A. Engineer's Office – The Contractor shall furnish an office facility for exclusive use by the Engineer and the Owner with a minimum of two hundred fifty (250) square feet of functional space. The facility shall be divided into one (1) office space, one (1) common space.

B. The Engineer's Office shall have an access door with appropriate stairs. There shall be at least one (1) window in the office space. A restroom shall be provided in the proximity of the Engineer's Office. The office shall have appropriate and adequate fluorescent light fixtures in all the spaces. The facility shall have adequate number of electrical outlets and light switches. The HVAC system shall be of adequate size and in good condition to maintain the inside temperature in all spaces below 65°F in the cooling mode and above 75°F in the heating mode.

C. The Engineer's Office shall have access to one (1) photocopy/printer machine with stream feed and 11 by 17-inch paper handling capabilities.

D. The Engineer's Office doors and windows shall be protected from unauthorized entry, i.e., dead bolt locks and bars on the entry doors. The office shall be placed inside a gated/fenced area.

E. The Contractor shall furnish, maintain, and refuel a generator to provide adequate electrical power to the Engineer's Office, if needed.

F. The Engineer's Office shall have adequate electrical power, and wash and toilet water. The office shall have adequate and convenient outside trash and garbage disposal containers.

G. The Engineer's Office shall be equipped with the following furnishings:

1 ea – Office desk 32 by 60-inches or greater
2 ea – Office tables 32 by 72-inches or greater
1 ea – Office book case 36-inches wide by 72-inches high or greater
2 ea – Office four-drawer filing cabinets
1 ea – Desk swivel, high back, rolling chairs
1 ea – Refrigerator
1 ea – Microwave
8 ea – Rigid stacking chairs
1 ea – Water cooler/heater dispenser
2 ea – Full 5-gallon potable water containers, compatible with water cooler/heater dispenser, to remain on site at all times

H. The Engineer's Office shall be swept cleaned and restocked at least once a week. The office shall be adequately stocked with paper towels, toilet paper, bottled drinking water, paper drinking cups, and cleaning supplies and tools for the life of the Project.

I. The Engineer's Office and furnishings may be used, but in good working and usable condition, and "acceptable" to the Engineer.

J. The following services shall be furnished and established to the Engineer's Office at no additional cost to the Owner: electrical power, high-speed internet service, water, trash pickup, human waste disposal, bottled drinking water, supplies and tools stated above, and janitorial services.

K. The Engineer's Office shall be placed within short walking distance (less than one hundred (100) feet) of the Contractor's Project Office. Both Facilities may be on or off the Project Site. If off-site, the Contractor shall make arrangements and agreements for the location at no additional cost to the Owner. For the Engineer's use only, the Contractor shall operate and maintain the Engineer's Office for two (2) weeks after the date of Substantial Completion.

2.03 TEMPORARY FACILITIES

A. The Contractor shall provide temporary facilities and equipment required for performing the Work, including facilities specified for the Engineer's/Owner's use.

PART 3 - EXECUTION

3.01 GENERAL

A. No driving to and from the intersection of Sonora Road and Highway 108/120 is permitted because of the danger associated with limited driver line-of site to highway traffic and to traffic entering the highway. Drivers shall use Kennedy Road to drive to and from the Staging and Canal Access Road areas, as shown on the Project Drawings

3.02 SITE MOBILIZATION

A. Provide at least one (1) week notice to the Engineer and Owner prior to mobilization. Coordinate mobilization and demobilization activities with the Engineer.

3.03 PRE-CONSTRUCTION PHOTOGRAPH AND VIDEO SURVEY

A. Perform a photograph and video survey of the Project site using electronic equipment of areas that will be occupied by the Contractor, equipment, materials, construction, access and temporary facilities. Before any work is performed on the Project, submit copies of both videos and photographs in electronic format, of the preconstruction/existing conditions for "review-and-acceptance" by the Engineer. The photographs shall be in .JPG format and the video in .AVI or .MPG format. Areas to be documented by videos and photographs shall include, but shall not be limited to:

1. Staging and laydown areas.

2. District access roads, fences and gates.

3. Canal access ramps.

4. Canal liners, embankment and tunnel area within the Project Site.

3.04 STAGING AND LAYDOWN LAYOUT

A. Set up Staging and Laydown Areas in a neat and orderly manner. Accomplish required work in accordance with applicable portions of the Contract Documents and the Contractor's "reviewed-and-accepted" Staging and Laydown Work Plan and Working Sketches. See Staging and Laydown Areas identified on the Contract Drawings.

B. Place fences around the entire perimeter(s) of the area(s).

3.05 ACCESS SECURITY FENCES

A. Entrance gates to the sites already exist. Protect gates and fences during the Work and "double-lock" existing gates as directed by the Engineer and/or Owner and defined in Subsection 1.03 Definitions. Any damage to existing and new project fences caused by the Contractor and its Subcontractors and its Suppliers shall be repaired immediately by the Contractor and its Subcontractors and its Suppliers at its expense.

3.06 PROTECTION OF FACILITIES

A. Prevent any damage to existing facilities including but not limited to vandalism or theft. The Owner may deduct from the payments to the Contractor the cost for the repair and/or replacement of any damaged facility.

3.07 DEMOBILIZATION

A. Remove all temporary facilities, fences, and utilities from the site upon satisfactory completion of the Work. Prior to final acceptance of the Work by both the Engineer and the Owner, restore all roads to their original condition, remove all rubbish and construction debris, and leave the entire Project Site in a clean and orderly condition. Access ways to the Project Site shall be restored and cleaned in accordance with state and county requirements.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD FOR MEASUREMENT

A. Mobilization shall be measured as a percentage complete and accepted by the Engineer.

B. Demobilization shall be measured as a percentage complete and accepted by the Engineer.

C. The Engineer and/or Owner will "review-and-accept" a "Schedule-of-Values" submittal that has a reasonable amount and distribution of activities and monetary values for mobilization.

4.02 BASIS OF PAYMENT

A. Mobilization and demobilization shall be paid as a percentage complete of the Contract lump sum (LS) price. The mobilization bid amount shall not exceed fifteen percent (15%) of the total bid amount. The demobilization bid amount shall be equal to or greater than twenty-five percent (25%) of the mobilization bid amount.

B. Mobilization shall be paid following the issuance of the "Notice-to-Proceed" from the Engineer.

C. Demobilization shall be paid following final acceptance by the Engineer and Owner of items listed in Article 3.05.A. of this Specification Section.

- END OF SECTION 02050 -

SECTION 02210

SITE PRESERVATION AND MATERIALS DISPOSAL

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements for site preservation and materials disposal. It includes, but is not necessarily limited to:

1. Tree protection and removal.

2. Preservation and maintenance of District access roads.

3. Preservation of existing fences.

4. Location and protection of existing utilities.

5. Disposal of inorganic debris and organic waste to an off-site location.

6. Disposal of excavated spoil – soil, rock and cementitious waste to a designated stockpile location.

B. Work Inclusions – The Work shall include all labor, materials, equipment and incidentals to perform the Work outlined and/or specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Work includes, but is not limited to removal of trees, loose rocks, excavated ground, existing rock, loose concrete and vegetation in canal, demolished shotcrete/concrete, and construction waste.

B. Existing concrete liners and invert materials that are removed as a part of this Work and concrete wash-out shall be considered Concrete Waste and shall be disposed by the Contractor off-site.

C. Soils and cementitious spoils incidental to new installations, including but not limited to canal clean up and shotcrete rebound, shall be considered Spoils and may be disposed by the Contractor offsite.

D. The Contractor shall determine the sizes and locations of the nearest landfills and concrete waste recycling facilities.

1.03 DEFINITIONS

A. Test-Pitting and Pot-Holing – Techniques used to investigate subsurface conditions and to locate exact positions of utilities, low ground structures and alike at shallow depths by use of either light machinery and/or hand digging. Test-Pit and Pot-Hole should be dug to an adequate depth as to allow a Geotechnical Engineer or Geologist to enter to make observations and to allow a Contractor to locate utilities and other fragile structures.

B. Topsoil – Excavated and reused material, graded, free of roots, rocks larger than ½ inch, debris, vegetation, and foreign matter.

C. Cementitious Material – Solid concrete particles that require disposal that are less than about one (1) inch in diameter. Cementation waste for this project will consist mostly of shotcrete rebound that is removed from shotcrete improvement areas.

D. Clearing – Clearing of grass, brush, trees, stumps, tree roots, debris and otherwise unsuitable material from the areas which are to be graded and/or excavated.

E. Concrete Waste – Solid concrete particles that require disposal that are larger than one inch in diameter. Concrete waste for this project will mostly consist of concrete and shotcrete that is removed from demolition of existing inverts and canal liners.

F. Grubbing – Removal of roots, buried vegetation, rubble, rubbish, unsuitable material, uncompacted fill, loose and saturated materials, abandoned underground utilities, and other foreign debris from areas that are to be graded and/or excavated.

G. Project Site – Areas occupied by the Contractor, equipment, and materials during mobilization, construction, and demobilization, including the improvement construction areas within the Project Boundary Limits shown in the Contract Documents, Staging Areas, Laydown Areas, and access ways.

H. Stripping – Removal of vegetation and topsoil from areas to receive fill or improvements, or to be excavated. The stripped material shall not be used as Engineered Fill. Deep stripping in localized areas is to remove unsuitable soil, rock, roots, or other concentrations of vegetation.

I. Suitable Material – Material, i.e., General Fill or Engineered Fill, which has met a certain set of criteria set forth by the Engineer, and therefore, can be used in construction activities.

J. Unsuitable or Unacceptable Material – Material, which has not met a certain set of criteria set forth by the Engineer; and therefore, cannot be used in construction activities.

K. Uncompacted Fill – Fill that is not compacted to requirements of the Contract Documents.

L. Engineered Fill Material – On-site material from excavations, or imported material that is free of organics, that passes a set of size requirements and material property requirements in the Contract Documents, that is approved by the Engineer, and that is compacted according to requirements in the Contract Documents.

M. Permanent Cutslope – Permanent excavated cutslopes. Excavations extend to the depths, elevations, or relative depths and elevations shown on the Contract Drawings.

N. Spoil – Excavated, demolished, or removed inorganic rock, soil, cementitious material or other materials that the Engineer approves prior to placement at stockpile location(s) designated by the Contract Documents and/or Owner.

O. Debris and Waste – Organic and/or inorganic waste, concrete waste, and debris that the Engineer deems not suitable for placement at the Owner's stockpile location(s).

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition

2. OID Standard Specifications and Drawings

3. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

4. American Society for Materials and Testing (ASTM) D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (Modified Proctor)

1.05 RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02050	Mobilization and Demobilization

02230 Clearing and Grubbing
02280 Erosion, Sediment and Pollution Control
02290 Stormwater Management
02320 Earthwork
03070 Concrete Reinforcement
03300 Concrete Cast-in-Place
03470 Shotcrete

1.06 DESIGN PARAMETERS – (NOT USED)

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Refer to General Requirements Specification 01250 Quality Control and Assurance.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 – 1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 – 6184) are the most applicable regulations for this Section.

C. Prior to the beginning of any activities, safety requirements will be addressed at pre-job meetings involving personnel of Owner, Contractor and Engineer familiar with important aspects of the Work.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS

A. The Contractor shall arrange for, be responsible for, and the Owner shall pay for a Construction General Permit, as per Specification Section 02280 Erosion, Sediment and Pollution Control, and/or any other environmental permit that is related to these Contract Documents. Contractor shall be responsible for reporting and submittal to the State of California Water Resources Control Board website for OID approval and submittal of fee payment.

B. The Contractor shall comply with the requirements of the environmental permits. Copies of the Categorical Exemption document for CEQA compliance and any Supplemental Environmental Requirements for this Work are attached to this Specification Section.

C. The Contractor shall arrange for, be responsible for, and pay for any additional permits, including but not limited to those listed in these Contract Documents.

1.10 CONTRACTOR SUBMITTAL

A. Pre-Construction Phase

1. Permits

a. Submit copies of permits secured for the Project to the Engineer for "review-and-information."

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXISTING FEATURES AND CONDITIONS

A. Verify existing conditions prior to starting site preparation. Provide pre-construction photographs and videos as noted in Specification Section 02050 Mobilization and Demobilization. The Contractor shall be responsible for verifying the location and status of utilities within the construction area.

B. Protect existing surface or subsurface improvements, facilities, utilities, roads, structures, etc., that are to remain after the completion of this Project. Any damage by the Contractor and its Subcontractor and its Supplier to existing features shall be repaired at the expense of the Contractor and its Subcontractor and its Supplier and shall be repaired immediately.

3.02 EXISTING UTILITIES

A. Notify public and private utility companies at least two (2) work days prior to commencement of work on this project to verify the location of existing utility lines. Call Underground Service Alert (USA) toll free at (800) 227-2600, 7:00 a.m. to 5:00 p.m., Monday through Friday.

B. Notify Engineer at least two (2) work days prior to "test-pitting/pot-holing" in order for the Engineer to observe the Contractor's operations.

C. Prior to opening an excavation, make a considerable effort to determine whether underground utilities, i.e., sewer, water, fuel, gas, electric power, communication lines, etc., will be encountered. Where such underground installations do exist, determine their exact location by careful probing and/or hand digging to expose/uncover their locations. Adequately protect and support any exposed underground utility lines.

D. The locations of existing underground utilities, as indicated on the Contract Drawings, are based on the best information available from the utility owner or other documented sources. However, the Engineer assumes no responsibility for the accuracy of the information shown, or the inadvertent omission of any such information. Conflicts and/or discrepancies shall be immediately brought to the attention of the Engineer.

E. Unless noted otherwise, maintain in operation existing utilities.

F. Damage to existing utilities by the Contractor and its Subcontractor(s) and its Supplier(s) shall be repaired by the Contractor or its Subcontractor or its Supplier at it's own expense.

3.03 TREE PROTECTION AND REMOVAL

A. Limit tree removal to only those trees designated on the Contract Drawings. Removal of any tree or trees outside of the limits of the Work for construction considerations shall be "reviewed-and-accepted" by the Engineer prior to proceeding with the Work.

B. Trees to be removed shall be cut down, branched, stumps removed and transported to and legally disposed of off-site.

C. Protect trees near the limits of the Contractor's work area that may possibly be injured or damaged by the Contractor's operations. No ropes, cables or guys shall be fastened or attached to any existing trees.

D. Trim trees only as necessary to facilitate the contracted Work. Trimming requirements shall be "reviewed-and-accepted" by the Engineer and shall be accomplished in accordance with recognized standards for such work.

E. Avoid cutting tree roots. No tree roots shall be unnecessarily cut during trenching or excavation operations. All roots shall be neatly trimmed at the edge of the trench.

F. Paint all trimmed roots and/or branches one (1) inch diameter or larger with a heavy coat of a "reviewed-and-accepted" tree seal.

3.04 STRIPPING

A. Refer to Contract Drawings and Specification Section 02320 Earthwork for stripping requirements.

B. Stockpile stripped topsoil and suitable soil and rock fill separately on-site or off-site in locations shown on the Contract Drawings and/or as directed by the Engineer.

3.05 EXISTING FENCES

A. Remove existing fences only as necessary to facilitate construction operations, and as approved by the Engineer and Owner.

B. Close immediately and "double-lock" gates /fences after passing through or provide appropriate construction area signage, as approved by the Engineer.

3.06 DUST CONTROL

A. Provide dust control to satisfaction of the Engineer and as noted in Specification Section 02320 Earthwork, 02280 Erosion, Sediment, and Pollution Control, 02290 Stormwater Management, and any related Specifications Sections.

B. All dirt/gravel roads will be wetted as necessary as well as a speed limit of 25 mph maintained to suppress dust and ensure minimal dust-related impacts.

3.07 DISPOSAL OF SPOIL, ROCK AND CEMENTITIOUS WASTE MATERIAL

A. Some of the on-site rock may be suitable for reuse in construction. Verify suitability with the Engineer for use as riprap. Suitable rock shall be separated and stockpiled for reuse at a location indicated by the Engineer.

B. Suitable material, rock and cementitious material, after approval by the Engineer, may be stockpiled in the location(s) shown on the Contract Drawings.

C. Concrete Waste shall be disposed of off-site in accordance with all local, state and federal requirements.

D. Concrete Waste may be stored on-site temporarily only at location(s) shown on the Contract Drawings or approved by the Owner and Engineer during construction.

3.08 DISPOSAL OF DEBRIS AND WASTE

A. Dispose of off-site all inorganic debris, organic waste material, and concrete waste in accordance with all local, state and federal requirements.

3.09 SITE CONDITIONS AND CLEANUP

A. Keep the Project Site in a neat and orderly condition and follow good "housekeeping" practices.

3.10 FIELD QUALITY CONTROL

A. Refer to Specification Section 02320 Earthwork.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD FOR MEASUREMENT

A. Spoil of soil, rock, organic material and concrete debris from excavation and surface preparation shall be measured by the cubic-yard (CY).

B. Concrete debris from invert edge preparation shall not be measured.

C. Organic material from tree removal shall be measured per each tree.

D. Inorganic debris and other organic waste materials shall not be measured.

E. Tons and/or truck counts may be used for measurements if properly measured, calculated, converted and "reviewed-and-accepted" by the Engineer.

4.02 BASIS OF PAYMENT

A. Spoil – soil, rock, organic material and concrete debris from excavation and surface preparation removed and properly disposed offsite shall be paid at the Contract unit price basis per cubic-yard (CY) of material.

B. Organic material from tree removal – material removed and properly disposed off-site shall be paid at the Contract unit price per each tree.

C. All other Work outlined in this Specification Section is considered incidental, therefore, is not subject for payment or is paid for under another Specification Section.

- END OF SECTION 02210 -

TECHNICAL MEMORANDUM

TO: Emily Sheldon, Oakdale Irrigation District, Associate Engineer

FROM: Michael Bumgardner, Bumgardner Biological Consulting

SUBJECT: Oakdale Irrigation District South Main Canal Segment 4 Special-Status Species Survey

DATE: 12/20/2018

Introduction

The Oakdale Irrigation District (OID) South Main Canal Segment 4 Project (project) will involve the rehabilitation of an approximately ¾-mile length of the South Main Canal immediately downstream of the recently constructed Two Mile Bar Tunnel outlet. This section of canal was identified, in a canal hazard study prepared for the OID, as an area needing to be repaired. The upslope bank is unlined throughout most of that section of canal which has led to erosion of the hillside above into the canal on a regular basis. The project therefore involves the placement of concrete liner and shoring walls with rock nails where necessary, to stabilize the upslope canal bank. Additionally, a new concrete floor will be placed along the canal invert. The project is located in eastern Stanislaus County approximately 650 feet northeast of the intersection of Highway 108/120 and Sonora Road.

Survey and Analytical Methods

I conducted an initial review of the available data in regards to special-status animal species that have been documented within and near the proposed action (i.e., within at least five miles of the project) to determine which, if any, special-status species may require preconstruction surveys and subsequent avoidance or minimization measures prior to or during project construction. The reviewed data included, but was not limited to a query of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB) and eBird data base (online database of bird distribution and abundance http://www.ebird.org).

The results of the initial review of the available data are reflected in a likelihood of occurrence analysis (Table 1). A standard nine-quadrangle CNDDB/Rarefind 5 report was generated for the project site and vicinity (i.e., query of the USGS 7.5-minute topographic quadrangle in which the project site is found as well as the immediate eight surrounding topographic quadrangles, viz. Knights Ferry and the surrounding Keystone, Oakdale, New Melones Dam, Copperopolis,

Bachelor Valley, Cooperstown, Paulsell, and Waterford quads). The California Natural Diversity Data Base (CNDDB) contains records for special-status species, as well as sensitive natural communities, which have been reported to the California Department of Fish and Wildlife (CDFW). The Rarefind 5 report for the project study area is provided in Attachment B. Each of the species identified in the Rarefind 5 report were then evaluated in terms of their likelihood of occurrence within and immediately adjacent to the project site (i.e., draft likelihood of occurrence analysis). This draft analysis considered the known distribution and habitat requirements of the species such that one of the following findings was prepared:

- Known to Occur - species has previously been documented within or immediately adjacent to the project site.
- High Potential - species has not been documented within or immediately adjacent to the project site, but should be expected on more than 50% of visits to suitable habitat in the project site during the appropriate season and time of day.
- Moderate Potential - species has not been documented within or immediately adjacent to the project site, but should be expected on less than 50% of visits to suitable habitat in the project site during the appropriate season and time of day.
- Low Potential - species has not been documented within or immediately adjacent to the project site nor is it likely to occur on the project site, but its presence cannot be completely discounted due to incomplete information on the taxon's distribution or habitat requirements.
- No Potential - species does not occur within the project site due to the lack of required habitat features for the species or the known range of the species is well defined and does not include the project site.

Other sources of information on special-status species in California were subsequently reviewed given that the CNDDB is not inclusive of all special-status species that may occur in an area. Therefore, a review of the CDFW's List of Special Animals (August 2018) and List of Special Vascular Plants, Bryophytes, and Lichens (August 2018) was conducted to determine if any special-status species not identified in the Rarefind 5 report have the potential to occur at the project site. This review was based on the professional experience of the author within the region and elsewhere in California, but also included review of other published sources of information on special-status species in California. These later sources include the following:

- The Jepson Manual: Vascular Plants of California. (Baldwin and Goldman 2012).
- California Native Plant Society (CNPS), Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). website http://www.rareplants.cnps.org (Accessed: December 3, 2018).
- Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).

- California Bird Species of Special Concern. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California and California Department of Fish and Game (Shuford and Gardali 2008).
- The Distribution of the Birds of California (Grinnell and Miller 1944).
- California Birds: Their Status and Distribution (Small 1994).
- California's Wildlife Volume II Birds (Zeiner et al. 1990).
- eBird. 2018. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: http://www.ebird.org. (Accessed: December 3, 2018).
- Mammalian Species of Special Concern in California (Williams 1986).
- Terrestrial Mammal Species of Special Concern in California (unfinished 1998 update) (Bolster 1998).
- Mammals of the Pacific States: California, Oregon, and Washington (Ingles 1978).
- Bat species accounts prepared as course materials for Ecology and Conservation of California Bats offered through San Francisco State University's Sierra Nevada Field Campus.
- Western Bat Working Group website (http://wbwg.org/western-bat-species/).
- Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998).

The draft likelihood of occurrence analysis was used to develop a "focus list" of species that should be searched for during any subsequent surveys (see below) of the project site. The final likelihood of occurrence analysis was then prepared to include any additional species not addressed by the Rarefind 5 report, but that were recorded during subsequent survey of the project site and review of other sources of information on special-status species that occur in the project vicinity. Species that are known or expected to occur in the vicinity of the project site were then further evaluated in this report. It should be noted that elderberry species (*Sambucus* spp.), the host plant of the federally-listed valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) were a focal species for the analysis and survey, at the request of OID, given known occurrences of elderberry further upstream along the South Main Canal.

Survey and Analytical Results

The final likelihood of occurrence analysis resulted in the finding that four special-status plant species and two special-status wildlife species are considered to have a low potential to occur on or adjacent to the project site (see Table 1). Hoover's calycadenia, Red Hills soaproot, beaked clarkia, forked hare-leaf, foothill yellow-legged frog, and Swainson's hawk are considered to have a low potential to occur on or adjacent to the project site as most of these species, particularly the plants, are strongly associated with annual grasslands or cismontane woodland, have been recorded within the eastern portion of Stanislaus County or adjacent Tuolumne County (though generally

not within at least a few miles of the project site), and the site is comprised mostly of cismontane woodland with small stands of annual grassland. It should be noted that the foothill yellow-legged frog is considered an anomaly given that it was found in the canal shortly after annual drawdown in October 2018 and likely washed down from habitat well upstream of the project site. Canals are not generally considered suitable habitat for the species. Nonetheless, the occurrence is included in this analysis.

Two other special-status species are considered to have a moderate potential to occur within or adjacent to the project site. These latter species are Nuttall's woodpecker and oak titmouse. Both of these species have been observed by the author on multiple occasions along the South Main Canal including segment 4. These species are strongly associated with cismontane woodland (particularly oaks) where they nest in woodpecker holes.

Though not addressed as special-status species and therefore not included in the likelihood of occurrence analysis, most nesting birds in California are afforded protection under the California Fish and Game Code (Sections 3503, 3503.5, and 3513). Though no nest structures were observed within the project site during the December 2018 reconnaissance-level survey, the survey was conducted after the end of the 2018 nesting season and prior to the beginning of the 2019 nesting season. Given the authors experience with nesting birds in California, nesting birds should be expected at or near the project site if construction starts between February 1 and August 15.

Lastly, the survey for elderberry, the only host plant of the federally-threatened valley elderberry longhorn beetle, provided no evidence of the plant within approximately 100 feet or less from the project site. Though the survey was conducted when this deciduous species had no leaves, the stems of the plant are very distinctive year-round. As such, no evidence of the plant was found and there is no potential for the valley elderberry longhorn beetle to be adversely affected by the project.

Discussion and Recommendations

Recommended mitigation measures for the eight special-status species identified in the final likelihood of occurrence analysis are identified below.

Special-Status Plants

Adverse effects to special-status plants will be mitigated consistent with the *Policy on Mitigation Guidelines Regarding Impacts to Rare, Threatened, and Endangered Plants* and will be accomplished through conference and coordination with the California Native Plant Society (CNPS). CNPS endorses the following measures:

- conducting a survey within the potential area of effect for evidence of special-status plants (preferably during the bloom period for the potentially expected species);
- avoiding the impact altogether by not taking a certain action;

- minimizing the impact by limiting the degree or magnitude of the action;
- rectifying the impact by repairing, rehabilitating or restoring the impacted environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project;
- compensating for the impact by replacing or providing substitute resources or environments elsewhere; and
- alternatively, should the project start before the bloom period of the special-status plant species identified in the final likelihood of occurrence analysis, the top six inches of graded soils will be stockpiled and protected until construction activities have been completed and then spread in the vicinity of where they were taken from.

Note that multiple measures may be necessary to effectively mitigate adverse effects to a given plant species, but will always be at the discretion of OID as long as the measures can be reasonably expected to avoid, minimize, or compensate for the anticipated effects.

Nesting Birds (including Special-Status Species such as Nuttall's Woodpecker and Oak Titmouse)

The following measures are recommended to avoid adverse effects to nesting birds (including Nuttall's woodpecker and oak titmouse, but not including Swainson's hawk) that nest within or immediately adjacent to the project site.

- If construction occurs during the general bird nesting season (February 1 - August 31), preconstruction nesting bird surveys (2 visits at least 1 week apart) will be conducted by a qualified biologist within the 14 days prior to start of construction to detect the presence of any nesting birds within or adjacent to the proposed project (within 300 feet for non-special-status raptors and within 100 feet for all other non-special-status birds). If construction occurs outside of the bird nesting season (September 1 - January 31), preconstruction surveys are not required.
- If the preconstruction nesting bird surveys detect actively nesting birds, the results of the surveys will be submitted to the CDFW within three days of completing the surveys. If any active non-special-status bird nests are found onsite, the applicant will avoid initiating any construction activities within the standard buffers described above (i.e., 300 and 100 feet as appropriate). The applicant will then develop and implement a plan for the protection and monitoring of these nests, to be approved by CDFW, in a timely manner. The results of any protective measures instituted as a part of the protection and monitoring plan will be provided to the CDFW in electronic format within one week of implementation.

Swainson's Hawk

Adverse effects to nesting Swainson's hawks will be mitigated as follows.

- A qualified biologist will conduct a preconstruction survey consistent with the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFG 1994) in suitable nesting habitat along the South Main Canal Segment 4 within and up to 500 feet from the project site;
- If an active Swainson's hawk nest is detected during preconstruction surveys, a no-disturbance buffer zone of 500 feet will be implemented during the nesting season (March 1 - September 15) or until August 15 if Management Authorization is provided by the CDFW (2000). Furthermore, a nest monitoring plan will be developed and implemented for all active nests. If monitoring demonstrates that nesting individuals are being adversely affected the no-disturbance zone will be increased in 100-foot increments until all adverse effects are eliminated.
- If construction of the project begins prior to March 1 (i.e., prior to the start of the Swainson's hawk nesting season), no mitigation for adverse effects to nesting Swainson's hawks will be implemented as the hawks chose the nesting site with construction noise and visual disturbance already part of the existing conditions and it is assumed that they are not adversely affected by the level of activity.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
PLANTS				
Agrostis hendersonii	Henderson's bent grass	none/none/CNPS list 3.2	This species occurs in vernal pools and mesic areas of valley and foothill grassland in Calaveras, Merced, Shasta, and Tehama counties. It blooms from April to May.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and mesic areas of valley and foothill grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Allium tuolumnense	Rawhide Hill onion	none/none/CNPS list 1B.2	This perennial species occurs on serpentine soils in cismontane woodland in Tuolumne County (mostly the Red Hills area). It blooms from March to May.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., serpentine soils – mostly in the Red Hills area) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Brodiaea pallida	Chinese Camp brodiaea	FT/SE/CNPS list 1B.1	This perennial species occurs in cismontane woodland, valley and foothill grassland, and vernal habitats.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			It has an affinity for vernal streambeds and serpentine soils. It blooms during May to June and has been recorded in Tuolumne and Calaveras counties.	South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal streambeds or serpentine soils) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Calycadenia hooveri	Hoover's calycadenia	none/none/CNPS list 1B.3	An annual herb that blooms from July-September. It occurs in valley and foothill grassland (particularly in rocky soils). It has been recorded in Calaveras, Madera, Merced, Mariposa, and Stanislaus counties.	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, suitable habitat (i.e., valley and foothill grassland - particularly in rocky soils) does occur near the project site with the nearest known occurrence from Willms Road. Therefore, the species has some potential, albeit low, to occur within the project site.
Castilleja campestris ssp. *succulenta*	succulent owl's-clover	FT/SE/CNPS list 1B.2	This subspecies is currently known from sites in eastern Merced, southeastern Stanislaus, Madera, San Joaquin and northern Fresno counties where it occurs on the margins of vernal pools, swales, and some seasonal wetlands (often on acidic soils). It blooms in May.	**No Potential**. No individuals of this subspecies were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools, swales, and some seasonal wetlands) does not occur within or near the project site. Therefore, the subspecies has no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Chamaesyce hooveri	Hoover's spurge	none/none/CNPS list 1B.2	This annual herb occurs in vernal pools in valley and foothill grassland and blooms mostly during July, but flowering may persist as late as October if there is sufficient moisture. It has been recorded in Butte, Colusa, Glenn, Merced, Stanislaus, Tehama, and Tulare counties.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools in valley and foothill grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Chlorogalum grandiflorum	Red Hills soaproot	none/none/CNPS list 1B.2	This perennial species has been recorded on serpentine, gabbroic, and other soils in chaparral, cismontane woodland, and lower montane coniferous forest in the Sierra Nevada foothills and mountains (Tuolumne to Placer counties) as well as Butte and Amador counties. Blooming occurs during May to June.	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, suitable habitat for this wide ranging species (i.e., cismontane woodland) does occur near the project site. Therefore, the species has some potential, albeit low, to occur within the project site.
Clarkia rostrata	beaked clarkia	FT/none/CNPS list 1B.3	The species is an annual that blooms from April to May and occurs in valley and foothill grassland and cismontane woodland. It has been recorded in	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, suitable habitat (i.e., valley and foothill grassland and cismontane woodland) does

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			Merced, Mariposa, Stanislaus, and Tuolumne counties.	occur near the project site with the nearest known occurrence from the vicinity of Knights Ferry. Therefore, the species has some potential, albeit low, to occur within the project site.
Cryptantha hooveri	Hoover's cryptantha	none/none/CNPS list 1A	This annual species has been recorded on inland dunes and sandy soils in valley and foothill grassland. Occurrences have been recorded in Contra Costa, Kern, Madera, and Stanislaus counties. However, it is currently believed to be extinct since it has not been found since 1939. Blooming occurs during April to May.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., inland dunes and sandy soils in valley and foothill grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Cryptantha mariposae	Mariposa cryptantha	none/none/CNPS list 1B.3	This annual herb occurs in chaparral on rocky or serpentinite soils. It blooms from April to June and has been found in Calaveras, Mariposa, Stanislaus, and Tuolumne counties.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., chaparral on rocky or serpentinite soils) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Cryptantha spithamaea	Red Hills cryptantha	none/none/CNPS list 1B.3	This annual herb occurs in chaparral and cismontane woodland on serpentinite (sometimes in streambeds or openings). It blooms from April to May and has been found in Calaveras, Mariposa, and Tuolumne counties.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., serpentine soils) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Downingia pusilla	dwarf downingia	none/none/CNPS list 2.2	This annual herb blooms from March to May and is known from Merced, Mariposa, Napa, Placer, Sacramento, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties. It occurs in vernal pools and mesic grasslands.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and mesic areas of valley and foothill grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Eryngium pinnatisectum	Tuolumne button-celery	none/none/CNPS list 1B.2	This annual/perennial herb is found in mesic habitats in cismontane woodland, lower montane coniferous forest, and vernal pools in Amador,	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and mesic areas of cismontane

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			Calaveras, Sacramento, Sonoma, and Tuolumne counties.	woodland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Eryngium spinosepalum	spiny-sepaled button-celery	none/none/CNPS list 1B.2	This perennial species occurs in wet valley and foothill grassland and vernal pools. Known occurrences have been found in the San Joaquin Valley (Kern to Stanislaus counties), Contra Costa County, and along the Central Coast (Monterey and San Luis Obispo counties). Blooming occurs during April to May.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., wet valley and foothill grassland and vernal pools) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Erythranthe marmorata	Stanislaus monkeyflower	none/none/CNPS list 1B.1	This annual herb is known from cismontane woodland and lower montane coniferous forest in Amador, Calaveras, Fresno, Stanislaus, and Tuolumne counties. It blooms from March to May. There are no known extant occurrences within its range.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. In addition, it was known from occurrences higher in elevation than the project site and is considered extirpated throughout its known range. Therefore, the species is considered to have no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Fritillaria agrestis	stinkbells	none/none/CNPS list 4.2	This perennial bulbiferous herb occurs on clay, sometimes serpentinite, in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. It blooms from March to June and has been found in Alameda, Contra Costa, Fresno, Kern, Mendocino, Merced, Monterey, Mariposa, Placer, Sacramento, Santa Barbara, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Stanislaus, Tuolumne, Ventura, and Yuba counties.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., clay, sometimes serpentinite soils) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Lagophylla dichotoma	forked hare-leaf	none/none/CNPS list 1B.1	The species is an annual that blooms from April to September and occurs in valley and foothill grassland and cismontane woodland (often on clay). It has been recorded in Butte, Calaveras, Fresno, Merced, Monterey, San Benito and Stanislaus counties.	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, suitable habitat (i.e., valley and foothill grassland and cismontane woodland) does occur near the project site with the nearest known occurrence from the vicinity of Knights Ferry. Therefore, the species has some potential, albeit low, to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Lomatium congdonii	Congdon's lomatium	none/none/CNPS list 1B.2	This perennial species with an affinity for serpentine soils occurs in chaparral and cismontane woodland and has been recorded in Calaveras, Mariposa, and Tuolumne counties and possibly Mendocino County. Blooming occurs from March to June.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., serpentine soils) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Lupinus spectabilis	Shaggyhair lupine	none/none/CNPS list 1B.2	This annual species with an affinity for serpentine soils occurs in chaparral and cismontane woodland and has been recorded in Mariposa and Tuolumne counties. Blooming occurs from April to May.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., serpentine soils) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Monardella leucocephala	Merced monardella	none/none/CNPS list 1A	This annual species is associated with wet, sandy valley and foothill grassland. It has been recorded in Kern, Mariposa, Merced, and Stanislaus counties, but is currently	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., wet, sandy valley and foothill grassland) does

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			believed to be extinct. It blooms from May to August.	not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Monardella venosa	veiny monardella	none/none/CNPS list 1B.1	This annual herb occurs in heavy clay; mostly with grassland associates in valley and foothill grassland and cismontane woodland. It blooms in May and July. It has been recorded in Butte, Sutter, Tuolumne, and Yuba counties and was previously thought to be extirpated, but was rediscovered in 1992. There is one extant occurrence in Tuolumne County.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Though suitable habitat (i.e., valley and foothill grassland and cismontane woodland) does occur within or near the project site, the species extremely limited range suggests that it has no potential to occur within the project site.
Navarretia paradoxiclara	Patterson's navarretia	none/none/CNPS list 1B.3	This annual herb occurs on serpentinite, vernally mesic sites, and drainages within meadows and seeps. It blooms from May to July and has been recorded in Calaveras and Tuolumne counties.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., serpentinite, vernally mesic sites, and drainages within meadows and seeps) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Neostapfia colusana	Colusa grass	FT/SE/CNPS list 1B.1	This grass occurs in vernal pools (typically larger or more persistent pools) and some manmade wetlands (e.g., stock ponds) within valley and foothill grassland. It is distributed primarily along the eastern margin of the San Joaquin Valley in Stanislaus and Merced counties, but also occurs in Solano and Yolo counties. It flowers from May to July.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and other large ponded wetlands) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Orcuttia pilosa	hairy orcutt grass	FE/SE/CNPS list 1B.1	This grass occurs in vernal pools (typically larger or more persistent pools) within valley and foothill grassland. It is distributed along the eastern margin of the Sacramento and San Joaquin valleys from Tehama County south to Stanislaus, Merced, and Madera counties. It flowers from May to September.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., larger or more persistent pools) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Orcuttia inaequalis	San Joaquin Valley orcutt grass	FT/SE/CNPS list 1B.2	This grass occurs in vernal pools (typically larger or more persistent pools) within valley and foothill grassland. The remaining populations of this species occur mostly in the	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., larger or

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			southeastern San Joaquin Valley (Fresno, Merced, and Madera counties). Historically, the species also occurred in Stanislaus County. It flowers from April to September.	more persistent vernal pools) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE/SE/CNPS list 1B.1	The species occurs in cismontane woodland and valley and foothill grassland (almost always on shallow, well-drained, fine-textured soils on the north or northeast facing side of Mima mounds). It has been recorded in Fresno, Madera, Tulare, and Stanislaus counties. Blooming occurs during March to April.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., shallow, well-drained, fine-textured soils on the north or northeast facing side of Mima mounds) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Scopelophila cataractae	tongue-leaf copper moss	none/none/CNPS list 2B.2	This moss is found on metamorphic rock and soils in cismontane woodland in Calaveras County. Only one occurrence is known for the species within its California range.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., metamorphic rock or soils) does not occur within or near the project site. In addition, it's extremely limited range suggests it has no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Tuctoria greenei	Greene's tuctoria	FE/CR/CNPS list 1B.1	This grass occurs in the dry bottoms of vernal pools in valley and foothill grassland. It is known to occur in Butte, Glenn, Merced, Shasta, and Tehama counties. Historically, it also occurred in Fresno, Madera, Stanislaus, San Joaquin, and Tulare counties. No known occurrences are now extant in Stanislaus County. It flowers from May through July.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., dry bottoms of vernal pools in valley and foothill grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Verbena californica	Red Hills vervain	FE/SE/CNPS list 1B.1	This perennial herb occurs in mesic, usually serpentinite seeps or creeks in cismontane woodland or valley and foothill grassland. It is known only from the Red Hills in Tuolumne County. It blooms from May to September.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Though, suitable habitat (i.e., mesic, usually serpentinite seeps or creeks in cismontane woodland or valley and foothill grassland) does occur within or near the project site, it is only known from the Red Hills in Tuolumne County. Therefore, the species is considered to have no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
INVERTEBRATES				
Monadenia mormonum buttoni	Button's Sierra sideband	none/SA/none	Little information is known about this taxon, but it appears to be associated with rocky riparian areas of the lower Sierra Nevada and adjacent foothills. Occurrences have been recorded in Placer, Nevada, El Dorado, Calaveras, and Tuolumne counties.	**No Potential.** No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. In addition, there is no suitable habitat (i.e., rocky riparian areas) within or adjacent to the project site for this species. Therefore, there is no potential for the species to occur on the project site.
Monadenia mormonum hirsuta	Hirsute Sierra sideband	none/SA/none	Little information is known about this taxon, but it appears to be associated with basalt rubble in the vicinity of Table Mountain (Tuolumne County).	**No Potential.** No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. In addition, there is no suitable habitat (i.e., basalt rubble) within or adjacent to the project site for this species. Therefore, there is no potential for the species to occur on the project site.
Branchinecta lynchii	vernal pool fairy shrimp	FT/none/none	Occurs primarily in vernal pools (sandstone depression, grass swale, earth slump, or basalt-flow depression	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			pools) in grassland and oak savannah of the Central Valley. However, the species also occurs at a few locations in the central Coast Ranges from Monterey County south to Santa Barbara County and in the South Coast Mountains in Riverside County.	South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and other seasonal wetlands) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Branchinecta mesovallensis	midvalley fairy shrimp	none/SA/none	This species occurs in small vernal pools and intermound pools within valley and foothill grassland (i.e., the smallest and most ephemeral vernal pools). It has been recorded from the central portion of the Central Valley from Sacramento and Solano counties south to Madera and Fresno counties.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools within valley and foothill grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Lepidurus packardi	vernal pool tadpole shrimp	FE/none/none	Inhabits clear to turbid vernal pools and swales, stock ponds, and other seasonal wetlands in the Sacramento Valley and northern San Joaquin Valley (from Shasta County south to Merced and Tulare counties). It has also been recorded in three pools at the	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and swales, stock ponds, and other seasonal wetlands) does not occur within or near the project site. Therefore, the species

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			San Francisco Bay National Wildlife Refuge in Alameda County.	has no potential to occur within the project site.
Linderiella occidentalis	California fairy shrimp	none/SA/none	Occurs primarily in vernal pools and other seasonal wetlands in grassland and oak savannah of the Central Valley. However, the species has also been recorded at scattered locations in the Coast Ranges from Mendocino County south to Ventura County.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., vernal pools and other seasonal wetlands in grassland and oak savannah) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT/none/none	The subspecies occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges from Shasta to Fresno counties. The subspecies is entirely dependent upon its host plant (elderberry spp.), typically in riparian vegetation associations, but occasionally in single, isolated shrubs or stands of the plant.	**No Potential**. No individuals of this subspecies were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, the subspecies" host plant (i.e., elderberry spp.) does occur upstream along the OID South Main Canal, outside the project site with other nearby occurrences from the vicinity of Knights Ferry. Nonetheless, the absence of the species during the project survey provides no evidence that it occurs within or near the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Anodonta californiensis	California floater	none/SA/none	This species occurs in lakes, slow rivers, and some reservoirs with mud or sand substrates. Occurrences recorded in the CNDDB are from Tuolumne, Calaveras, Inyo, and Mendocino counties, but the species is known to be more widely distributed in California based on records in other data bases.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., lakes, slow rivers, and some reservoirs with mud or sand substrates) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Calicina breva	Stanislaus harvestman	none/SA/none	This species is known only from its type locality near Knight's Ferry (Stanislaus County). It has been found under basalt rocks in valley and foothill grassland.	**No Potential.** There is suitable habitat within or adjacent to OID South Main Canal Segment 4 for this species (i.e., basalt rocks). However, the species' limited range suggests that it has no potential to occur on or near the project site.
FISHES				
Mylopharodon conocephalus	hardhead	none/CSC/none	This species' distribution is limited to the Sacramento-San Joaquin River system and Russian River system. It inhabits deep, rocky and sandy pools of small to large rivers where spawning substrate includes sand, gravel, and	**No Potential**. The Stanislaus River is more than 0.25 miles from the project site (i.e., OID South Main Canal Segment 4). Therefore, even if the species does occasionally occur in the river above the known locations in the CNDDB, it would

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			decomposed granite. Spawning occurs as early as May and June in the valley, but extends to August in the foothill regions of the upper San Joaquin River (e.g., Tuolumne River downstream of the La Grange Dam). It has also been recorded in the Stanislaus River just northwest of Oakdale	be unaffected by the project. Therefore, it is considered to have no potential to occur within the project site.
Oncorhynchus tshawytscha	Chinook salmon Central Valley fall and late-fall run ESU	none/CSC/none	This ESU includes all naturally spawned fall-run Chinook salmon in the San Joaquin and Sacramento Basins, east of Carquinez Strait. Fall-run juveniles spend 3 to 6 months rearing in freshwater, while late-fall run individuals spend about one year, before migrating to the sea in the spring. Fall-run individuals return to freshwater in September-October, and late-fall run individuals in December or January.	**No Potential**. The Stanislaus River is more than 0.25 miles from OID South Main Canal Segment 4. Therefore, even if the taxon does occasionally occur in the river above the known locations in the CNDDB, it would be unaffected by the project. Therefore, it is considered to have no potential to occur within the project site.
Oncorhynchus mykiss irideus	Steelhead - Central Valley DPS	FT/none/none	This distinct population segment (DPS) of steelhead includes all naturally spawned populations of steelhead (and their progeny) in the Sacramento and San Joaquin Rivers and their	**No Potential**. The Stanislaus River is more than 0.25 miles from OID South Main Canal Segment 4. Therefore, even if the taxon does occasionally occur in the river above the known locations in the CNDDB,

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			tributaries, excluding steelhead from San Francisco Bay and San Pablo Bays and their tributaries. Small runs typically occur on the Tuolumne River, while the DPS is rare in the Stanislaus River. Peak spawning occurs from December through April in small streams and tributaries with cool, well-oxygenated water. Fry usually emerge from the gravel 4 to 6 weeks after hatching, but factors such as redd depth, gravel size, siltation, and temperature can speed or retard this time. The newly-emerged fry move to the shallow, protected areas associated with the stream margin (mainly in riffles), but they can use a variety of other habitat types.	it would be unaffected by the project. Therefore, it is considered to have no potential to occur within the project site.
Lavinia symmetricus ssp.	Red Hills roach	none/CSC/none	Red Hills roach is a small, stout-bodied minnow that is confined to Six Bit Gulch and its tributary streams; Amber Creek, Horton Creek, Minnow Creek and Poor Man's Gulch in the Red Hills near Sonora. The subspecies occurs in the spring-fed intermittent creeks of Six Bit Gulch, which is the primary drainage of the Red Hills. Individuals	**No Potential.** There is no suitable habitat within or adjacent to OID South Main Canal Segment 4 for this subspecies (i.e., small perennial and intermittent streams). Furthermore, the subspecies' limited range suggests that it has no potential to occur on or near the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			are found in several pools and perennial stream reaches fed by springs. During summer, roach are confined to these few localities of perennial water but, during higher spring flows, they move upstream to spawn	
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FT/ST/none	Found in annual grassland, oak savannah, and coastal sage scrub adjacent to vernal pools, stock ponds, and ponded reaches of ephemeral streams (aquatic breeding sites). The species is distributed in the Central Valley from Glenn County to Kings County, but also occurs in Sonoma County and Alameda and Contra Costa counties south through the interior valleys of the Coast Ranges.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable breeding habitat (i.e., vernal pools, stock ponds, and ponded reaches of ephemeral streams) does not occur within or near the project site. Suitable upland habitat does occur within the project site, but the nearest known occurrences are well south and east of the project site. Therefore, the species is considered to have no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Rana boylii	foothill yellow-legged frog	none/CSE/none	The species was historically distributed throughout the foothill portions of the Sierra Nevada and Coast Ranges drainages from the Oregon border to the San Gabriel River (Los Angeles County). The species requires shallow, small to moderate streams (typically with some cobble-sized substrate and riffle habitat).	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, a single individual was found by the author in the canal in the project site during previous monitoring for the South Main Canal Two Mile Bar Tunnel project. Therefore, the species has some potential, albeit low, to occur within the project site.
Spea hammondii	western spadefoot	none/none/CSC	The species is found in dry habitats (e.g., annual grassland, oak savannah and woodland, and coastal sage scrub) adjacent to vernal pools, stock ponds, and overflow channels of low-gradient drainages within the Central Valley and coastal California from Monterey County to San Diego County.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable breeding habitat (i.e., vernal pools, stock ponds, and ponded reaches of ephemeral streams) does not occur within or near the project site. Suitable upland habitat does occur within the project site, but the nearest known occurrences are south of State Route 120. Therefore, the species is considered to have no potential to occur within the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
REPTILES				
Emys marmorata	western pond turtle	none/CSC/none	The species historically occurred throughout most of the Pacific-slope drainages in California (below approximately 4,000 feet). The species now occurs at scattered locations throughout its former range (primarily in the central Sierra Nevada foothills, Central Valley, San Francisco Bay area, and north-central coast and Coast Ranges. It occurs in and adjacent to ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers).	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., ponds, reservoirs, or other slow-moving perennial aquatic habitats - sloughs, streams, and rivers) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
BIRDS				
Haliaeetus leucocephalus	bald eagle	none/SE/BCC	The species winters throughout much of California at lakes, reservoirs, rivers, and some rangelands and coastal wetlands. Nesting occurs mainly in mountain and foothill forests and woodlands near reservoirs, lakes, and rivers. Most current nest territories are	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, there are known eBird occurrences as well as sightings by the author during the winter months in the general vicinity (particularly

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			in northern California, but the species also nests in scattered locations in the central and southern Sierra Nevada mountains and foothills, in several locations in the central Coast Ranges, inland southern California, and on Santa Catalina Island. In most of California, the nesting season lasts from January through July or August.	the river). Nonetheless, the species can be discounted from occurring at or near the project site given the lack of suitable roosting or hunting habitat on the site. Therefore, it is considered to have no potential to occur on or adjacent to the project site.
Athene cunicularia	burrowing owl (burrow sites)	none/CSC/none	The species is found throughout the Central Valley, in the San Francisco Bay Area, at scattered locations along the coast, and in portions of the desert regions. It is a year-round resident in annual and perennial grasslands or other vegetation communities that support sparse or non-existent tree or shrub canopies.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., low, sparse annual or perennial grassland) does not occur within or near the project site. Therefore, the species has no potential to occur within the project site.
Pandion haliaetus	osprey	none/CSC/none	The species nests in northern California from the Cascade Ranges south through the Sierra Nevada, and along the coast south to Marin County. Nesting occurs from March to September with nests being sited at the top of large snags or dead-topped trees	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, there are known eBird occurrences as well as sightings by the author during the winter months in the general vicinity (particularly

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			on cliffs, or on manmade structures (e.g., telephone or power poles).	the river). Nonetheless, the species can be discounted from occurring at or near the project site given the lack of suitable roosting or hunting habitat on the site. Therefore, it is considered to have no potential to occur on or adjacent to the project site.
Buteo swainsoni	Swainson's hawk (nesting)	none/ST/none	Occurs in California as a breeding resident in the Central Valley (primarily in the southern Sacramento and northern San Joaquin valleys), Klamath Basin, and Modoc Plateau. However, nesting pairs are also occasionally found in the Mojave Desert, Lanfair Valley (San Bernardino County), Antelope Valley (Los Angeles County), and eastern San Luis Obispo County. In the Central Valley the species typically nests in riparian woodland or forest stands, or oak savannah. Nest territories are located adjacent to suitable foraging habitat (e.g., grassland, suitable grain and row crop fields, alfalfa, and pastures).	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, suitable foraging habitat (i.e., annual grassland) does occur within and near the project site (i.e., within the flight range of the species). In addition, there are multiple eBird records for the area between Two Mile Bar and Knights Ferry during the nesting season of the species and suitable nesting habitat within the project vicinity. Lastly, though no active or inactive nests were found along the project site, the species could nest within 0.25 miles or less from the project site and is considered to have some potential, albeit low, to occur near the project site.

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Picoides nuttallii	Nuttall's woodpecker (nesting)	none/SA/none	The species occurs as a resident of low-elevation riparian deciduous and oak habitats (cismontane woodland) throughout much of California with the exception of the deserts, high Sierra Nevada, and redwood belt.	**Moderate Potential.** There is suitable cismontane woodland for the species (i.e., mixed oak-riparian woodland) associated with OID South Main Canal Segment 4. In addition, there are known eBird occurrences as well as sightings by the author in the general vicinity of the project site. Therefore, the species is considered to have a moderate potential to nest within or near the project site.
Pica nuttalli	yellow-billed magpie (nesting and communal roosts)	none/SA/none	Found as resident and wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, and other open woodland types near water (generally where there are large trees with dense cover for nesting and roosts).	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of OID South Main Canal Segment 4. Though suitable habitat (i.e., open woodland near water) does occur within or near the project site, there are no known eBird occurrences from along the river above Knights Ferry. Therefore, the species is considered to have no potential to occur within the project site.
Baeolophus inornatus	oak titmouse (nesting)	none/SA/none	Occurs as a common resident throughout much of California other than the deserts, high Sierra Nevada,	**Moderate Potential.** There is suitable cismontane woodland for the species (i.e., mixed oak-riparian woodland) associated

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			and redwood belt. It is generally found in cismontane woodland (particularly oak or riparian woodlands) where it nests in the cavities created by woodpeckers.	with OID South Main Canal Segment 4. In addition, there are known eBird occurrences as well as sightings by the author in the general vicinity of the project site. Therefore, the species is considered to have a moderate potential to nest within or near the project site.
Eremophila alpestris actia	California horned lark (nesting)	none/SA/none	The taxon nests in the San Joaquin Valley, adjacent Sierra Nevada foothills, and coastal California from Sonoma County south to San Diego County. Preferred nesting habitat for the taxon is generally provided by level or gently rolling low, sparse grassland; mountain meadows; open coastal plains; fallow grain fields, bald hills; and alkali flats.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., gently rolling low, sparse grassland; mountain meadows; open coastal plains; fallow grain fields, bald hills; and alkali flats) does not occur within or near the project site. Therefore, the species has no potential to nest within the project site.
Vireo bellii pusillus	least Bell's vireo (nesting)	FE/SE/none	Found as a summer resident (late March to late August) in coastal valleys from Monterey County south through coastal southern California to San Diego County. Also occurs at scattered locations along the western border of the deserts. There have been	**No Potential.** No individuals of this subspecies were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, the subspecies had been extirpated from the Central Valley and only recently has been found sporadically again in the valley (i.e.,

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			recent records from the Sacramento Valley given its recovery in southern California. It typically nests in dense willow riparian communities, but is also occasionally found in live oak stands adjacent to drainages.	two nesting season records from the Stanislaus River NWR in 2007 and 2012). Therefore, the subspecies is considered to have no potential to nest within the project site.
Icteria virens	yellow-breasted chat (nesting)	none/CSC/none	This species is found as a summer resident mostly in low to mid-elevation coastal, valley, foothill, and desert riparian habitats (up to 4,800 feet in foothill riparian and 6,500 feet east of the Sierra Nevada). Nesting typically occurs in dense vegetation adjacent to streams.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., dense, streamside vegetation) does not occur within or near the project site. Therefore, the species has no potential to nest within the project site.
Lanius ludovicianus	loggerhead shrike (nesting)	none/CSC/none	Found as a resident and wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, and other open woodland types (generally where there are trees with dense cover for nesting).	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., lower elevation grasslands, saltbush scrub, chaparral, oak savannah, and other open woodland types where there are trees with dense cover for nesting) does not occur within or near the project site. Therefore, the species has no potential to nest within the project site.

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SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Agelaius tricolor	tricolored blackbird (nesting)	none/CSE/none	Found as a resident species in annual grassland, oak savannah, and fresh water marsh within the Central Valley and coastal California from Sonoma to San Diego County. Nesting typically occurs in emergent freshwater marsh, but also occurs in dense stands of willow, blackberry, thistle, nettles, or grasses. Grasslands or rangeland providing abundant food (e.g., butterfly larvae or grasshoppers) often are within at least three miles of colonies, but the species can forage up to eight miles from their nesting colony.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable habitat (i.e., emergent freshwater marsh or dense stands of willow, blackberry, thistle, nettles, or grasses) does not occur within or near the project site. Therefore, the species has no potential to nest within the project site.
MAMMALS				
Antrozous pallidus	pallid bat	none/CSC/none	The species is found as a resident in all desert, grassland, shrub, woodland, and forest habitats from sea level to approximately 6,000 feet. Day roosts are typically found in buildings, bridges, rocky outcrops, mines, caves, and trees. Night roosts are generally provided by bridges, mines, and caves.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable roosting habitat (i.e., buildings, bridges, rocky outcrops, mines, caves, and large trees/snags) does not occur within or near the project site. Therefore, the species

TABLE 1

SPECIAL-STATUS SPECIES RECORDED OR POTENTIALLY OCCURRING WITHIN THE VICINITY OF THE OAKDALE IRRIGATION DISTRICT SOUTH MAIN CANAL SEGMENT 4 PROJECT, STANISLAUS COUNTY

Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
				has no potential to roost within the project site.
Corynorhinus townsendii	Townsend's big-eared bat	none/CSC/none	This species is distributed throughout much of California in a wide variety of habitats from sea level to the high mountains. It appears to be constrained mainly by availability of suitable roost sites and degree of human disturbance at roosts. Roosting habitat is limited to caves, mines, tunnels, and other features that mimic caves, such as large tree hollows, abandoned buildings with cave-like attics, water diversion tunnels, and internal spaces in bridges.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable roosting habitat (i.e., caves, mines, tunnels, and other features that mimic caves, such as large tree hollows) does not occur within or near the project site. Therefore, the species has no potential to roost within the project site.
Eumops perotis californicus	western mastiff bat	none/CSC/none	The taxon is found as an uncommon resident in southern California, but also occurs along the lower west slope of the Sierra Nevada and in the interior Coast Ranges as far north as the Tumey Hills (eastern San Benito County). Roosts are typically found in crevices in cliff faces, cracks in boulders, or occasionally in buildings	**No Potential**. No individuals of this subspecies were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable roosting habitat (i.e., cliff faces, cracks in boulders, or occasionally in buildings) does not occur within or near the project site. Therefore, the subspecies has no potential to roost within the project site.

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Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			(particularly where the roost allows for a large vertical drop).	
Lasionycteris noctivagans	Silver-haired bat	none/SA/none	The species occurs in coastal and montane forests from the Oregon border south along the coast to San Francisco Bay, and along the Sierra Nevada and Great Basin to Inyo County. It also occurs in southern California from Ventura and San Bernardino counties south to Mexico and on some of the Channel Islands. It roosts in hollow trees beneath exfoliating bark, in abandoned woodpecker holes, or under rocks near water.	**Low Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. However, suitable roosting habitat (i.e., hollow trees, beneath exfoliating bark, in abandoned woodpecker holes, or under rocks near water) does not occur within or near the project site. Therefore, the species has some potential, albeit low, to roost within the project site.
Lasiurus blossevillii	western red bat	none/CSC/none	The species occurs at scattered locations throughout the lowland portions of California west of the Sierra Nevada crest and desert regions (typically in riparian forest or orchards). It is less abundant at low and middle elevations in coniferous forest. Roosting sites are found in dense tree or shrub foliage between 2 and 40 feet above ground (typically in	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable roosting habitat (i.e., dense tree or shrub foliage between 2 and 40 feet above ground - typically in large cottonwoods, sycamores, walnuts, and willows) does not occur within or near the project site.

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Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
			large cottonwoods, sycamores, walnuts, and willows).	Therefore, the species has no potential to roost within the project site.
Lasiurus cinereus	hoary bat	none/SA/none	The species occurs in a wide variety of habitats throughout California from sea level to the high mountains. It is typically found in small numbers roosting in the dense foliage of medium to large trees near water in forest or woodland habitats.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable roosting habitat (i.e., dense foliage of medium to large trees near water) does not occur within or near the project site. Therefore, the species has no potential to roost within the project site.
Myotis yumanensis	Yuma myotis	none/SA/none	Found in a variety of habitats with nearby sources of water over which the species forages. Day roosts are found in caves, mines, buildings, or crevices. Night roosts are typically associated with bridges, buildings, and other man-made structures.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, suitable roosting habitat (i.e., caves, mines, buildings, crevices, bridges, buildings, and other man-made structures) does not occur within or near the project site. Therefore, the species has no potential to roost within the project site.

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Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site
Erethizon dorsatum	North American porcupine	none/SA/none	The species occurs in a wide variety of coniferous and mixed woodland habitat throughout the Sierra Nevada, Cascade, and Coast Ranges, with scattered observations from forested areas in the Transverse Ranges. They are most common in montane conifer and wet meadow habitats. During spring and summer, the species consume a varied diet of grasses, forbs, shrubs, wetland plants, and some agricultural crops. In winter, their diet consists largely of twigs, bark, and the cambium of hardwood and conifers trees. Porcupines can girdle trees, and observations of shiny, white stems and limbs during the winter are a good indicator that porcupines are in the area. The species is an increasingly rare sighting in California.	**No Potential**. No individuals of this species were observed during the reconnaissance-level survey of the OID South Main Canal Segment 4. Furthermore, no sign of the species was found during the survey and other monitoring conducted for the Two Mile Bar Tunnel project. Therefore, the species is considered to have no potential to occur within or near the project site.

TABLE 1

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Genus/Species	Common Name	Status Federal/CA/Other	Habitats and Seasonal Distribution in California	Likelihood of Occurrence within Project Site

FEDERAL

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threatened
FC	Federal Candidate Species (former Category 1 candidates)
BCC	U.S. Fish and Wildlife Service designated "Birds of Conservation Concern" 2008

STATE

SE	State listed as Endangered
ST	State listed as Threatened
SR	State listed as Rare
CFP	California Department of Fish and Wildlife designated "Fully Protected"
CSC	California Department of Fish and Wildlife designated "Species of Special Concern"
SA	California Department of Fish and Wildlife designated "Special Animal"

OTHER

CNPS List 1A	Plants presumed extinct in California
CNPS List 1B	Plants that are rare, threatened, or endangered in California and elsewhere
CNPS List 2	Plants that are rare, threatened, or endangered in California, but are more common elsewhere
CNPS List 3	Plants about which we need more information – a review list
CNPS List 4	Plants of limited distribution – a watch list
CBR	Plants formerly considered, but now rejected for inclusion in the CNPS Inventory

CNPS Threat Rank 0.1	Seriously threatened in California (high degree/immediacy of threat)
CNPS Threat Rank 0.2	Fairly threatened in California (moderate degree/immediacy of threat)
CNPS Threat Rank 0.3	Not very threatened in California (low degree/immediacy of threats or no current threats known)

Query Criteria: Quad IS (Knights Ferry (3712076) OR Keystone (3712075) OR Oakdale (3712077) OR New Melones Dam (3712085) OR Copperopolis (3712086) OR Bachelor Valley (3712087) OR Cooperstown (3712065) OR Paulsell (3712066) OR Waterford (3712067))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes OR Fungi)

Ambystoma californiense **Element Code:** AAAAA01180

California tiger salamander

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G2G3
	State:	Threatened		**State:**	S2S3
	Other:	CDFW_WL-Watch List, IUCN_VU-Vulnerable			
Habitat:	**General:**	CENTRAL VALLEY DPS FEDERALLY LISTED AS THREATENED. SANTA BARBARA AND SONOMA COUNTIES DPS FEDERALLY LISTED AS ENDANGERED.			
	Micro:	NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, AND VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.			

Occurrence No.	44	**Map Index:**	12533	**EO Index:**	28420	**Element Last Seen:**	1975-XX-XX
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1975-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2001-09-04

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.76742 / -120.85327	**Accuracy:**	1 mile
UTM:	Zone-10 N4182180 E689081	**Elevation (ft):**	150
PLSS:	T02S, R10E, Sec. 15 (M)	**Acres:**	0.0

Location:	OAKDALE.
Detailed Location:	
Ecological:	
General:	MVZ 10684 COLLECTED BY E.R. SCHNEIDER 28 NOV 1927. OBS BY PACIFIC GAS & ELECTRIC CO. BIOLOGIST IN 1975. JENNINGS CONSIDERS THIS SITE EXTIRPATED.
Owner/Manager:	UNKNOWN

Occurrence No.	175	**Map Index:**	24665	**EO Index:**	6526	**Element Last Seen:**	1993-04-23
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-04-23
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1993-11-02

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.80311 / -120.70925	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4186441 E701671	**Elevation (ft):**	260
PLSS:	T01S, R11E, Sec. 36, SE (M)	**Acres:**	0.0

Location:	SOUTH OF HWY 120, 8 MILES EAST OF OAKDALE.
Detailed Location:	LARVAE FOUND IN 2 TEMPORARY PONDS, LOCATED 100 FEET SOUTH OF HWY 120 AND 0.3 MILE WEST OF "STA 1400" HWY MARKER.
Ecological:	HABITAT CONSISTS OF TWO SMALL TEMPORARY PONDS SURROUNDED BY GRAZED ANNUAL GRASSLAND. 1 BULLFROG TADPOLE OBSERVED IN ONE OF THE PONDS.
General:	AN UNKNOWN NUMBER OF AMBYSTOMA LARVAE WERE OBSERVED IN 2 TEMPORARY PONDS ON 15 APRIL 1993; BY 23 APRIL, THE PONDS WERE ALMOST DRY, THE LARVAE WERE GONE, AND RACCOON TRACKS WERE ABUNDANT IN THE AREA.
Owner/Manager:	PVT

Occurrence No.	192	**Map Index:**	25065	**EO Index:**	20832	**Element Last Seen:**	1993-04-15
Occ. Rank:	Poor			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-04-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1994-02-18

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.80123 / -120.83773	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4185963 E690364	**Elevation (ft):**	190
PLSS:	T01S, R10E, Sec. 35 (M)	**Acres:**	0.0

Location:	SOUTH OF THE JUNCTION OF TULLOCH AND BURNETT LATERALS, EAST OF TWENTYEIGHT MILE RD, 1 MILE NORTH OF GILBERT RD, OAKDALE.
Detailed Location:	TEMPORARY POND LOCATED 1000 FEET EAST OF TWENTYEIGHT MILE ROAD.
Ecological:	HABITAT SURROUNDING TEMPORARY POND CONSISTED OF GRAZED ANNUAL GRASSLAND AND ORCHARDS.
General:	AN UNKNOWN NUMBER OF CTS OBSERVED ON 15 APRIL 1993. AN UNIDENTIFIED SPECIES OF TADPOLE SHRIMP ALSO FOUND HERE.
Owner/Manager:	PVT

Occurrence No.	193	**Map Index:**	25066	**EO Index:**	20835	**Element Last Seen:**	1993-04-29
Occ. Rank:	Poor			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-04-29
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1994-02-08

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.80169 / -120.81887	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4186053 E692023	**Elevation (ft):**	200
PLSS:	T01S, R10E, Sec. 36 (M)	**Acres:**	0.0

Location:	JUST EAST OF PERSIMMON HILL ROAD, 0.4 MILE NORTH OF RODDEN ROAD, 1.2 MILES EAST OF TWENTYEIGHT MILE ROAD, OAKDALE.
Detailed Location:	TWO PONDS, LOCATED ABOUT 50 FEET EAST OF PERSIMMON HILL (PRIVATE) ROAD.
Ecological:	TWO PONDS ARE FOUND ON THE SOUTH END OF A FRESHWATER MARSH; SURROUNDING HABITAT CONSISTS OF ROLLING HILLS/ANNUAL GRASSLAND.
General:	AN UNKNOWN NUMBER OF CTS OBSERVED ON 29 APRIL 1993.
Owner/Manager:	PVT

Occurrence No.	194	**Map Index:**	25068	**EO Index:**	20825	**Element Last Seen:**	1993-04-13
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-04-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1994-02-08

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.80049 / -120.80738	**Accuracy:**	specific area
UTM:	Zone-10 N4185944 E693038	**Elevation (ft):**	160
PLSS:	T01S, R11E, Sec. 31 (M)	**Acres:**	1.7

Location:	JUST NORTH OF RODDEN CREEK, 0.5 MILE NE OF RODDEN ROAD, 1.5 MILES EAST OF TWENTYEIGHT MILE ROAD, OAKDALE.
Detailed Location:	MAN-MADE LAKE LOCATED 1300 FEET EAST OF A PRIVATE ROAD WEST OF RODDEN CREEK AND RUNNING PARALLEL TO IT.
Ecological:	HABITAT SURROUNDING MAN-MADE LAKE CONSISTS OF GRAZED ANNUAL GRASSLANDS.
General:	AN UNKNOWN NUMBER OF CTS OBSERVED ON 13 APRIL 1993. ACCORDING TO LANDOWNER, POND DRIED OUT IN 1992, KILLING ALL STOCKED FISH.
Owner/Manager:	PVT

Occurrence No.	195	**Map Index:**	25067	**EO Index:**	20834	**Element Last Seen:**	1993-04-13
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-04-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1994-02-08

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.79774 / -120.81263	**Accuracy:**	specific area
UTM:	Zone-10 N4185628 E692583	**Elevation (ft):**	180
PLSS:	T02S, R11E, Sec. 06 (M)	**Acres:**	4.3

Location: JUST NE OF RODDEN ROAD, 1.5 MILES EAST OF TWENTYEIGHT MILE ROAD, OAKDALE.

Detailed Location: LARGE, TEMPORARY LAKE, LOCATED 100 FEET EAST OF A PRIVATE ROAD WEST OF AND RUNNING PARALLEL TO RODDEN CREEK.

Ecological: HABITAT SURROUNDING TEMPORARY LAKE CONSISTS OF GRAZED ANNUAL GRASSLAND.

General: AN UNKNOWN NUMBER OF CTS OBSERVED ON 13 APRIL 1993.

Owner/Manager: PVT

Occurrence No.	316	**Map Index:**	33066	**EO Index:**	3703	**Element Last Seen:**	1994-04-06
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-06
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2001-09-10

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.73202 / -120.60802	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4178776 E710787	**Elevation (ft):**	225
PLSS:	T02S, R12E, Sec. 25, NW (M)	**Acres:**	0.0

Location: SOUTH SIDE OF WARNERVILLE ROAD, 0.75 MILE WEST OF CRABTREE ROAD, ABOUT 8 MILES SOUTH OF KNIGHTS FERRY.

Detailed Location:

Ecological:

General: COLLECTION #MW-94-31 & #RS-94-13, (CAS #199419 & #199426), & #RS-94-14, DEPOSITED AT UCD.

Owner/Manager: UNKNOWN

Occurrence No.	317	**Map Index:**	33067	**EO Index:**	3700	**Element Last Seen:**	1994-04-06
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-06
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1995-03-28

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.73763 / -120.57950	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4179463 E713284	**Elevation (ft):**	245
PLSS:	T02S, R13E, Sec. 30, NE (M)	**Acres:**	0.0

Location: NORTH SIDE OF COOPERSTOWN ROAD, 0.6 MILE EAST OF WILLIAMS ROAD, ABOUT 8 MILES SE OF KNIGHTS FERRY.

Detailed Location:

Ecological: SCAPHIOPUS HAMMONDI ALSO FOUND HERE.

General: COLLECTION #RS-94-15, (CAS #199427).

Owner/Manager: UNKNOWN

Occurrence No.	324	**Map Index:**	33081	**EO Index:**	19331	**Element Last Seen:**	1994-04-08
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-08
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1995-03-23

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.84694 / -120.77152	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4191173 E696072	**Elevation (ft):**	250
PLSS:	T01S, R11E, Sec. 16 (M)	**Acres:**	0.0

Location:	SOUTH SIDE OF FRANKENHEIMER ROAD, 1.5 MILES SOUTH OF SONORA ROAD, 6 MILES NE OF OAKDALE.
Detailed Location:	
Ecological:	
General:	COLLECTION #RS-NC-2, CAPTURED AND RELEASED ON-SITE.
Owner/Manager:	UNKNOWN

Occurrence No.	608	**Map Index:**	46417	**EO Index:**	46417	**Element Last Seen:**	1988-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1988-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-11-25

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.91538 / -120.81148	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4198684 E692378	**Elevation (ft):**	200
PLSS:	T01N, R11E, Sec. 30 (M)	**Acres:**	224.5

Location:	ALONG DUNTON ROAD, BACHELOR VALLEY, NORTH OF WOODWARD RESERVOIR, NORTH OF OAKDALE.
Detailed Location:	SOURCE DOCUMENT GIVES ROAD NAME AS "DENTON" ROAD.
Ecological:	
General:	DURING A 1973 TO 1988 FOOD HABITS STUDY MANY AOR AND DOR SALAMANDERS WERE OBSERVED.
Owner/Manager:	UNKNOWN

Occurrence No.	618	**Map Index:**	46502	**EO Index:**	46502	**Element Last Seen:**	1988-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1988-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2001-11-13

Quad Summary:	Turlock Lake (3712055), Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.63219 / -120.61803	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4167675 E710186	**Elevation (ft):**	150
PLSS:	T03S, R12E, Sec. 35 (M)	**Acres:**	71.4

Location:	ALONG ROBERTS FERRY ROAD. SOUTH OF HWY 132, BETWEEN MODESTO RESERVOIR & TURLOCK LAKE.
Detailed Location:	
Ecological:	
General:	MULTIPLE SIGHTINGS DURING A 1973-1988 FOOD HABITS STUDY. MANY SALAMANDERS DOR. SOME AOR.
Owner/Manager:	UNKNOWN

Occurrence No.	1238	**Map Index:**	A2317	**EO Index:**	103931	**Element Last Seen:**	2013-02-05
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2013-02-05
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-10-21

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.75795 / -120.72321	**Accuracy:**	specific area
UTM:	Zone-10 N4181401 E700565	**Elevation (ft):**	232
PLSS:	T02S, R11E, Sec. 14 (M)	**Acres:**	59.0

Location:	VICINITY OF HETCH HETCHY AQUEDUCT, FROM ABOUT 0.3 TO 0.8 MILES NE OF THE FOGARTY RD CROSSING, 3.2 MILES NW OF PAULSELL.
Detailed Location:	MAPPED TO INCLUDE PROVIDED COORDINATES AND MAPPED LOCATIONS.
Ecological:	FLAT, NON-NATIVE GRASSLAND INTERSPERSED WITH VERNAL POOLS. DETECTIONS ALONG SFPUC RIGHT-OF-WAY.
General:	EGGS & LARVAE FOUND IN 8 POOLS DURING 2010-2011 WET SEASON SURVEYS. 1 ADULT RELOCATED HERE FROM NEARBY CONSTRUCTION SITE (OCC #1239); LARVAE OBSERVED IN 6-7 POOLS DURING 2013 CONSTRUCTION MONITORING.
Owner/Manager:	SFPUC

Occurrence No.	1239	**Map Index:**	A2318	**EO Index:**	103932	**Element Last Seen:**	2013-02-05
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2013-02-05
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-10-21

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.76396 / -120.70898	**Accuracy:**	80 meters
UTM:	Zone-10 N4182098 E701802	**Elevation (ft):**	260
PLSS:	T02S, R11E, Sec. 13, NE (M)	**Acres:**	5.0

Location:	VICINITY OF HETCH HETCHY AQUEDUCT, ABOUT 1.5 MILES NE OF THE FOGARTY RD CROSSING, 3.3 MILES NNW OF PAULSELL.
Detailed Location:	MAPPED TO PROVIDED COORDINATES.
Ecological:	MOSTLY BARREN CONSTRUCTION AREA IN SFPUC RIGHT-OF-WAY, SURROUNDED BY NON-NATIVE GRASSLAND. INDIVIDUAL FOUND IN VOLE SURFACE TUNNELS, UNDER PIECE OF PLYWOOD.
General:	1 ADULT FEMALE FOUND DURING CONSTRUCTION ON 5 FEB 2013 AND RELOCATED TO BURROW ADJACENT TO NEARBY VERNAL POOLS (OCC #1238).
Owner/Manager:	SFPUC

Spea hammondii

Element Code: AAABF02020

western spadefoot

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3
	Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened			
Habitat:	**General:**	OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.			
	Micro:	VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.			

Occurrence No.	15	**Map Index:**	20938	**EO Index:**	9393	**Element Last Seen:**	1990-07-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1990-07-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1992-04-10

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.84625 / -120.71781	**Accuracy:**	80 meters
UTM:	Zone-10 N4191210 E700800	**Elevation (ft):**	250
PLSS:	T01S, R11E, Sec. 13 (M)	**Acres:**	0.0

Location: ON THE WEST SIDE OF SONORA ROAD, 3.4 MI NW OF KNIGHTS FERRY.

Detailed Location: LARVAE WERE FOUND IN A 10' X 6' POOL, AT THE OUTFALL OF A CULVERT UNDER SONORA ROAD, IN A SMALL EPHEMERAL STREAM, TRIBUTARY TO LITTLEJOHNS CREEK.

Ecological: SURROUNDING HABITAT CONSISTS OF INTRODUCED ANNUAL GRASSLAND.

General: THIS WAS THE ONLY STANDING WATER AWAY FROM LITTLEJOHNS CREEK. A WINDMILL 150 M NORTH OF THE POOL WAS PUMPING WATER INTO A LIVESTOCK TROUGH MAY HAVE BEEN THE SOURCE OF THE WATER FOR THE POOL IN THE STREAMBED. 19 LARVAE & 1 JUVENILE OBSERVED.

Owner/Manager: PVT

Occurrence No.	19	**Map Index:**	20946	**EO Index:**	9399	**Element Last Seen:**	1992-02-14
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1992-02-14
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1992-04-07

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.67937 / -120.60240	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4172946 E711431	**Elevation (ft):**	375
PLSS:	T03S, R12E, Sec. 13, NW (M)	**Acres:**	0.0

Location: CRABTREE ROAD, 2.6 MI NORTH OF HWY 132, 4 MI NORTH OF TURLOCK LAKE.

Detailed Location:

Ecological:

General: TWO OBSERVED ON CRABTREE ROAD, 9:00-9:30PM DURING AN INTERMITTENT RAIN STORM.

Owner/Manager: UNKNOWN

Occurrence No.	20	**Map Index:**	20947	**EO Index:**	9398	**Element Last Seen:**	1992-02-14
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1992-02-14
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1992-04-07

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.65651 / -120.60642	**Accuracy:**	80 meters
UTM:	Zone-10 N4170400 E711141	**Elevation (ft):**	230
PLSS:	T03S, R12E, Sec. 24, SW (M)	**Acres:**	0.0

Location: CRABTREE ROAD, 0.8 MI NORTH OF HWY 132, NORTH OF TURLOCK LAKE.

Detailed Location:

Ecological:

General: ONE SPADEFOOT TOAD OBSERVED, 9:00-9:30PM DURING INTERMITTENT RAIN.

Owner/Manager: UNKNOWN

Occurrence No.	21	**Map Index:**	20948	**EO Index:**	9396	**Element Last Seen:**	1992-02-14
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1992-02-14
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1992-04-07

Quad Summary: Cooperstown (3712065)
County Summary: Stanislaus

Lat/Long:	37.65081 / -120.61177	**Accuracy:**	80 meters
UTM:	Zone-10 N4169756 E710686	**Elevation (ft):**	230
PLSS:	T03S, R12E, Sec. 26, NE (M)	**Acres:**	0.0

Location: CRABTREE ROAD, 0.3 MI NORTH OF HWY 132, NORTH OF TURLOCK LAKE.
Detailed Location:
Ecological:
General: ONE SPADEFOOT TOAD OBSERVED, 9:00-9:30PM DURING INTERMITTENT RAIN.
Owner/Manager: UNKNOWN

Occurrence No.	34	**Map Index:**	24665	**EO Index:**	6527	**Element Last Seen:**	1993-04-15
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-04-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1993-11-02

Quad Summary: Knights Ferry (3712076)
County Summary: Stanislaus

Lat/Long:	37.80311 / -120.70925	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4186441 E701671	**Elevation (ft):**	260
PLSS:	T01S, R11E, Sec. 36, SE (M)	**Acres:**	0.0

Location: SOUTH OF HWY 120, 8 MILES EAST OF OAKDALE.
Detailed Location: FOUND IN A SMALL TEMPORARY POND LOCATED 100 FEET SOUTH OF HWY 120 AND 0.3 MILE WEST OF "STA 1400" HWY MARKER.
Ecological: HABITAT CONSISTS OF A TEMPORARY POND SURROUNDED BY GRAZED ANNUAL GRASSLAND IN ROLLING HILLS.
General: SITE FIRST OBSERVED ON 15 APRIL 1993; BY 23 APRIL, ONE TADPOLE AND NUMEROUS TOADLETS WERE PRESENT.
Owner/Manager: PVT

Occurrence No.	42	**Map Index:**	33067	**EO Index:**	3698	**Element Last Seen:**	1994-04-06
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-06
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1995-03-28

Quad Summary: Cooperstown (3712065)
County Summary: Stanislaus

Lat/Long:	37.73763 / -120.57950	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4179463 E713284	**Elevation (ft):**	245
PLSS:	T02S, R13E, Sec. 30, NE (M)	**Acres:**	0.0

Location: NORTH SIDE OF COOPERSTOWN ROAD, 0.6 MILE EAST OF WILLIAMS ROAD, ABOUT 8 MILES SE OF KNIGHTS FERRY.
Detailed Location:
Ecological: AMBYSTOMA CALIFORNIENSE ALSO FOUND AT THIS SITE.
General: COLLECTION #MW-94-32, DEPOSITED AT DFG-IFD.
Owner/Manager: UNKNOWN

Haliaeetus leucocephalus

Element Code: ABNKC10010

bald eagle

Listing Status:	**Federal:**	Delisted	**CNDDB Element Ranks:**	**Global:**	G5
	State:	Endangered		**State:**	S3
	Other:	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern			
Habitat:	**General:**	OCEAN SHORE, LAKE MARGINS, AND RIVERS FOR BOTH NESTING AND WINTERING. MOST NESTS WITHIN 1 MILE OF WATER.			
	Micro:	NESTS IN LARGE, OLD-GROWTH, OR DOMINANT LIVE TREE WITH OPEN BRANCHES, ESPECIALLY PONDEROSA PINE. ROOSTS COMMUNALLY IN WINTER.			

Occurrence No.	255	**Map Index:** 66674	**EO Index:**	66822	**Element Last Seen:**	1992-02-23
Occ. Rank:	Excellent		**Presence:**	Presumed Extant	**Site Last Seen:**	1992-02-23
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2006-10-10

Quad Summary: Turlock Lake (3712055), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.62168 / -120.54989	**Accuracy:**	3/5 mile
UTM:	Zone-10 N4166664 E716229	**Elevation (ft):**	250
PLSS:	T04S, R13E, Sec. 04 (M)	**Acres:**	0.0

Location: NORTHEAST END OF TURLOCK LAKE, NEAR LAKE ROAD.

Detailed Location:

Ecological: LAKE IN GRASSLAND AREA.

General: 1 ADULT AND 2 JUVENILES OBSERVED ON 23 FEB 1992.

Owner/Manager: STATE

Buteo swainsoni

Element Code: ABNKC19070

Swainson's hawk

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	Threatened		**State:**	S3
	Other:	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern			
Habitat:	**General:**	BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.			
	Micro:	REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.			

Occurrence No.	1611	**Map Index:**	63883	**EO Index:**	63978	**Element Last Seen:**	2002-07-21
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2002-07-21
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-02-02

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.98404 / -120.84909	**Accuracy:**	80 meters
UTM:	Zone-10 N4206227 E688895	**Elevation (ft):**	205
PLSS:	T02N, R10E, Sec. 35, NW (M)	**Acres:**	0.0

Location:	ALONG ROCK CREEK, 0.3 MILE WEST OF MILTON ROAD, 5.7 MILES SW OF SALT SPRING VALLEY RESERVOIR.
Detailed Location:	
Ecological:	NEST TREE WAS A VALLEY OAK; SURROUNDED BY ROW CROPS TO THE SE AND SW, AND PASTURELAND TO THE NE AND NW.
General:	FEMALE OBSERVED ON NEST, WITH MALE RETRIEVING PREY, ON 22 MAY; 1 ADULT FLEW FROM THE NEST AND 1 CHICK REMAINED AT THE NEST ON 21 JUL 2002.
Owner/Manager:	UNKNOWN

Occurrence No.	1720	**Map Index:**	79447	**EO Index:**	80428	**Element Last Seen:**	2010-05-27
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	2011-04-29
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-06-22

Quad Summary:	Waterford (3712067)
County Summary:	Stanislaus

Lat/Long:	37.74393 / -120.75520	**Accuracy:**	80 meters
UTM:	Zone-10 N4179776 E697783	**Elevation (ft):**	260
PLSS:	T02S, R11E, Sec. 22, SW (M)	**Acres:**	0.0

Location:	JUST SOUTH OF THE WATER TANK (TOPO), ABOUT 1/4 MILE NNE OF WARNERVILLE RD AT EMERY RD, ABOUT 5 MILES ESE OF OAKDALE.
Detailed Location:	MAPPED TO AERIAL IMAGE PROVIDED. PROBABLY LOCALLY EXTIRPATED SINCE THE NEST TREE WAS FELLED (2011) AND THERE DOES NOT APPEAR TO BE ANY OTHER NEST TREES WITHIN 1.8 MI RADIUS.
Ecological:	2010 NEST IN EUCALYPTUS TREE. AREA SURROUNDED BY AGRICULTURE & CATTLE GRAZING. IN 2010 SITE WAS DEEMED "EXCELLENT." NEST TREE FELLED BY 29 APR 2011 BY PROPERTY OWNER. NO OTHER TREES SUITABLE FOR NESTING W/IN 1.8 MI FROM 2010 AIR PHOTOS.
General:	PAIR OBS 13-27 MAY 2010 CONDUCTING MATING BEHAVIOR, COPULATING, & NEST BUILDING, BUT UNSUCCESSFUL. STILL OBSERVED IN VICINITY IN EARLY JUN 2010. THE PAIR RETURNED IN 2011, BUT AFTER THEIR RETURN & BEFORE NESTING, THE TREE WAS FELLED.
Owner/Manager:	PVT

Occurrence No.	2401	**Map Index:** 89832	**EO Index:**	90842	**Element Last Seen:**	1919-05-08
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1919-05-08
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2013-08-01

Quad Summary: La Grange (3712064), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.65543 / -120.48669	**Accuracy:**	1 mile
UTM:	Zone-10 N4170558 E721707	**Elevation (ft):**	200
PLSS:	T03S, R13E, Sec. 24 (M)	**Acres:**	0.0

Location: ALONG THE TUOLUMNE RIVER, ABOUT 1.5 MILES SOUTHWEST OF LA GRANGE.

Detailed Location: SPECIMEN LOCALITY STATED AS "LA GRANGE 1 MI S," BUT GRINNELL'S FIELD NOTES SUGGEST "2 MI SW LA GRANGE." MAPPED CENTERED AT 1.5 MI SW OF LA GRANGE.

Ecological: NEST 20' UP IN BLUE OAK IN BLUE OAK BELT ABOVE RIVER. OAK SNAG 12 M AWAY USED FOR ROOST. NEST 750 X 550 MM, 200 MM DEEP, OF BLUE OAK TWIGS, LINED WITH MAT OF FRESH BLUE OAK LEAVES & FOXTAILS; IN FORK OF TREE, MANY FALLEN TWIGS UNDERNEATH.

General: NEST WITH 1 EGG FIRST DISCOVERED ON 7 MAY 1919. NEST REVISITED ON 8 MAY; SWHA PAIR FLUSHED, 1 FROM PERCH, 1 FROM NEST. STORER FOUND AND PHOTOGRAPHED 2 EGGS IN THE NEST, 1 WAS COLLECTED (MVZ #1779).

Owner/Manager: UNKNOWN

Athene cunicularia

Element Code: ABNSB10010

burrowing owl

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G4
	State:	None		**State:**	S3
	Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern			
Habitat:	**General:**	OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.			
	Micro:	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.			

Occurrence No.	505	**Map Index:** 48980	**EO Index:**	48980	**Element Last Seen:**	1991-04-01
Occ. Rank:	Fair		**Presence:**	Presumed Extant	**Site Last Seen:**	1991-04-01
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2002-10-09

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.79834 / -120.85846	**Accuracy:**	80 meters
UTM:	Zone-10 N4185601 E688546	**Elevation (ft):**	230
PLSS:	T02S, R10E, Sec. 03, NE (M)	**Acres:**	0.0

Location: 1 MILE NNW OF THE INTERSECTION OF GILBERT ROAD & RODDEN ROAD, NORTH OF OAKDALE.

Detailed Location:

Ecological: HABITAT CONSISTS OF FALLOW AGRICULTURAL LAND, DOMINATED BY BRASSICA SPP, RAPHANUS SPP, ERODIUM SPP, AND TRIFOLIUM SPP. SOIL IS STONY WITH SILTY CLAY; VERY SLIGHT ASPECT/SLOPE. GROUND SQUIRREL BURROWS PRESENT FOR BURROW SITES.

General: 1 ADULT OBSERVED ON 1 APR 1991.

Owner/Manager: PVT

Eremophila alpestris actia **Element Code:** ABPAT02011

California horned lark

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5T4Q
	State:	None		**State:**	S4
	Other:	CDFW_WL-Watch List, IUCN_LC-Least Concern			
Habitat:	**General:**	COASTAL REGIONS, CHIEFLY FROM SONOMA COUNTY TO SAN DIEGO COUNTY. ALSO MAIN PART OF SAN JOAQUIN VALLEY AND EAST TO FOOTHILLS.			
	Micro:	SHORT-GRASS PRAIRIE, "BALD" HILLS, MOUNTAIN MEADOWS, OPEN COASTAL PLAINS, FALLOW GRAIN FIELDS, ALKALI FLATS.			

Occurrence No.	1	**Map Index:**	34859	**EO Index:**	8657	**Element Last Seen:**	XXXX-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	XXXX-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-07-30

Quad Summary:	Cooperstown (3712065), Keystone (3712075)
County Summary:	Stanislaus

Lat/Long:	37.74306 / -120.59200	**Accuracy:**	1 mile
UTM:	Zone-10 N4180037 E712167	**Elevation (ft):**	239
PLSS:	T02S, R12E, Sec. 24, SW (M)	**Acres:**	0.0

Location:	NNE OF WARNERVILLE; NEAR JUNCTION OF WILLMS ROAD AND ROCK RIVER ROAD.
Detailed Location:	
Ecological:	
General:	UNKNOWN NUMBERS OF HORNED LARKS OBSERVED BY B. COREY.
Owner/Manager:	UNKNOWN

Vireo bellii pusillus **Element Code:** ABPBW01114

least Bell's vireo

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G5T2
	State:	Endangered		**State:**	S2
	Other:	IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List			
Habitat:	**General:**	SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.			
	Micro:	NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.			

Occurrence No.	508	**Map Index:** 17383	**EO Index:**	92602	**Element Last Seen:** 1919-05-09
Occ. Rank:	None		**Presence:**	Possibly Extirpated	**Site Last Seen:** 2004-05-21
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:** 2014-02-26

Quad Summary: La Grange (3712064), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.64725 / -120.49729	**Accuracy:**	1 mile
UTM:	Zone-10 N4169624 E720797	**Elevation (ft):**	180
PLSS:	T03S, R13E, Sec. 25 (M)	**Acres:**	0.0

Location: ABOUT 2 MILES SW OF LA GRANGE, BETWEEN DON PEDRO RESERVOIR AND TURLOCK LAKE.

Detailed Location: PROVIDED COLLECTION LOCATION WAS "LA GRANGE, 2 MI SW" NEAR "DREDGER POND." MAPPED GENERALLY TO AREA ABOUT 2 MILES SW OF LA GRANGE TOWN CENTER, INCLUDING PORTIONS OF TUOLUMNE RIVER AND DAWSON LAKE. AREA PART OF GRINNELL'S YOSEMITE TRANSECT.

Ecological: NEST CONSTRUCTED WITHIN CLUMPS OF WILLOWS AND ALDERS.

General: NEST CONSISTING OF 1 EGG WAS COLLECTED (MVZ #1786) ON 9 MAY 1919 BY J. GRINNELL. ADULT MALE WAS CONSISTENTLY SINGING NEARBY AND WAS ALSO COLLECTED (MVZ #30873). NONE WERE DETECTED DURING 2004 RESURVEY OF GRINNELL'S YOSEMITE TRANSECT.

Owner/Manager: STA COUNTY-LA GRANGE RP, UNK

Icteria virens

Element Code: ABPBX24010

yellow-breasted chat

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	None		**State:**	S3
	Other:	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern			
Habitat:	**General:**	SUMMER RESIDENT; INHABITS RIPARIAN THICKETS OF WILLOW AND OTHER BRUSHY TANGLES NEAR WATERCOURSES.			
	Micro:	NESTS IN LOW, DENSE RIPARIAN, CONSISTING OF WILLOW, BLACKBERRY, WILD GRAPE; FORAGES AND NESTS WITHIN 10 FT OF GROUND.			

Occurrence No.	53	**Map Index:** 12632	**EO Index:**	24874	**Element Last Seen:** 1987-06-24
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:** 1987-06-24
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:** 1989-08-10

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.87158 / -120.79827	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4193851 E693654	**Elevation (ft):**	200
PLSS:	T01S, R11E, Sec. 06 (M)	**Acres:**	0.0

Location: NE OF JUNCTION OF LITTLEJOHN CREEK AND SONORA RD, APPROX 7.6MI NNE OF OAKDALE.

Detailed Location: ONE HEARD.

Ecological: WILLOW BOG 2-5 ACRES IN SIZE. CREEK AND COUNTY RD BORDERED BY DENSE BLACKBERRY AND SPARSE CANOPY OF LARGE WILLOWS, COTTONWOODS, AND BLACK WALNUT. SITE IS AN OASIS IN GRAZED ANNUAL GRASSLAND.

General:

Owner/Manager: PVT

Agelaius tricolor

Element Code: ABPBXB0020

tricolored blackbird

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2G3
	State:	Candidate Endangered		**State:**	S1S2
	Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern			
Habitat:	**General:**	HIGHLY COLONIAL SPECIES, MOST NUMEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.			
	Micro:	REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, AND FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.			

Occurrence No.	81	**Map Index:**	13346	**EO Index:**	24738	**Element Last Seen:**	1936-06-04
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	1936-06-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1991-07-25

Quad Summary: La Grange (3712064), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.66381 / -120.48297	**Accuracy:**	1 mile
UTM:	Zone-10 N4171496 E722011	**Elevation (ft):**	200
PLSS:	T03S, R13E, Sec. 24 (M)	**Acres:**	0.0

Location: DREDGER PITS, JUST W OF LA GRANGE.

Detailed Location: COLONY OF APPROX 4500 OBS BY NEFF NESTING IN CATTAILS.

Ecological:

General: PRESUMED EXTIRPATED ACC TO BEEDY 1991.

Owner/Manager: UNKNOWN

Occurrence No.	82	**Map Index:**	13293	**EO Index:**	11812	**Element Last Seen:**	1971-05-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1971-05-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1991-07-25

Quad Summary: Snelling (3712054), Turlock Lake (3712055), La Grange (3712064), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.63437 / -120.51103	**Accuracy:**	1 mile
UTM:	Zone-10 N4168162 E719622	**Elevation (ft):**	150
PLSS:	T03S, R13E, Sec. 35 (M)	**Acres:**	0.0

Location: 3.5 MI SW OF LA GRANGE.

Detailed Location: COLONY OF APPROX 2500 OBS BY DE HAVEN NESTING IN CATTAILS. SOME NEST-BUILDING. COLONY SIZE 0.5 ACRE.

Ecological: CATTAIL MARSH SURROUNDED BY IRRIGATED AND NONIRRIGATED PASTURES IN ROLLING HILLS.

General:

Owner/Manager: UNKNOWN

Occurrence No.	83	**Map Index:**	13277	**EO Index:**	24739	**Element Last Seen:**	1971-05-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1971-05-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-02-19

Quad Summary: Turlock Lake (3712055), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.61825 / -120.52519	**Accuracy:**	1 mile
UTM:	Zone-10 N4166341 E718420	**Elevation (ft):**	250
PLSS:	T04S, R13E, Sec. 03 (M)	**Acres:**	0.0

Location: APPROX 5 MI SW OF LA GRANGE.

Detailed Location: COLONY OF APPROX 1000 OBS BY DE HAVEN ESTABLISHING TERRITORY IN CATTAILS. COLONY SIZE 0.75 ACRE.

Ecological: NARROW STRIP OF CATTAIL IN RIPARIAN STREAM BOTTOM/GRAVEL PIT AREA SURROUNDED BY NONIRRIGATED ROLLING HILLS PASTURE.

General:

Owner/Manager: UNKNOWN

Occurrence No.	84	**Map Index:**	12592	**EO Index:**	24740	**Element Last Seen:**	1980-07-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1980-07-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-10-31

Quad Summary:	Waterford (3712067)
County Summary:	Stanislaus

Lat/Long:	37.74604 / -120.81688	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4179882 E692343	**Elevation (ft):**	200
PLSS:	T02S, R10E, Sec. 24, SE (M)	**Acres:**	0.0

Location:	0.3 MI N OF WARNERVILLE RD ON STEARNS RD, APPROX 8 MI NNW OF WATERFORD.
Detailed Location:	LOCATION DESCRIBED AS "NORTH OF WARNERVILLE ROAD (0.3 MILE) ON STEARNS ROAD, APPROXIMATELY 8 8 MILES NORTH-NORTHWEST OF WATERFORD."
Ecological:	TULES.
General:	A POSSIBLE NESTING COLONY OF UNKNOWN SIZE OBSERVED ON 9 JUL 1980; OBSERVED BY D.A. SMALL.
Owner/Manager:	UNKNOWN

Occurrence No.	86	**Map Index:**	13082	**EO Index:**	24735	**Element Last Seen:**	1936-06-04
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	1936-06-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1991-07-25

Quad Summary:	Turlock Lake (3712055), Montpelier (3712056), Cooperstown (3712065), Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.63464 / -120.63797	**Accuracy:**	1 mile
UTM:	Zone-10 N4167903 E708419	**Elevation (ft):**	120
PLSS:	T03S, R12E, Sec. 34 (M)	**Acres:**	0.0

Location:	MARSH NEAR ROBERTS FERRY, APPROX 6 MI E OF WATERFORD.
Detailed Location:	COLONY OF APPROX 1500 OBS BY NEFF IN CATTAIL/WILLOW MARSH.
Ecological:	
General:	PRESUMED EXTIRPATED ACC TO BEEDY 1991.
Owner/Manager:	UNKNOWN

Occurrence No.	110	**Map Index:**	12632	**EO Index:**	24718	**Element Last Seen:**	1987-06-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2011-04-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-08-25

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.87158 / -120.79827	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4193851 E693654	**Elevation (ft):**	200
PLSS:	T01S, R11E, Sec. 06 (M)	**Acres:**	0.0

Location:	NE OF JUNCTION OF LITTLEJOHN CREEK AND SONORA RD, APPROX 7.6 MI NNE OF OAKDALE.
Detailed Location:	MAPPED TO PROVIDED LOCATION DESCRIPTIONS OF "NE JUNCTION OF LITTLEJOHN CK AND SONORA RD" AND " SONORA RD, 1.4-1.7 MI W OF FRANKENHEIMER RD." COLONY DATA PARTIALLY STORED IN THE UC DAVIS TRBL PORTAL; SITE NAME WAS "SONORA ROAD #2."
Ecological:	WILLOW BOG 2-5 ACRES IN SIZE. CREEK & COUNTY RD BORDERED BY DENSE BLACKBERRY & SPARSE CANOPY OF LARGE WILLOWS, COTTONWOODS, & BLACK WALNUT. SITE IS AN OASIS IN GRAZED ANNUAL GRASSLAND WITH UNDULATED TERRAIN.
General:	APPROXIMATELY 250 BIRDS OBSERVED NESTING ON 9 JUN 1987; ADULTS CARRYING FOOD, FLEDGED YOUNG CONFIRMED. NO BIRDS OBSERVED ON 24 JUN 1987. 70-800 BIRDS OBSERVED ON 23-24 APR 1994; FORAGING. 0 OBSERVED ON 17 APR 2011.
Owner/Manager:	PVT

Occurrence No.	150	**Map Index:**	12552	**EO Index:**	24686	**Element Last Seen:**	1987-08-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1987-08-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1989-08-10

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.89214 / -120.84661	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4196033 E689349	**Elevation (ft):**	170
PLSS:	T01N, R10E, Sec. 35, SW (M)	**Acres:**	0.0

Location:	LITTLEJOHNS CREEK, AT SONORA ROAD CROSSING, APPROX 9 MI ESE OF FARMINGTON.
Detailed Location:	
Ecological:	MARSH AREA SUPPORTING APPROX 125 NESTING PAIRS.
General:	
Owner/Manager:	UNKNOWN

Occurrence No.	197	**Map Index:**	21583	**EO Index:**	12243	**Element Last Seen:**	2005-04-24
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2015-05-23
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-09-28

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.9342 / -120.8111	**Accuracy:**	2/5 mile
UTM:	Zone-10 N4200774 E692363	**Elevation (ft):**	223
PLSS:	T01N, R11E, Sec. 18, SW (M)	**Acres:**	280.0

Location:	VICINITY OF HWY 4 & DUNTON RD INTERSECTION, 2 MI ESE OF HWY 4 & MILTON RD INTERSECTION, W OF TELEGRAPH CITY.
Detailed Location:	BIRDS FOUND IN BOTH SMITH CREEK AND HOODS CREEK. APPEARED THAT HOODS CREEK SERVED AS THE PREDOMINANT NESTING SITE. COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAMES WERE "ORVIS RANCH" & "DUNTON ROAD/HOODS CREEK."
Ecological:	HABITAT CONSISTED OF COTTONWOOD/WILLOW RIPARIAN. CATTLE/TURKEY RANCH AND GRASSLANDS IN THE VICINITY. COLONY WAS NOT ACTIVE IN 1993. MAPPED ACCORDING TO PROVIDED MAPS AND LOCATION DESCRIPTIONS.
General:	500-1K OBS NESTING IN 1992. 1-3K LIKELY NESTING IN 1994. 3K FORAGING IN 1995. NOT SURVEYED IN 1996. 150 OBS IN 1997; ID NOT CONFIRMED. 500-3K POSSIBLY NESTING IN 1999. 1.5K LIKELY NESTING IN 2005. 300-1.3K FORAGING IN 2011. 0 IN 2014-15.
Owner/Manager:	PVT

Occurrence No.	372	**Map Index:**	52418	**EO Index:**	52418	**Element Last Seen:**	2014-04-18
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2014-04-20
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-09-22

Quad Summary:	Keystone (3712075)
County Summary:	Stanislaus, Tuolumne

Lat/Long:	37.76302 / -120.56027	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4182325 E714905	**Elevation (ft):**	300
PLSS:	T02S, R13E, Sec. 17, NE (M)	**Acres:**	0.0

Location:	VICINITY OF THE CLAY PITS JUST NORTHWEST OF ROCK RIVER ROAD ON THE TUOLOMNE/STANISLAUS COUNTY LINE.
Detailed Location:	COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME WAS "CLAY PIT." MAPPED ACCORDING TO PROVIDED COORDINATES AND LOCATION IN UCD PORTAL.
Ecological:	UNIRRIGATED PASTURE. A WATER-FILLED PIT CREATED BY MINING AND SURROUNDED BY A BAND OF MARSH VEGETATION.
General:	550 BIRDS OBSERVED NESTING IN 2001. 50 BIRDS OBSERVED ON 24 APR 2005. 0 OBSERVED ON 25 APR 2008. 150 BIRDS OBSERVED ON 14 & 18 APR 2014; FEEDING FLOCKS OBSERVED ADJACENT TO THE PRESUMED NESTING SITE. 35 BIRDS OBSERVED ON 20 APR 2014.
Owner/Manager:	UNKNOWN

Occurrence No.	742	**Map Index:**	A1360	**EO Index:**	102931	**Element Last Seen:**	2015-05-17
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2015-05-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-10-04

Quad Summary:	Copperopolis (3712086)
County Summary:	Calaveras

Lat/Long:	37.9837 / -120.6486	**Accuracy:**	2/5 mile
UTM:	Zone-10 N4206615 E706507	**Elevation (ft):**	986
PLSS:	T02N, R12E, Sec. 34 (M)	**Acres:**	280.0

Location:	ABOUT 0.75 MI NNE OF HWY 4 & HODSON RD INTERSECTION, COOPEROPOLIS.
Detailed Location:	MAPPED AS BEST GUESS TO PROVIDED LOCATION DESCRIPTIONS AND MAPS. COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME WERE "COPPEROPOLIS RESERVOIR," "ROCK CREEK ROAD AT HIGHWAY4," & "COPPEROPOLIS POND."
Ecological:	CATTAILS. GRASSY FIELDS WITH LIVESTOCK IN ADJACENT AREA.
General:	SMALL NESTING COLONY & FORAGING ADULTS OBS ON 20 APR 1996. 26 OBS ON 27 APR 1997; POSSIBLY NESTING. NO COLONY 22 APR 2000, 17 APR 2011, 21-26 APR & 27 MAY 2014. 200 OBS ON 17 MAY 2015; ONE BIRD W/ NEST MATERIAL, FEMALES PRESUMABLY HAD EGGS.
Owner/Manager:	UNKNOWN

Occurrence No.	922	**Map Index:**	A1442	**EO Index:**	103029	**Element Last Seen:**	2014-05-04
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2015-05-23
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-08-12

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.92054 / -120.84214	**Accuracy:**	specific area
UTM:	Zone-10 N4199195 E689670	**Elevation (ft):**	183
PLSS:	T01N, R10E, Sec. 23, SE (M)	**Acres:**	18.0

Location:	AREA JUST E OF MILTON RD BRIDGE OVER HOODS CREEK, 1.7 MI S OF HWY 4, 1.9 MI N OF EUGENE.
Detailed Location:	COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAMES WERE "S MILTON RD" AND "MILTON RD 1.6 MI SOUTH HWY 4." MAPPED ACCORDING TO PROVIDED LOCATIONS IN THE PORTAL.
Ecological:	HABITAT COMPOSED OF HIMALAYAN BLACKBERRY. BLACKBERRIES ALONG THE BANK OF HOODS CREEK.
General:	TWO SUBCOLONIES OF 120 & 140 BIRDS OBSERVED FORAGING ON 21 APR 2014, 2.5K OBSERVED CARRYING NEST MATERIAL ON 27 APR. 2K+ OBS CARRYING MUD FOR NEST BUILDING ON 4 MAY 2014. 4 OBS FORAGING ON 19 APR 2015, 0 OBS BY 23 MAY.
Owner/Manager:	PVT

Occurrence No.	923	**Map Index:**	A1444	**EO Index:**	103031	**Element Last Seen:**	2015-05-24
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2015-05-24
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-08-12

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.885 / -120.8295	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4195276 E690873	**Elevation (ft):**	195
PLSS:	T01S, R10E, Sec. 1, NW (M)	**Acres:**	18.0

Location:	ON N SIDE OF SONARA RD, ABOUT 1.3 MI SE OF INTERSECTION WITH MILTON RD, NE OF WOODWARD RESERVOIR.
Detailed Location:	COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME WAS "SONORA ROAD #3." MAPPED ACCORDING TO PROVIDED COORDINATES IN THE PORTAL. SEVERAL BRAMBLES (AT LEAST 6) OF BLACKBERRY OCCUPIED BY BIRDS IN 2014.
Ecological:	PREDOMINANT NESTING SUBSTRATE COMPOSED OF HIMALAYAN BLACKBERRY. ABOUT HALF THE COLONY WAS DESTROYED BY REMOVAL OF BLACKBERRIES ON 24 MAY 2015. 154 DISRUPTED NESTS, 62 DEAD YOUNG, AND 2 DEAD ADULTS CONFIRMED.
General:	2014: 12KBIRDS OBSERVED ON 21 APR; SOME CARRYING NEST MATERIAL. 12K STILL PRESENT BY 27 APR; COLONY VERY ACTIVE/NOISY. 8K ESTIMATED BY 4 MAY; FEEDING YOUNG. 2015: 500-600 OBS ON 18-19 APR. 7K OBS ON 28 APR. 400 OBS ON 24 MAY (NESTING).
Owner/Manager:	PVT

Occurrence No.	927	**Map Index:**	A1584	**EO Index:**	103177	**Element Last Seen:**	2008-04-25
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2015-05-23
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-08-25

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.99001 / -120.84856	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4206891 E688927	**Elevation (ft):**	211
PLSS:	T02N, R10E, Sec. 26, SW (M)	**Acres:**	66.0

Location:	ALONG MILTON RD, 2.7 MI S OF ROCK CREEK RD INTERSECTION, 3.2 MI N OF HWY 4, S OF MILTON.
Detailed Location:	LOCATION DESCRIBED AS "MILTON ROAD, SOUTH OF CALAVERAS COUNTY LINE" AND "MILTON RD 3.1-3.3 N OF HWY 4, 0.2 MI W OF MILTON RD." COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME WAS "MILTON RD #1."
Ecological:	NESTING IN A RIPARIAN AREA WITH OTHER BLACKBIRDS. GENERAL AREA COMPOSED OF GRASSLANDS.
General:	400 OBS NESTING ON 23 APR 1987. 500 OBS ON 23-24 APR 1994; NESTING SUSPECTED. 120 OBS ON 24 APR 1999. 5.5K POSSIBLY NESTED ON 22 MAY 2005. 12.5K OBS NESTING ON 25 APR 2008. 200 OBS IN 2011. 20-50 OBS ON APR-MAY 2014. 0 ON APR-MAY 2015.
Owner/Manager:	UNKNOWN

Occurrence No.	970	**Map Index:**	A1969	**EO Index:**	103558	**Element Last Seen:**	1995-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1995-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-11-04

Quad Summary:	New Melones Dam (3712085)
County Summary:	Calaveras, Tuolumne

Lat/Long:	37.9384 / -120.5333	**Accuracy:**	4/5 mile
UTM:	Zone-10 N4201850 E716767	**Elevation (ft):**	938
PLSS:	T01N, R13E, Sec. 15 (M)	**Acres:**	1312.0

Location:	JUST BELOW NEW MELONES DAM, 6.9 MI SE OF COPPEROPOLIS.
Detailed Location:	LOCATION DESCRIBED AS "ABOUT 2 MILES EAST OF SIERRA CONSERVATION CAMP, EAST OF COPPEROPOLIS ON THE O'BYRNES FERRY... LESS THAN A MILE WEST OF THE NEW MELONES DAM POWER HOUSE." MAPPED GENERALLY TO THE AREA BELOW THE DAM.
Ecological:	HABITAT WAS VALLEY OAK-GRASSLANDS. BIRDS FEEDING IN GRASSY HILLSIDES AND IN A SMALL DRAINAGE. COLONY DATA STORED IN THE UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME WAS "NEW MELONES LAKE DAM."
General:	AN ESTIMATED 300 BIRDS OBSERVED FLYING BACK AND FORTH ACROSS THE ROAD IN 1995; OBSERVER BELIEVED THE COLONY BRED AT THIS LOCATION.
Owner/Manager:	USBOR

Oncorhynchus mykiss irideus pop. 11 **Element Code:** AFCHA0209K

steelhead - Central Valley DPS

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G5T2Q
	State:	None		**State:**	S2
	Other:	AFS_TH-Threatened			
Habitat:	**General:**	POPULATIONS IN THE SACRAMENTO AND SAN JOAQUIN RIVERS AND THEIR TRIBUTARIES.			
	Micro:				

Occurrence No.	20	**Map Index:**	91311	**EO Index:**	92386	**Element Last Seen:**	2014-01-20
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2014-01-20
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2014-03-28

Quad Summary: Riverbank (3712068), Knights Ferry (3712076), Oakdale (3712077), Escalon (3712078), Salida (3712161), Ripon (3712162), Avena (3712171)

County Summary: Calaveras, San Joaquin, Stanislaus, Tuolumne

Lat/Long:	37.80905 / -120.67948	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4187166 E704276	**Elevation (ft):**	
PLSS:	T01S, R12E, Sec. 32 (M)	**Acres:**	6681.0

Location: LOWER STANISLAUS RIVER, FROM ITS MOUTH IN THE SAN JOAQUIN RIVER TO GOODWIN DAM (RM 58.4).

Detailed Location: MAPPED TO RIVER REACH NAVIGABLE BY STEELHEAD (SH). GOODWIN DAM(GD) IS BARRIER TO ANADROMY. ROTARY SCREW TRAPS (RSTS) AT CASWELL SP (RM8.6) & OAKDALE (RM40.1). REARING & SUSPECTED SPAWNING GROUNDS BETWEEN GD & ORANGE BLOSSOM BRIDGE (RM46.9).

Ecological: SNORKEL SURVEYS 2000-07 INDICATED MANY JUVENILES EMIGRATED IN FALL (OR TOOK REFUGE UNDER SUBSTRATE IN WINTER). HIGHEST TROUT DENSITIES IN UPPER REACHES & GRAVEL AUGMENTATION SITES. IN 2008 OTOLITH STUDY 11% TROUT OF SAMPLED WERE SH PROGENY.

General: AVERAGE CATCH/YEAR FROM RSTS (#RSTS VARIED) = 23 IN 1993-1999; 44 IN 2000-2010; MANY WERE SMOLTS. VIDEO WEIR NEAR RM31 RECORDED U/S MIGRATION OF 1-17 ADULTS/YR FROM 2005-2010, 24-92 TROUT/YR FROM 2011-2014 (26 -40% HATCHERY ORIGIN).

Owner/Manager: UNKNOWN

Occurrence No.	22	**Map Index:**	91459	**EO Index:**	92517	**Element Last Seen:**	2014-01-19
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2014-01-19
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2014-03-28

Quad Summary: Denair (3712057), Ceres (3712058), La Grange (3712064), Cooperstown (3712065), Paulsell (3712066), Waterford (3712067), Riverbank (3712068), Brush Lake (3712151), Westley (3712152)

County Summary: Stanislaus

Lat/Long:	37.66641 / -120.47058	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4171814 E723096	**Elevation (ft):**	
PLSS:	T03S, R14E, Sec. 19 (M)	**Acres:**	6353.0

Location: LOWER TUOLUMNE RIVER, FROM ITS MOUTH IN THE SAN JOAQUIN RIVER TO LA GRANGE DAM (RM52).

Detailed Location: MAPPED UP TO LA GRANGE DAM (BUILT 1893), LIMIT TO ANADROMY. RSTS AT SHILOH 1995-98 (RM3.4), GRAYSON SINCE '99 (RM5.2), WATERFORD SINCE 2006 (RM29.8). SNORKEL SURVEYS FROM DAM TO ~RM31.5. SEINES FROM MOUTH TO DAM. VIDEO WEIR AT RM24.5.

Ecological: SPAWNING IN 20 MI BELOW DAM. IN 2008 OTOLITH STUDY, 10 OF 147 TROUT (6.8%) WERE SH PROGENY; 1 WAS A SH. INCREASE IN SUMMER POPS AFTER BASE FLOW AUGMENTATION STARTING 1995. SPIKE IN 2011 #S MAY BE HATCHERY TROUT ESCAPED FROM U/S RESERVOIRS.

General: 0-51 SEINED, 1983-2012. SNORKEL INDEX: ONLY 1 OBS 1987-94; AVG 420, 2001-2012 (HIGH 1,327 IN 2011). POP ESTS SINCE '08: FROM 109 (MAR '10) TO 56,973 (SEP '11). SOME MIGRATION INDICATED: RST #S FROM 0-11, 2000-12; WEIR #S FROM 0-16, 2009-14.

Owner/Manager: UNKNOWN

Lavinia symmetricus ssp. 3

Element Code: AFCJB19028

Red Hills roach

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G4T1
	State:	None		**State:**	S1
	Other:	AFS_VU-Vulnerable, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern			
Habitat:	**General:**	SMALL STREAMS NEAR SONORA.			
	Micro:	FOUND IN AREAS WITH SERPENTINE SOIL.			

Occurrence No.	6	**Map Index:**	42624	**EO Index:**	42624	**Element Last Seen:**	1999-06-15
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-06-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2005-07-12

Quad Summary: Keystone (3712075), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.87406 / -120.50774	**Accuracy:**	specific area
UTM:	Zone-10 N4194770 E719204	**Elevation (ft):**	1030
PLSS:	T01S, R13E, Sec. 02, SE (M)	**Acres:**	18.7

Location: ANDREW CREEK, AT THE CROSSING OF HIGHWAY 108/120, 2.7 MILES NORTH OF KEYSTONE, RED HILLS.

Detailed Location: CREEK IN CULVERT BELOW HIGHWAY 108.

Ecological: FINE ROCK, ALGAE, FISH ABUNDANT IN POOLS 1 TO 3 FEET DEEP. SURROUNDING LAND USE PASTURE/COWS.

General: 17 APR 1999: "MANY" OBSERVED. 15 JUN 1999: 5 ADULTS COLLECTED, FIN CLIPS TAKEN AND FISH RELEASED; UCSC MUSEUM #WJJLS37.

Owner/Manager: PVT

Occurrence No.	7	**Map Index:**	51535	**EO Index:**	51535	**Element Last Seen:**	2000-07-10
Occ. Rank:	Poor			**Presence:**	Presumed Extant	**Site Last Seen:**	2000-07-10
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2003-06-13

Quad Summary: New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.92601 / -120.53054	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4200481 E717046	**Elevation (ft):**	800
PLSS:	T01N, R13E, Sec. 22, NE (M)	**Acres:**	0.0

Location: PEORIA CREEK. EAST OF THE STANISLAUS RIVER, BETWEEN TULLOCK RESERVOIR & NEW MELONES LAKE.

Detailed Location: PEORIA CREEK NEAR THE FIRE STATION.

Ecological: CREEK WITH HEAVY UNDERBRUSH, SOME CATTAILS IN LARGE POOLS. LOTS OF GAMBUSIA & LOTS OF BENTHIC FILAMENTOUS ALGAE.

General: 5 CAPTURED, FIN CLIPPED AND RELEASED.

Owner/Manager: UNKNOWN

Mylopharodon conocephalus

Element Code: AFCJB25010

hardhead

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3
	Other:	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive			
Habitat:	**General:**	LOW TO MID-ELEVATION STREAMS IN THE SACRAMENTO-SAN JOAQUIN DRAINAGE. ALSO PRESENT IN THE RUSSIAN RIVER.			
	Micro:				

CLEAR, DEEP POOLS WITH SAND-GRAVEL-BOULDER BOTTOMS AND SLOW WATER VELOCITY. NOT FOUND WHERE EXOTIC CENTRARCHIDS PREDOMINATE.

Occurrence No.	14	**Map Index:**	91459	**EO Index:**	73886	**Element Last Seen:**	2008-03-27
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2008-04-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-11-23

Quad Summary: Denair (3712057), Ceres (3712058), La Grange (3712064), Cooperstown (3712065), Paulsell (3712066), Waterford (3712067), Riverbank (3712068), Brush Lake (3712151), Westley (3712152)

County Summary: Stanislaus

Lat/Long:	37.66641 / -120.47058	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4171814 E723096	**Elevation (ft):**	70
PLSS:	T03S, R14E, Sec. 19 (M)	**Acres:**	6353.0

Location: TUOLUMNE RIVER DOWNSTREAM OF THE LA GRANGE DAM.

Detailed Location: MAPPED TO INCLUDE SNORKEL SURVEY AREA (IN 2015, THE 20-MILE REACH OF RIVER BELOW LA GRANGE DAM) & SEINE STATIONS WHERE SPECIES WAS DETECTED (LEGION @ RM 17.2, TRR @ RM 42.3, R5 @ RM 48.0, R4B @ RM 48.4). EXACT EXTENT IN WATERSHED UNKNOWN.

Ecological: OTHER FISH TAKEN INCLUDED HITCH, SMALLMOUTH BASS, BLUEGILL, CHINOOK SALMON, RAINBOW TROUT, SACRAMENTO PIKEMINNOW, LAMPREY & MANY OTHERS (2008). MANY HABITAT TYPES OBSERVED INCLUDING RIFFLES, RUNS, AND POOLS.

General: SEINING: 14 OBSERVED IN 2005, 119 IN 2008, 57 IN 2009, 31 IN 2010, 12 IN 2011. AVERAGE 3.5 FISH/SAMPLE-DAY CAUGHT IN ROTARY SCREW TRAP, 2006-08. SNORKEL: 335 OBS IN 2004, 3 IN '05, 575 IN '07, 248 IN '09, 13 IN '10, 34 IN '12 & 146 IN '15.

Owner/Manager: UNKNOWN

Occurrence No.	15	**Map Index:**	72976	**EO Index:**	73888	**Element Last Seen:**	2008-03-27
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2008-04-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-08-11

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.77083 / -120.86777	**Accuracy:**	80 meters
UTM:	Zone-10 N4182530 E687795	**Elevation (ft):**	104
PLSS:	T02S, R10E, Sec. 10, SW (M)	**Acres:**	0.0

Location: STANISLAUS RIVER JUST NW OF OAKDALE.

Detailed Location:

Ecological: OTHER FISH TAKEN: GOLDEN SHINER, LARGEMOUTH BASS, PRICKLY SCULPIN, RAINBOW TROUT, SACRAMENTO BLACKFISH, SACRAMENTO PIKEMINNOW, SACRAMENTO SUCKER, MOSQUITOFISH, CHINOOK SALMON, COMMON CARP, LAMPREY, BLUEGILL, REDEAR SUNFISH, TULE PERCH.

General: TAKEN ON 72 SAMPLE DATES 1 MAY 2006 TO 2 APR 2008. 1-81 FISH (AVE = 5.7 FISH/SAMPLE DATE) CAPTURED IN ROTARY SCREW TRAP & RELEASED. OTHER FISH TAKEN: WHITE CATFISH, RED SHINER, BLACK CRAPPIE, HITCH, RIFFLE SCULPIN, GOLDFISH, WARMOUTH.

Owner/Manager: UNKNOWN

Occurrence No.	28	**Map Index:**	73938	**EO Index:**	74951	**Element Last Seen:**	2007-05-23
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2007-05-23
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2009-03-16

Quad Summary:	Waterford (3712067)
County Summary:	Stanislaus

Lat/Long:	37.63589 / -120.75917	**Accuracy:**	80 meters
UTM:	Zone-10 N4167780 E697720	**Elevation (ft):**	70
PLSS:	T03S, R11E, Sec. 33, NE (M)	**Acres:**	0.0

Location:	TUOLUMNE RIVER AT OAKDALE WATERFORD HIGHWAY, WATERFORD.
Detailed Location:	MAPPED TO PROVIDED COORDINATES.
Ecological:	
General:	12 INDIVIDUALS CAPTURED VIA SEINING (& RELEASED) ON 14 FEB, 10 ON 28 FEB, 3 ON 14 MAR, AND 75 ON 23 MAY 2007.
Owner/Manager:	UNKNOWN

Myotis yumanensis

Element Code: AMACC01020

Yuma myotis

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	None		**State:**	S4
	Other:	BLM_S-Sensitive, IUCN_LC-Least Concern, WBWG_LM-Low-Medium Priority			
Habitat:	**General:**	OPTIMAL HABITATS ARE OPEN FORESTS AND WOODLANDS WITH SOURCES OF WATER OVER WHICH TO FEED.			
	Micro:	DISTRIBUTION IS CLOSELY TIED TO BODIES OF WATER. MATERNITY COLONIES IN CAVES, MINES, BUILDINGS OR CREVICES.			

Occurrence No.	145	**Map Index:**	68813	**EO Index:**	69336	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.77654 / -120.78129	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4183340 E695398	**Elevation (ft):**	108
PLSS:	T02S, R11E, Sec. 08 (M)	**Acres:**	61.0

Location:	ABOUT 3.7 ROAD MILES NE OF OAKDALE ON HWY 120, AT INTERSECTION WITH ORANGE BLOSSOM RD.
Detailed Location:	EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "ORANGE BLOSSOM, HWY 120." MAPPED AS BEST ESTIMATE.
Ecological:	
General:	INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.
Owner/Manager:	UNKNOWN

Occurrence No.	146	**Map Index:**	68815	**EO Index:**	69342	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-04

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81431 / -120.72429	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4187653 E700317	**Elevation (ft):**	164
PLSS:	T01S, R11E, Sec. 26 (M)	**Acres:**	152.0

Location: ABOUT 3 MILES WSW OF KNIGHTS FERRY, HORSESHOE ROAD.

Detailed Location: EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "HORSESHOE A & B, HWY 120." THE ENTIRE HORSESHOE RD NEAR HWY 120 WAS MAPPED.

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.

Owner/Manager: UNKNOWN

Occurrence No.	147	**Map Index:**	66400	**EO Index:**	69349	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81974 / -120.67173	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188369 E704929	**Elevation (ft):**	130
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY PIE04R001; INCLUDES LOCALITY "COTTONWOODS."

Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 3 JUL 1998, 17 JUN, 15 AUG, & 16 SEP 1999.

Owner/Manager: UNKNOWN

Occurrence No.	192	**Map Index:**	64072	**EO Index:**	69716	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Knights Ferry (3712076)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.84068 / -120.64195	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4190759 E707492	**Elevation (ft):**	250
PLSS:	T01S, R12E, Sec. 22 (M)	**Acres:**	0.0

Location: ABOUT 2 MILES NE OF KNIGHTS FERRY, STANISLAUS RIVER, TWO MILE BAR.

Detailed Location:

Ecological:

General: BAT(S) DETECTED ON 16 SEP 1999.

Owner/Manager: UNKNOWN

Occurrence No.	193	**Map Index:**	69001	**EO Index:**	69722	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location:	ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.
Detailed Location:	MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY PIE04R001. INCLUDES "FLOODPLAIN," "HC PLATFORM, RIVER EDGE," & "PICNIC AREA."
Ecological:	COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.
General:	BAT(S) DETECTED ON 3 JUL & 15 SEP 1998. 29 APR, 17 -18 JUN, 15 AUG 16 SEP & 22 OCT 1999.
Owner/Manager:	UNKNOWN

Occurrence No.	195	**Map Index:**	69005	**EO Index:**	69733	**Element Last Seen:**	1999-04-29
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-04-29
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.78819 / -120.76259	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4184672 E697014	**Elevation (ft):**	120
PLSS:	T02S, R11E, Sec. 04, SE (M)	**Acres:**	0.0

Location:	ABOUT 5 MILES ENE OF OAKDALE, ORANGE BLOSSOM RD CROSSING OF STANISLAUS RIVER.
Detailed Location:	EXACT LOCATION UNKNOWN. SOURCE GIVES LOCALITY AS "STANISLAUS RIVER, ORANGE BLOSSOM." MAPPED AS BEST ESTIMATE AT ORANGE BLOSSOM RD CROSSING OF STANISLAUS RIVER.
Ecological:	
General:	BAT(S) DETECTED ON 29 APR 1999.
Owner/Manager:	UNKNOWN

Lasionycteris noctivagans

Element Code: AMACC02010

silver-haired bat

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	None		**State:**	S3S4
	Other:	IUCN_LC-Least Concern, WBWG_M-Medium Priority			
Habitat:	**General:**	PRIMARILY A COASTAL AND MONTANE FOREST DWELLER, FEEDING OVER STREAMS, PONDS & OPEN BRUSHY AREAS.			
	Micro:	ROOSTS IN HOLLOW TREES, BENEATH EXFOLIATING BARK, ABANDONED WOODPECKER HOLES, AND RARELY UNDER ROCKS. NEEDS DRINKING WATER.			

Occurrence No.	138	**Map Index:** 69001	**EO Index:** 69718	**Element Last Seen:**	1999-04-29
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	1999-04-29
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2007-04-23

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location: ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY SOURCE, WITH LOCALITY "FLOODPLAIN."

Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.

General: BAT(S) DETECTED ON 29 APR 1999.

Owner/Manager: UNKNOWN

Lasiurus cinereus

Element Code: AMACC05030

hoary bat

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	None		**State:**	S4
	Other:	IUCN_LC-Least Concern, WBWG_M-Medium Priority			
Habitat:	**General:**	PREFERS OPEN HABITATS OR HABITAT MOSAICS, WITH ACCESS TO TREES FOR COVER AND OPEN AREAS OR HABITAT EDGES FOR FEEDING.			
	Micro:	ROOSTS IN DENSE FOLIAGE OF MEDIUM TO LARGE TREES. FEEDS PRIMARILY ON MOTHS. REQUIRES WATER.			

Occurrence No.	157	**Map Index:**	68815	**EO Index:**	69341	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-04

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81431 / -120.72429	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4187653 E700317	**Elevation (ft):**	164
PLSS:	T01S, R11E, Sec. 26 (M)	**Acres:**	152.0

Location: ABOUT 3 MILES WSW OF KNIGHTS FERRY, HORSESHOE ROAD.

Detailed Location: EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "HORSESHOE A & B, HWY 120." THE ENTIRE HORSESHOE RD NEAR HWY 120 WAS MAPPED.

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.

Owner/Manager: UNKNOWN

Occurrence No.	158	**Map Index:**	66400	**EO Index:**	69348	**Element Last Seen:**	1999-10-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-10-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81974 / -120.67173	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188369 E704929	**Elevation (ft):**	130
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY SOURCE. INCLUDES LOCALITIES KNIGHTS FERRY "COTTONWOODS."

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 3 JUL 1998, 29 APR, 17 JUN, 15 AUG, 16 SEP AND 22 OCT 1999.

Owner/Manager: UNKNOWN

Occurrence No.	208	**Map Index:**	69001	**EO Index:**	69720	**Element Last Seen:**	1999-10-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-10-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location: ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATS PROVIDED BY SOURCE. INCLUDES "FLOODPLAIN," "HC PLATFORM, RIVER EDGE," & "PICNIC AREA."

Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.

General: BAT(S) DETECTED ON 3 JUL & 15 SEP 1998. 29 APR, 17 -18 JUN, 15 AUG, 16 SEP & 22 OCT 1999.

Owner/Manager: UNKNOWN

Occurrence No.	210	**Map Index:** 69005	**EO Index:**	69731	**Element Last Seen:**	1999-04-29
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1999-04-29
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.78819 / -120.76259	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4184672 E697014	**Elevation (ft):**	120
PLSS:	T02S, R11E, Sec. 04, SE (M)	**Acres:**	0.0

Location: ABOUT 5 MILES ENE OF OAKDALE, ORANGE BLOSSOM RD CROSSING OF STANISLAUS RIVER.

Detailed Location: EXACT LOCATION UNKNOWN. SOURCE GIVES LOCALITY AS "STANISLAUS RIVER, ORANGE BLOSSOM." MAPPED AS BEST ESTIMATE AT ORANGE BLOSSOM RD CROSSING OF STANISLAUS RIVER.

Ecological:

General: BAT(S) DETECTED ON 29 APR 1999.

Owner/Manager: UNKNOWN

Lasiurus blossevillii

Element Code: AMACC05060

western red bat

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	None		**State:**	S3
	Other:	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority			
Habitat:	**General:**	ROOSTS PRIMARILY IN TREES, 2-40 FT ABOVE GROUND, FROM SEA LEVEL UP THROUGH MIXED CONIFER FORESTS.			
	Micro:	PREFERS HABITAT EDGES AND MOSAICS WITH TREES THAT ARE PROTECTED FROM ABOVE AND OPEN BELOW WITH OPEN AREAS FOR FORAGING.			

Occurrence No.	18	**Map Index:** 68813	**EO Index:**	69334	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.77654 / -120.78129	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4183340 E695398	**Elevation (ft):**	108
PLSS:	T02S, R11E, Sec. 08 (M)	**Acres:**	61.0

Location: ABOUT 3.7 ROAD MILES NE OF OAKDALE ON HWY 120, AT INTERSECTION WITH ORANGE BLOSSOM RD.

Detailed Location: EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "ORANGE BLOSSOM, HWY 120." MAPPED AS BEST ESTIMATE.

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.

Owner/Manager: UNKNOWN

Occurrence No.	19	**Map Index:**	68815	**EO Index:**	69340	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-04

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81431 / -120.72429	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4187653 E700317	**Elevation (ft):**	164
PLSS:	T01S, R11E, Sec. 26 (M)	**Acres:**	152.0

Location: ABOUT 3 MILES WSW OF KNIGHTS FERRY, HORSESHOE ROAD.

Detailed Location: EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "HORSESHOE B, HWY 120." THE ENTIRE HORSESHOE RD NEAR HWY 120 WAS MAPPED.

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.

Owner/Manager: UNKNOWN

Occurrence No.	20	**Map Index:**	66400	**EO Index:**	69347	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81974 / -120.67173	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188369 E704929	**Elevation (ft):**	220
PLSS:	T01S, R12E, Sec. 29, NE (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY PIE04R0001. INCLUDES LOCALITY "COTTONWOODS."

Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 3 JUL 1998, 29 APR (MAXIMUM # OF DETECTION OBTAINED BY A SINGLE DETECTOR WAS 2), 15 AUG (MAX. 12), & 16 SEP (MAX. 5) 1999.

Owner/Manager: UNKNOWN

Occurrence No.	72	**Map Index:**	64072	**EO Index:**	69715	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Knights Ferry (3712076)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.84068 / -120.64195	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4190759 E707492	**Elevation (ft):**	250
PLSS:	T01S, R12E, Sec. 22, NW (M)	**Acres:**	0.0

Location: ABOUT 2 MILES NE OF KNIGHTS FERRY, STANISLAUS RIVER, TWO MILE BAR.

Detailed Location:

Ecological:

General: BAT(S) DETECTED ON 16 SEP 1999.

Owner/Manager: UNKNOWN

Occurrence No.	73	**Map Index:**	69001	**EO Index:**	69719	**Element Last Seen:**	1999-10-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-10-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location:	ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.
Detailed Location:	MAPPED ACCORDING TO LAT/LONG COORDINATS PROVIDED BY PIE04R0001. INCLUDES "FLOODPLAIN," "HC PLATFORM, RIVER EDGE," & "PICNIC AREA."
Ecological:	COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.
General:	BAT(S) DETECTED ON 3 JUL & 15 SEP 1998. 29 APR, 17 -18 JUN, 15 AUG, 16 SEP & 22 OCT 1999.
Owner/Manager:	UNKNOWN

Occurrence No.	75	**Map Index:**	69005	**EO Index:**	69732	**Element Last Seen:**	1999-04-29
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-04-29
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary:	Oakdale (3712077)
County Summary:	Stanislaus

Lat/Long:	37.78819 / -120.76259	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4184672 E697014	**Elevation (ft):**	120
PLSS:	T02S, R11E, Sec. 04, SE (M)	**Acres:**	0.0

Location:	ABOUT 5 MILES ENE OF OAKDALE, ORANGE BLOSSOM RD CROSSING OF STANISLAUS RIVER.
Detailed Location:	EXACT LOCATION UNKNOWN. SOURCE GIVES LOCALITY AS "STANISLAUS RIVER, ORANGE BLOSSOM." MAPPED AS BEST ESTIMATE AT ORANGE BLOSSOM RD CROSSING OF STANISLAUS RIVER.
Ecological:	
General:	BAT(S) DETECTED ON 29 APR 1999.
Owner/Manager:	UNKNOWN

Corynorhinus townsendii

Element Code: AMACC08010

Townsend's big-eared bat

Listing Status: **Federal:** None **CNDDB Element Ranks:** **Global:** G3G4
State: None **State:** S2
Other: BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority

Habitat: **General:** THROUGHOUT CALIFORNIA IN A WIDE VARIETY OF HABITATS. MOST COMMON IN MESIC SITES.
Micro: ROOSTS IN THE OPEN, HANGING FROM WALLS AND CEILINGS. ROOSTING SITES LIMITING. EXTREMELY SENSITIVE TO HUMAN DISTURBANCE.

Occurrence No.	37 **Map Index:** 13112	**EO Index:**	24314	**Element Last Seen:**	2001-08-12
Occ. Rank:	Good	**Presence:**	Presumed Extant	**Site Last Seen:**	2001-08-12
Occ. Type:	Natural/Native occurrence	**Trend:**	Unknown	**Record Last Updated:**	2001-10-11

Quad Summary: Knights Ferry (3712076)
County Summary: Calaveras, Tuolumne

Lat/Long:	37.86242 / -120.63275	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4193191 E708240	**Elevation (ft):**	365
PLSS:	T01S, R12E, Sec. 10, SE (M)	**Acres:**	0.0

Location: GOODWIN DAM, KNIGHTS FERRY.
Detailed Location: BATS ROOST IN AN ABANDONED MINE SHAFT ON THE NORTH SLOPE OF THE RIVER CANYON, ABOUT 100 METERS DOWNSTREAM OF GOODWIN RESERVOIR DAM.
Ecological: HABITAT CONSISTS OF STEEP-SIDED SLOPES ADJACENT TO THE STANISLAUS RIVER BELOW GOODWIN RESERVOIR. ROOST SITE IS AN OLD MINE SHAFT (2 METERS HIGH X 2.5 METERS WIDE X 50 METERS DEEP). ENTRANCE IS OBSCURED BY 20-FT HIGH DECIDUOUS SHRUBS.
General: MVZ SPECIMEN #112333 COLLECTED ON 14 NOV 1948. 30-40 INDIVIDUALS OBSERVED USING THE MINE ON 12 AUG 2001; AN EQUAL NUMBER OF YUMA MYOTIS ALSO PRESENT.
Owner/Manager: UNKNOWN

Occurrence No.	202 **Map Index:** 69001	**EO Index:**	69346	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown	**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence	**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Knights Ferry (3712076)
County Summary: Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location: ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.
Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY SOURCE. INCLUDES LOCALITIES "KNIGHTS FERRY RIVER" AND "HC PLATFORM, RIVER EDGE."
Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.
General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.
Owner/Manager: UNKNOWN

Antrozous pallidus

Element Code: AMACC10010

pallid bat

Listing Status: **Federal:** None **CNDDB Element Ranks:** **Global:** G5
State: None **State:** S3
Other: BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority

Habitat:	**General:**	DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS AND FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.
	Micro:	ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Occurrence No.	64	**Map Index:**	46016	**EO Index:**	46016	**Element Last Seen:**	2001-08-07
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2001-08-07
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2001-10-02

Quad Summary:	New Melones Dam (3712085)
County Summary:	Calaveras

Lat/Long:	37.87785 / -120.60688	**Accuracy:**	80 meters
UTM:	Zone-10 N4194962 E710472	**Elevation (ft):**	500
PLSS:	T01S, R12E, Sec. 01 (M)	**Acres:**	0.0

Location:	NORTH END OF TULLOCH RESERVOIR DAM.
Detailed Location:	BASALT CLIFF FORMATIONS SURROUND THE STANISLAUS RIVER CANYON IN THIS AREA; CLIFFS ARE FOUND WITHIN 0.25-0.50 MILE OF THE TRAPPING SITE.
Ecological:	HABITAT SURROUNDING THE RESERVOIR CONSISTS OF OAK SAVANNAH, WITH NUMEROUS OAK SNAGS. SITE HAS A SOUTHERLY ASPECT, WITH A SLOPE OF ABOUT 4%.
General:	1 ADULT TRAPPED ON 7 AUG 2001.
Owner/Manager:	TRI-DAM

Occurrence No.	361	**Map Index:**	68815	**EO Index:**	69337	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-04

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.81431 / -120.72429	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4187653 E700317	**Elevation (ft):**	164
PLSS:	T01S, R11E, Sec. 26 (M)	**Acres:**	152.0

Location:	ABOUT 3 MILES WSW OF KNIGHTS FERRY, HORSESHOE ROAD.
Detailed Location:	EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "HORSESHOE B, HWY 120." THE ENTIRE HORSESHOE RD NEAR HWY 120 WAS MAPPED.
Ecological:	
General:	INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.
Owner/Manager:	UNKNOWN

Occurrence No.	362	**Map Index:**	66400	**EO Index:**	69344	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81974 / -120.67173	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188369 E704929	**Elevation (ft):**	130
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY PIE04R0001; INCLUDES LOCALITIES KNIGHTS FERRY "COTTONWOODS."

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 3 JUL 1998, 17 JUN, 15 AUG AND 16 SEP 1999.

Owner/Manager: UNKNOWN

Occurrence No.	389	**Map Index:**	69001	**EO Index:**	69723	**Element Last Seen:**	1999-09-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-09-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-23

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location: ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY PIE04R0001. INCLUDES "FLOODPLAIN," "HC PLATFORM, RIVER EDGE," "PICNIC AREA."

Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.

General: BAT(S) DETECTED ON 3 JUL & 15 SEP 1998. 29 APR, 17 -18 JUN, 15 AUG AND 16 SEP 1999.

Owner/Manager: UNKNOWN

Eumops perotis californicus

Element Code: AMACD02011

western mastiff bat

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5T4
	State:	None		**State:**	S3S4
	Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority			
Habitat:	**General:**	MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.			
	Micro:	ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.			

Occurrence No.	18	**Map Index:**	31659	**EO Index:**	2316	**Element Last Seen:**	1995-02-24
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1995-02-24
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-09-27

Quad Summary: Keystone (3712075), Knights Ferry (3712076)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.86230 / -120.62991	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4193184 E708490	**Elevation (ft):**	600
PLSS:	T01S, R12E, Sec. 10, E (M)	**Acres:**	107.0

Location: VICINITY OF TABLE MOUNTAIN, BOTH SIDES OF STANISLAUS RIVER.

Detailed Location: LOCATED IN THE BASALT CLIFFS OVER GOODWIN RESERVOIR AND GOODWIN DAM. MAPPED AS THREE POLYGONS ALONG THE STANISLAUS RIVER IN THE W1/2 SEC 11 AND THE E1/2 SEC 10.

Ecological: HABITAT SURROUNDING BASALT CLIFFS CONSISTS OF BLUE OAK WOODLAND AND ANNUAL GRASSLAND.

General: MULTIPLE INDIVIDUALS DETECTED 3 & 13 OCT 1994. ROOST LOCATED 20 NOV 1994. SEASON OF USE & NUMBERS OF INDIVIDUALS UNKNOWN; PROBABLY MULTIPLE ROOSTS PRESENT 24 FEB 1995.

Owner/Manager: PVT

Occurrence No.	19	**Map Index:**	31658	**EO Index:**	22296	**Element Last Seen:**	1995-03-01
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	1995-03-01
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2005-06-22

Quad Summary: Sonora (3712084), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.87865 / -120.50072	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4195296 E719808	**Elevation (ft):**	1250
PLSS:	T01S, R13E, Sec. 02, SE (M)	**Acres:**	0.0

Location: 1 MILE SW OF YOSEMITE JUNCTION, SOUTH OF HWY 120, ABOUT 4 MILES SOUTH OF NEW MELONES LAKE.

Detailed Location: LOCATED ON THE WEST ASPECT OF TABLE MOUNTAIN, SOUTH OF HWY 120/108.

Ecological: HABITAT CONSISTS OF THE BASALT CLIFFS OF TABLE MOUNTAIN; BLUE OAK WOODLAND FOUND BELOW.

General: ALTHOUGH USED BY A NUMBER OF INDIVIDUALS DURING THE SUMMER, THIS IS APPARENTLY NOT A MATERNITY ROOST. SERVAL ADULTS OBSERVED IN AREA 25 OCT 1994.

Owner/Manager: PVT

Occurrence No.	22	**Map Index:**	33335	**EO Index:**	14554	**Element Last Seen:**	1995-04-04
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1995-04-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-02-16

Quad Summary: New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.90878 / -120.56047	**Accuracy:**	80 meters
UTM:	Zone-10 N4198500 E714465	**Elevation (ft):**	1000
PLSS:	T01N, R13E, Sec. 28, SW (M)	**Acres:**	0.0

Location: "IF I CAN" MINE, AT "JAILHOUSE ROCK," NE OF TULLOCH RESERVOIR, JUST EAST OF THE STANISLAUS RIVER.

Detailed Location:

Ecological: HABITAT CONSISTS OF THE BASALT CLIFFS OF TABLE MOUNTAIN, OVER BLUE OAK WOODLAND, NEAR TULLOCH RESERVOIR.

General: 8 INDIVIDUALS OBSERVED ROOSTING ON 4 APRIL 1995.

Owner/Manager: PVT

Occurrence No.	90	**Map Index:**	66329	**EO Index:**	66423	**Element Last Seen:**	1957-12-27
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1957-12-27
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-09-21

Quad Summary: Oakdale (3712077), Escalon (3712078)

County Summary: Stanislaus

Lat/Long:	37.79802 / -120.86587	**Accuracy:**	3/5 mile
UTM:	Zone-10 N4185550 E687893	**Elevation (ft):**	
PLSS:	T02S, R10E, Sec. 03 (M)	**Acres:**	0.0

Location: 2 MILES NORTH OF OAKDALE.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES GIVEN IN MANIS, WITH UNCERTAINTY 804.672 M.

Ecological:

General: 1 FEMALE COLLECTED BY B. NEAL AND R. GARRETSON ON 27 DEC 1957, MVZ #183488.

Owner/Manager: UNKNOWN

Occurrence No.	96	**Map Index:**	66343	**EO Index:**	66440	**Element Last Seen:**	1994-11-20
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-11-20
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-09-25

Quad Summary: New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.88257 / -120.56277	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4195586 E714338	**Elevation (ft):**	900
PLSS:	T01S, R13E, Sec. 05, NE (M)	**Acres:**	0.0

Location: TULLOCH LAKE, TABLE MT.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COODINATES GIVEN.

Ecological:

General: ROOST LOCATED 20 NOV 1994.

Owner/Manager: UNKNOWN

Occurrence No.	97	**Map Index:**	66344	**EO Index:**	66441	**Element Last Seen:**	1994-10-13
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-10-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-09-25

Quad Summary: New Melones Dam (3712085)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.87646 / -120.60386	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4194815 E710742	**Elevation (ft):**	450
PLSS:	T01S, R12E, Sec. 01, SW (M)	**Acres:**	0.0

Location: TULLOCH RESERVOIR, NORTH SHORE.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES GIVEN. INCLUDES LOCALITIES "O'BYRNE'S FERRY RD. & STANISLAUS RIVER" AND "TABLE MT., TULLOCH LAKE." COORDINATES PLACE OCCURRENCE NEAR DAM; NEEDS FIELDWORK.

Ecological:

General: MULTIPLE INDIVIDUALS DETECTED 3 & 13 OCT 1994. ROOST LOCATED 20 NOV 1994.

Owner/Manager: UNKNOWN

Occurrence No.	144	**Map Index:**	66400	**EO Index:**	66495	**Element Last Seen:**	1999-10-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-10-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81974 / -120.67173	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188369 E704929	**Elevation (ft):**	210
PLSS:	T01S, R12E, Sec. 29, E (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES GIVEN. INCLUDES LOCALITY "COTTONWOODS."

Ecological: COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.

General: MULTIPLE INDIVIDUALS DETECTED 13 OCT 1994. INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG, & 22 OCT 1999.

Owner/Manager: UNKNOWN

Occurrence No.	216	**Map Index:**	68815	**EO Index:**	69338	**Element Last Seen:**	1999-08-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-04

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81431 / -120.72429	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4187653 E700317	**Elevation (ft):**	164
PLSS:	T01S, R11E, Sec. 26 (M)	**Acres:**	152.0

Location: ABOUT 3 MILES WSW OF KNIGHTS FERRY, HORSESHOE ROAD.

Detailed Location: EXACT LOCATION UNKNOWN, AS SOURCE GIVES LOCALITY ONLY AS "HORSESHOE A & B, HWY 120." THE ENTIRE HORSESHOE RD NEAR HWY 120 WAS MAPPED.

Ecological:

General: INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 15 AUG 1999.

Owner/Manager: UNKNOWN

Occurrence No.	236	**Map Index:**	64072	**EO Index:**	69717	**Element Last Seen:**	1999-10-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-10-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-04-19

Quad Summary: Knights Ferry (3712076)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.84068 / -120.64195	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4190759 E707492	**Elevation (ft):**	250
PLSS:	T01S, R12E, Sec. 22 (M)	**Acres:**	0.0

Location: ABOUT 2 MILES NE OF KNIGHTS FERRY, STANISLAUS RIVER, TWO MILE BAR.

Detailed Location:

Ecological:

General: MULTIPLE INDIVIDUALS DETECTED 13 OCT 1994. INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 17 JUN, 15 AUG, 16 SEP AND 22 OCT 1999.

Owner/Manager: UNKNOWN

Occurrence No.	237	**Map Index:**	69001	**EO Index:**	69721	**Element Last Seen:**	1999-10-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-10-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2007-05-08

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.81999 / -120.66170	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4188419 E705811	**Elevation (ft):**	180
PLSS:	T01S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location:	ABOUT 0.5 MILE EAST OF KNIGHTS FERRY.
Detailed Location:	MAPPED ACCORDING TO LAT/LONG COORDINATS PROVIDED BY SOURCE. INCLUDES "FLOODPLAIN," "HC PLATFORM, RIVER EDGE", & "PICNIC AREA."
Ecological:	COTTONWOOD/SYCAMORE. DOMINATED BY MATURE TREES. CONSISTS OF A STRIP THAT IS ONLY 2-3 TREES WIDE.
General:	BAT(S) DETECTED ON 3 JUL & 15 SEP 1998. 17 -18 JUN, 15 AUG, & 22 OCT 1999.
Owner/Manager:	UNKNOWN

Erethizon dorsatum

Element Code: AMAFJ01010

North American porcupine

Listing Status: **Federal:** None
State: None
Other: IUCN_LC-Least Concern

CNDDB Element Ranks: **Global:** G5
State: S3

Habitat: **General:** FORESTED HABITATS IN THE SIERRA NEVADA, CASCADE, AND COAST RANGES, WITH SCATTERED OBSERVATIONS FROM FORESTED AREAS IN THE TRANSVERSE RANGES.
Micro: WIDE VARIETY OF CONIFEROUS AND MIXED WOODLAND HABITAT.

Occurrence No. 427 **Map Index:** A6223 **EO Index:** 107979 **Element Last Seen:** 2015-09-13
Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 2015-09-13
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2017-09-05

Quad Summary: Copperopolis (3712086)
County Summary: Calaveras

Lat/Long: 37.97909 / -120.64106 **Accuracy:** 2/5 mile
UTM: Zone-10 N4206120 E707182 **Elevation (ft):** 973
PLSS: T02N, R12E, Sec. 34, S (M) **Acres:** 280.0

Location: AREA JUST SE OF HWY 4 AT ROCK CREEK RD, COPPEROPOLIS.
Detailed Location: MAPPED TO INCLUDE THE PROVIDED COORDINATES AND GENERAL LOCATION DESCRIPTION OF "COPPEROPOLIS."
Ecological:
General: 1 PORCUPINE OBSERVED COMING UP ON THE PORCH OF A PRIVATE RESIDENCE ON 13 SEP 2015.
Owner/Manager: UNKNOWN, PVT

Occurrence No. 428 **Map Index:** A6116 **EO Index:** 107869 **Element Last Seen:** 2013-05-11
Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 2013-05-11
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2017-08-28

Quad Summary: Copperopolis (3712086)
County Summary: Calaveras

Lat/Long: 37.95138 / -120.69531 **Accuracy:** nonspecific area
UTM: Zone-10 N4202926 E702493 **Elevation (ft):** 998
PLSS: T01N, R12E, Sec. 7, E (M) **Acres:** 49.0

Location: ALONG HWY 4, ABOUT 0.2-1 MI W OF HORSESHOE LN INTERSECTION, 1.1 MI ESE OF BOUCHER MOUNTAIN PEAK, W OF COPPEROPOLIS.
Detailed Location: MAPPED ACCORDING TO THE PROVIDED LOCATION DESCRIPTION OF "HWY 4, ABOUT 3.8 MILES WEST OF COPPEROPOLIS." COORDINATES WERE PROVIDED BUT WERE LOCATED ABOUT 0.2 MI OFF OF THE ROAD. USED ONLY AS AN ESTIMATE OF THE LOCATION ON THE ROAD.
Ecological:
General: 1 PORCUPINE OBSERVED AS ROADKILL ON 11 MAY 2013.
Owner/Manager: UNKNOWN

Emys marmorata

Element Code: ARAAD02030

western pond turtle

Listing Status: **Federal:** None
State: None
Other: BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive

CNDDB Element Ranks: **Global:** G3G4
State: S3

Habitat: **General:** A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS AND IRRIGATION DITCHES, USUALLY WITH AQUATIC VEGETATION, BELOW 6000 FT ELEVATION.

Micro: NEEDS BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT UP TO 0.5 KM FROM WATER FOR EGG-LAYING.

Occurrence No.	51	**Map Index:**	32807	**EO Index:**	12431	**Element Last Seen:**	1879-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1879-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-02-22

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81844 / -120.67240	**Accuracy:**	1 mile
UTM:	Zone-10 N4188223 E704873	**Elevation (ft):**	150
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: NO OTHER LOCATION INFORMATION GIVEN.

Ecological:

General: LOCKINGTON COLLECTED UNKNOWN NUMBER OF SPECIMENS IN 1879.

Owner/Manager: UNKNOWN

Occurrence No.	129	**Map Index:**	34697	**EO Index:**	323	**Element Last Seen:**	1993-06-17
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-06-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-04-02

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.80775 / -120.83243	**Accuracy:**	specific area
UTM:	Zone-10 N4186698 E690814	**Elevation (ft):**	200
PLSS:	T01S, R10E, Sec. 35 (M)	**Acres:**	7.7

Location: LARGE MAN-MADE LAKE 100 FT N OF BURNETT LATERAL, 0.9 MI DUE N OF RODDEN ROAD, 0.45 MI E OF TWENTY-EIGHT MILE ROAD.

Detailed Location:

Ecological: LARGE MAN-MADE LAKE SURROUNDED BY ANNUAL GRASSLANDS AND ORCHARDS.

General: 1 ADULT OBSERVED BY C. LUKE.

Owner/Manager: PVT

Occurrence No.	130	**Map Index:**	34698	**EO Index:**	322	**Element Last Seen:**	1993-06-17
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-06-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-04-02

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.80225 / -120.82875	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4186095 E691152	**Elevation (ft):**	180
PLSS:	T01S, R10E, Sec. 36 (M)	**Acres:**	0.0

Location: LARGE POND AT INTERSECTION OF HI LINE & COLLINS LATERALS; 0.45 MI NORTH OF RODDEN RD; 0.65 MI E OF TWENTY-EIGHT MILE RD.

Detailed Location:

Ecological: MAN-MADE POND, WITH WEEPING WILLOWS ALONG SOUTHERN BANK, AT THE INTERSECTION OF TWO CREEKS, SURROUNDED BY ANNUAL GRASSLAND, IRRIGATION DITCHES AND ORCHARDS.

General: 1 ADULT AND 1 JUVENILE OBSERVED AT POND BY C. LUKE.

Owner/Manager: PVT

Occurrence No.	505	**Map Index:**	38604	**EO Index:**	33611	**Element Last Seen:**	1997-06-12
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1997-06-12
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-04-13

Quad Summary: Keystone (3712075)

County Summary: Tuolumne

Lat/Long:	37.86506 / -120.53549	**Accuracy:**	specific area
UTM:	Zone-10 N4193706 E716789	**Elevation (ft):**	600
PLSS:	T01S, R13E, Sec. 10, NW (M)	**Acres:**	24.7

Location: GREEN SPRING RUN, 0.5 MILE UPSTREAM FROM THE MOUNTAIN PASS CREEK CONFLUENCE, SW OF SONORA.

Detailed Location:

Ecological: HABITAT CONSISTS OF GRAZED RIPARIAN. RIPARIAN IN POOR CONDITION; VEGETATION IS SCANT AND DOMINATED BY WOODY SPECIES/NON-NATIVES. STREAM RUNS DRY IN SECTIONS DUE TO LACK OF RIPARIAN VEGETATION.

General: 1 ADULT POND TURTLE OBSERVED ON 12 JUNE 1997.

Owner/Manager: BLM

Branchinecta lynchi

Element Code: ICBRA03030

vernal pool fairy shrimp

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3
	Other:	IUCN_VU-Vulnerable			
Habitat:	**General:**	ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.			
	Micro:	INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.			

Occurrence No.	795	**Map Index:**	93974	**EO Index:**	95102	**Element Last Seen:**	2013-02-04
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2013-02-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2014-09-30

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.76042 / -120.71720	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4181688 E701086	**Elevation (ft):**	250
PLSS:	T02S, R11E, Sec. 13 (M)	**Acres:**	33.0

Location: ALONG HETCH HETCHY AQUEDUCT, 0.3 TO 0.9 MILE NE OF WHERE FOGARTY ROAD CROSSES SIERRA RAILROAD, EAST OF OAKDALE.

Detailed Location: CASHMAN CREEK STUDY AREA. MAPPED TO OCCUPIED POOLS.

Ecological: VERNAL POOLS WITHIN HETCH HETCHY AQUEDUCT RIGHT-OF-WAY ON LAND USED FOR GRAZING.

General: ADULTS DETECTED IN 4 OF 62 POOLS SAMPLED IN 2010-2011. B. LYNCHI CYSTS IDENTIFIED FROM AN ADDITIONAL 5 POOLS (AND A TOTAL OF 7 POOLS). 1S FOUND IN 1 POOL ON 4 FEB 2013.

Owner/Manager: SFPUC

Occurrence No.	796	**Map Index:**	93977	**EO Index:**	95109	**Element Last Seen:**	2013-01-07
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2013-01-07
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2014-09-29

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.77673 / -120.67720	**Accuracy:**	80 meters
UTM:	Zone-10 N4183584 E704566	**Elevation (ft):**	460
PLSS:	T02S, R12E, Sec. 08, NW (M)	**Acres:**	0.0

Location: ALONG THE HETCH HETCHY AQUEDUCT, 1.8 MILES EAST OF CASHMAN DAM, EAST OF OAKDALE.

Detailed Location: VERNAL POOL 54.70-1 IN SFPUC EAST SEGMENT PIPELINE 4 HABITAT MAP BOOK.

Ecological: VERNAL POOL WITHIN SFPUC ROW. POOL ABOUT 7 INCHES DEEP, 8 DEGREES CELSIUS. VISIBLE DISTURBANCES FROM ACCESS ROAD AND CATTLE GRAZING NOTED.

General: 1S DETECTED IN 1 POOL ON 7 JAN 2013.

Owner/Manager: SFPUC

Occurrence No.	797	**Map Index:**	93979	**EO Index:**	95112	**Element Last Seen:**	2013-01-07
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2013-01-07
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2014-09-29

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.78471 / -120.66437	**Accuracy:**	specific area
UTM:	Zone-10 N4184497 E705674	**Elevation (ft):**	540
PLSS:	T02S, R12E, Sec. 04, SW (M)	**Acres:**	6.0

Location: JUST NORTH OF THE HETCH HETCHY AQUEDUCT, 2.6 MILES ENE OF CASHMAN DAM, EAST OF OAKDALE.

Detailed Location: POOLS AR10-2 AND AR10-5 IN SFPUC EAST SEGMENT PIPELINE 4 HABITAT MAP BOOK.

Ecological: TWO VERNAL POOLS ADJACENT TO SFPUC ACCESS ROAD, DEPTH 5 INCHES, TEMPERATURE 10 DEGREES C. SURROUNDING USES GRAZING, ALMOND ORCHARDS.

General: 3 ADULTS FOUND IN 2 POOLS ON 7 JAN 2013.

Owner/Manager: SFPUC, PVT

Linderiella occidentalis **Element Code:** ICBRA06010

California linderiella

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2G3
	State:	None		**State:**	S2S3
	Other:	IUCN_NT-Near Threatened			
Habitat:	**General:**	SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.			
	Micro:	WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TOTAL DISSOLVED SOLIDS.			

Occurrence No.	35	**Map Index:**	33068	**EO Index:**	3701	**Element Last Seen:**	1994-04-08
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-08
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1995-03-21

Quad Summary: Bachelor Valley (3712087)

County Summary: Stanislaus

Lat/Long:	37.98510 / -120.84158	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4206360 E689552	**Elevation (ft):**	240
PLSS:	T02N, R10E, Sec. 35, NE (M)	**Acres:**	0.0

Location: EAST SIDE OF MILTON ROAD, 2.7 MILES NORTH OF HIGHWAY 4, ABOUT 2.5 MILES SOUTH OF MILTON.

Detailed Location:

Ecological:

General: COLLECTION #MW-94-33, DEPOSITED AT DFG-IFD.

Owner/Manager: UNKNOWN

Occurrence No.	36	**Map Index:**	33069	**EO Index:**	3702	**Element Last Seen:**	1994-04-08
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-08
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1995-03-21

Quad Summary: Bachelor Valley (3712087)

County Summary: Stanislaus

Lat/Long:	37.99244 / -120.84576	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4207166 E689167	**Elevation (ft):**	220
PLSS:	T02N, R10E, Sec. 26, SW (M)	**Acres:**	0.0

Location: EAST SIDE OF MILTON ROAD, 3.2 MILES NORTH OF HIGHWAY 4, ABOUT 3 MILES SOUTH OF MILTON.

Detailed Location:

Ecological:

General: COLLECTION #MW-94-34, DEPOSITED AT DFG-IFD.

Owner/Manager: UNKNOWN

Occurrence No.	42	**Map Index:** 33082	**EO Index:**	19332	**Element Last Seen:**	1994-04-06
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1994-04-06
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	1995-03-23

Quad Summary: Paulsell (3712066)

County Summary: Stanislaus

Lat/Long:	37.74043 / -120.71229	**Accuracy:**	80 meters
UTM:	Zone-10 N4179479 E701574	**Elevation (ft):**	200
PLSS:	T02S, R11E, Sec. 24, SW (M)	**Acres:**	0.0

Location: JUST NW OF THE INTERSECTION OF SIERRA RAILROAD AND WARNERVILLE ROAD, ABOUT 8 MILES EAST OF OAKDALE.

Detailed Location:

Ecological:

General: COLLECTION #RS-94-12, DEPOSITED AT DFG-IFD.

Owner/Manager: UNKNOWN

Lepidurus packardi

Element Code: ICBRA10010

vernal pool tadpole shrimp

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G4
	State:	None		**State:**	S3S4
	Other:	IUCN_EN-Endangered			
Habitat:	**General:**	INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.			
	Micro:	POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.			

Occurrence No.	64	**Map Index:** 34784	**EO Index:**	28654	**Element Last Seen:**	1993-XX-XX
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1993-XX-XX
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	1996-07-30

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.79096 / -120.86574	**Accuracy:**	80 meters
UTM:	Zone-10 N4184767 E687924	**Elevation (ft):**	185
PLSS:	T02S, R10E, Sec. 03 (M)	**Acres:**	0.0

Location: NNW OF OAKDALE; IMMEDIATELY EAST OF VALLEY HOME ROAD AT BURNETT LATERAL.

Detailed Location: 2 PARALLEL DITCHES BETWEEN LARGE FISH POND AND HIGHWAY 120.

Ecological:

General: NUNKNOWN NUMBER OF TADPOLE SHRIMP COLLECTED; PROPERTY FOR SALE ON 5/17/1993.

Owner/Manager: PVT

Occurrence No.	65	**Map Index:**	34785	**EO Index:**	12639	**Element Last Seen:**	1993-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-07-30

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.80133 / -120.83721	**Accuracy:**	80 meters
UTM:	Zone-10 N4185976 E690409	**Elevation (ft):**	190
PLSS:	T01S, R10E, Sec. 35 (M)	**Acres:**	0.0

Location: EAST OF BURNETT LATERAL AT OLD TULLOCH DRAIN; 850 FEET EAST OF TWENTY-EIGHT MILE ROAD; 0.5 MILE NORTH OF RODDEN ROAD.

Detailed Location:

Ecological: LARGE, SHALLOW, TEMPORARY POND.

General: TADPOLE SHRIMP OBSERVED AND COLLECTED; DATA RECEIVED FROM USFWS IN 1996.

Owner/Manager: PVT

Occurrence No.	101	**Map Index:**	33696	**EO Index:**	30499	**Element Last Seen:**	1993-03-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-03-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1997-03-19

Quad Summary: Paulsell (3712066)

County Summary: Stanislaus

Lat/Long:	37.73295 / -120.71070	**Accuracy:**	3/5 mile
UTM:	Zone-10 N4178653 E701734	**Elevation (ft):**	200
PLSS:	T02S, R11E, Sec. 25 (M)	**Acres:**	0.0

Location: BETWEEN WARNERVILLE ROAD AND CLARIBEL ROAD, VICINITY OF CUSHMAN CREEK, ABOUT 4 MILES NORTHWEST OF MODESTO RESERVOIR.

Detailed Location: VERNAL POOLS LOCATED SOMEWHERE IN SECTION 25.

Ecological: NATURAL VERNAL POOLS.

General: LEPIDURUS PACKARDI OBSERVED IN THE ONE FEATURE INSPECTED. SUGNET RECORD #113. NO B. LYNCHI OBSERVED.

Owner/Manager: UNKNOWN

Occurrence No.	102	**Map Index:**	33705	**EO Index:**	30658	**Element Last Seen:**	1993-03-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1993-03-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1997-03-18

Quad Summary: Oakdale (3712077)

County Summary: Stanislaus

Lat/Long:	37.76108 / -120.80255	**Accuracy:**	3/5 mile
UTM:	Zone-10 N4181580 E693566	**Elevation (ft):**	200
PLSS:	T02S, R11E, Sec. 18 (M)	**Acres:**	0.0

Location: VICINITY OF WREN ROAD AND SIERRA ROAD, ABOUT 2 MILES ESE OF OAKDALE.

Detailed Location: VERNAL POOLS LOCATED SOMEWHERE IN SECTION 18.

Ecological: NATURAL VERNAL POOLS.

General: LEPIDURUS PACKARDI OBSERVED IN THE ONE FEATURE INSPECTED. SUGNET RECORD #112. NO B. LYNCHI OBSERVED.

Owner/Manager: UNKNOWN

Occurrence No.	164	**Map Index:** 46009	**EO Index:**	46009	**Element Last Seen:**	2001-08-27
Occ. Rank:	Good		**Presence:**	Presumed Extant	**Site Last Seen:**	2001-08-27
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2001-10-02

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus, Tuolumne

Lat/Long:	37.81954 / -120.64529	**Accuracy:**	3/5 mile
UTM:	Zone-10 N4188405 E707257	**Elevation (ft):**	460
PLSS:	T01S, R12E, Sec. 27 (M)	**Acres:**	0.0

Location: EAST OF KNIGHTS FERRY.

Detailed Location:

Ecological: HABITAT CONSISTS OF NORTHERN VOLCANIC MUDFLOW VERNAL POOL; VEGETATED BY LASTHENIA FREMONTII, ERYNGIUM CASTRENSE, PLAGIOBOTHRYS STIPITATUS, DOWNINGIA ORNATISSIMA, RANUNCULUS BONARIENSIS, AND DESCHAMPSIA DANTHONIOIDES.

General: 25 CYSTS COLLECTED ON 27 AUG 2001 AND DEPOSITED AT BOHART MUSEUM (UCD).

Owner/Manager: PVT

Occurrence No.	349	**Map Index:** 95218	**EO Index:**	96355	**Element Last Seen:**	2013-02-26
Occ. Rank:	Excellent		**Presence:**	Presumed Extant	**Site Last Seen:**	2013-02-26
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2015-02-24

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.75920 / -120.72066	**Accuracy:**	specific area
UTM:	Zone-10 N4181544 E700785	**Elevation (ft):**	240
PLSS:	T02S, R11E, Sec. 14 (M)	**Acres:**	59.0

Location: VICINITY OF HETCH HETCHY AQUEDUCT, FROM FOGARTY RD AT THE SIERRA RR CROSSING TO WAMBLE RD AT THE AQUEDUCT CROSSING.

Detailed Location: CASHMAN CREEK STUDY AREA. MAPPED TO OCCUPIED POOLS.

Ecological: VERNAL POOLS WITHIN HETCH HETCHY AQUEDUCT RIGHT-OF-WAY ON LAND USED FOR GRAZING; VP INDICATOR PLANTS PRESENT. SPECIES CO-OCCURRED WITH AMBYSTOMA CALIFORNIENSE LARVAE & LINDERIELLA OCCIDENTALIS. BRANCHINECTA LYNCHI CYSTS ALSO FOUND ONSITE.

General: ADULTS FOUND IN 12 OF 62 POOLS SAMPLED IN 2010-2011; CARAPACES ONLY IN AN ADDITIONAL 2 POOLS; CYSTS IN 7 POOLS. 10S-100S FOUND IN 5 POOLS, FEB 2013.

Owner/Manager: SFPUC, PVT

Desmocerus californicus dimorphus

Element Code: IICOL48011

valley elderberry longhorn beetle

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G3T2
	State:	None		**State:**	S2
	Other:				
Habitat:	**General:**	OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).			
	Micro:	PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.			

Occurrence No.	72	**Map Index:**	33004	**EO Index:**	4067	**Element Last Seen:**	1991-07-17
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	1991-07-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-08-11

Quad Summary:	Waterford (3712067)
County Summary:	Stanislaus

Lat/Long:	37.63106 / -120.86419	**Accuracy:**	80 meters
UTM:	Zone-10 N4167027 E688465	**Elevation (ft):**	65
PLSS:	T03S, R10E, Sec. 34, SW (M)	**Acres:**	0.0

Location:	TUOLUMNE RIVER (SOUTH BANK), 0.5 MILE NE OF HUGHSON SEWAGE DISPOSAL PLANT, 2 MILES NORTH OF HUGHSON.
Detailed Location:	REPORT ON: TAXONOMY; DISTRIBUTION; LIFE HISTORY; HABITAT; FIELD TECHNIQUES & OBSERVATIONS; BEETLE RECOVERY.
Ecological:	HABITAT CONSISTS OF SCATTERED SAMBUCUS MEXICANA; SURROUNDING AREA IS MADE UP OF ORCHARDS.
General:	RECENT EXIT HOLE FOUND; VELB GALLERY, FROM A PROBABLY LIVE WOOD SAMPLE COLLECTED. OBSERVATIONS OF EXIT HOLES MADE 1984 (SITE DESCRIPTION VAGUE).
Owner/Manager:	PVT

Occurrence No.	219	**Map Index:**	90164	**EO Index:**	91175	**Element Last Seen:**	2009-12-02
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2009-12-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-08-20

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.81823 / -120.66262	**Accuracy:**	80 meters
UTM:	Zone-10 N4188222 E705734	**Elevation (ft):**	210
PLSS:	T01S, R12E, Sec. 28, SW (M)	**Acres:**	0.0

Location:	ALONG SCHUPER RD, ABOUT 0.5 MI ESE OF KNIGHTS FERRY (TOWN), 1.8 MI ENE OF LOVERS LEAP.
Detailed Location:	MAPPED TO PROVIDED COORDINATES. NEAR 18201 SHUPER RD, KNIGHTS FERRY.
Ecological:	ELDERBERRY SHRUB LOCATED AT THE SIDE OF A ROAD IN GRASSLAND/OAK WOODLAND WAS ESTIMATED TO BE 22 FT TALL WITH 20 X 20 FT MAXIMUM CANOPY. SHRUB UNDERGOES REGULAR PRUNING FROM PG&E AND ROAD CLEARANCE ACTIVITIES.
General:	3 EXIT HOLES FOUND ON 2 DEC 2009.
Owner/Manager:	UNKNOWN

Occurrence No.	220	**Map Index:**	90167	**EO Index:**	91178	**Element Last Seen:**	2009-12-02
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2009-12-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-08-20

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.79005 / -120.74438	**Accuracy:**	80 meters
UTM:	Zone-10 N4184918 E698612	**Elevation (ft):**	150
PLSS:	T02S, R11E, Sec. 03 (M)	**Acres:**	0.0

Location: ABOUT 0.2 MI WNW OF OLIVE RD AT ORANGE BLOSSOM RD, 6 MI ENE OF OAKDALE CITY HALL.

Detailed Location: MAPPED TO PROVIDED COORDINATES. NEAR DRIVEWAY GATE AT 13537 ORANGE BLOSSOM RD, OAKDALE.

Ecological: ELDERBERRY SHRUB LOCATED AT THE SIDE OF A ROAD IN RESIDENTIAL AREA WAS ESTIMATED TO BE 18 FT TALL WITH 50 X 15 FT MAXIMUM CANOPY. SHRUB UNDERGOES REGULAR PRUNING FROM PG&E AND RESIDENTS.

General: OVER 20 EXIT HOLES FOUND ON 2 DEC 2009.

Owner/Manager: PVT

Calicina breva

Element Code: ILARAU8020

Stanislaus harvestman

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G1
	State:	None		**State:**	S1
	Other:				
Habitat:	**General:**	KNOWN ONLY FROM THE TYPE LOCALITY, 1.6 KM SOUTH OF KNIGHT'S FERRY, STANISLAUS COUNTY.			
	Micro:	FOUND UNDER BASALT ROCKS IN GRASSLAND.			

Occurrence No.	1	**Map Index:**	59463	**EO Index:**	59499	**Element Last Seen:**	1967-04-11
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1967-04-11
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2005-01-19

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.80414 / -120.67121	**Accuracy:**	2/5 mile
UTM:	Zone-10 N4186639 E705017	**Elevation (ft):**	320
PLSS:	T01S, R12E, Sec. 32 (M)	**Acres:**	0.0

Location: 1 MILE SOUTH OF KNIGHTS FERRY.

Detailed Location:

Ecological: FOUND UNDER BASALT ROCKS IN A GRASSLAND.

General: HOLOTYPE MALE, ALLOTYPE FEMALE, AND THREE MALE AND TWO FEMALE PARATYPES.

Owner/Manager: UNKNOWN

Anodonta californiensis

Element Code: IMBIV04020

California floater

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3Q
	State:	None		**State:**	S2?
	Other:	USFS_S-Sensitive			
Habitat:	**General:**	FRESHWATER LAKES AND SLOW-MOVING STREAMS AND RIVERS. TAXONOMY UNDER REVIEW BY SPECIALISTS.			
	Micro:	GENERALLY IN SHALLOW WATER.			

Occurrence No.	1	**Map Index:**	47242	**EO Index:**	47242	**Element Last Seen:**	1999-01-20
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1999-01-20
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2002-02-19

Quad Summary: Keystone (3712075), New Melones Dam (3712085)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.89725 / -120.57003	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4197199 E713658	**Elevation (ft):**	505
PLSS:	T01N, R13E, Sec. 32 (M)	**Acres:**	992.1

Location: TULLOCK LAKE.

Detailed Location: FOUND AROUND THE MARGINS OF THE LAKE DURING DRAWDOWN. FOUND ON THE ROCK AND SAND/SILT BOTTOM.

Ecological: LAKE USED FOR RECREATION AND AGRICULTURAL AND DOMESTIC WATER SUPPLY.

General: EACH WINTER THE LAKE IS DRAWN DOWN FROM 509 FT TO 500 FT EXPOSING THE MUSSELS. THREE SPECIMENS TO BE DEPOSITED IN CAS.

Owner/Manager: PVT

Monadenia mormonum buttoni

Element Code: IMGASC7071

Button's Sierra sideband

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2T1
	State:	None		**State:**	S1S2
	Other:				
Habitat:	**General:**	KNOWN FROM THE CENTRAL SIERRA NEVADA COUNTIES.			
	Micro:	□			

Occurrence No.	4	**Map Index:**	64072	**EO Index:**	64167	**Element Last Seen:**	2001-04-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2001-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-02-27

Quad Summary: Knights Ferry (3712076)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.84068 / -120.64195	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4190759 E707492	**Elevation (ft):**	254
PLSS:	T01S, R12E, Sec. 22, NW (M)	**Acres:**	0.0

Location: TWO MILE BAR ON THE SOUTH SIDE OF THE STANISLAUS RIVER. ABOUT 2 MILES NORTHEAST OF KNIGHTS FERRY.

Detailed Location:

Ecological: HABITAT IS A RIPARIAN AREA.

General: 1 ADULT & 2 OTHERS (LIFE STAGE GIVEN AS "MULTI") OBSERVED/COLLECTED ON 9 APR 2001 BY B. ROTH.

Owner/Manager: UNKNOWN

Monadenia mormonum hirsuta **Element Code:** IMGASC7072

hirsute Sierra sideband

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2T1
	State:	None		**State:**	S1
	Other:	BLM_S-Sensitive			
Habitat:	**General:**	KNOWN ONLY FROM A FEW BASALTIC OUTCROPS IN TUOLUMNE COUNTY.			
	Micro:				

Occurrence No.	1	**Map Index:** 13332	**EO Index:** 23072	**Element Last Seen:**	XXXX-XX-XX
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	XXXX-XX-XX
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2005-11-29

Quad Summary: Sonora (3712084), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.89353 / -120.48606	**Accuracy:**	1 mile
UTM:	Zone-10 N4196982 E721053	**Elevation (ft):**	1400
PLSS:	T01N, R14E, Sec. 31, SW (M)	**Acres:**	0.0

Location: MOUNTAIN PASS, NEAR STATE HWY 108 APPROX 5 MI SW OF JAMES TOWN.

Detailed Location:

Ecological: ASSOCIATED WITH THE BASALT OF TABLE MOUNTAIN; SHELLS FOUND AMONG LOOSE ROCKS AT THE BASE OF BLACK LAVA CLIFF.

General: CAS TYPE #2639; PARATYPES #2640-41; ANSP #142003; TYPE LOT (CAS #21513) COLLECTED BY HANNA AND BIXFORD.

Owner/Manager: UNKNOWN

Occurrence No.	3	**Map Index:** 59804	**EO Index:** 59840	**Element Last Seen:**	2001-02-07
Occ. Rank:	Good		**Presence:** Presumed Extant	**Site Last Seen:**	2001-02-07
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2006-07-07

Quad Summary: Chinese Camp (3712074), Keystone (3712075), Sonora (3712084), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.87726 / -120.50258	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4195137 E719648	**Elevation (ft):**	1300
PLSS:	T01S, R13E, Sec. 02, SE (M)	**Acres:**	70.6

Location: TABLE MOUNTAIN, ABOVE ANDREW CREEK, ON THE EAST SIDE OF HIGHWAY 120/108, SE OF NEW MELONES RESERVOIR.

Detailed Location: LOCATED IN RUBBLE BY CLIFF ABOVE ANDREW CREEK; IN YOSEMITE ESTATES SUBDIVISION.

Ecological: HABITAT CONSISTS OF ROCK RUBBLE AT THE BASE OF TABLE MOUNTAIN.

General: SEVERAL ADULTS OBSERVED ON 7 FEB 2001. THREE ADULTS AND FIVE EMPTY SHELLS FROM JUVENILE TO SUBADULT, IN POOR TO FAIR CONDITION, COLLECTED BY BRIAN QUELVOG, ID BY BARRY ROTH; DATE NOT GIVEN.

Owner/Manager: PVT

Scopelophila cataractae

Element Code: NBMUS6U010

tongue-leaf copper moss

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3G4
	State:	None		**State:**	S1
	Other:	Rare Plant Rank - 2B.2			
Habitat:	**General:**	CISMONTANE WOODLAND.			
	Micro:	MOSS ON METAMORPHIC SUBSTRATE; ON SOIL. 400 M.			

Occurrence No.	1	**Map Index:** 45681	**EO Index:** 45681	**Element Last Seen:**	XXXX-XX-XX
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	XXXX-XX-XX
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2010-06-08

Quad Summary: Copperopolis (3712086)

County Summary: Calaveras

Lat/Long:	37.97310 / -120.63436	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4205470 E707787	**Elevation (ft):**	1000
PLSS:	T01N, R12E, Sec. 03 (M)	**Acres:**	0.0

Location: OLD DISCOVERY MINE AT COPPEROPOLIS.

Detailed Location: MAPPED BY CNDDB AT DISCOVERY MINE, JUST SOUTH OF COPPEROPOLIS.

Ecological: OLD COPPER DIGS.

General: ONLY SOUCE OF INFORMATION FOR THIS OCCURRENCE IS AN UNDATED STEEN COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Eryngium pinnatisectum

Element Code: PDAPI0Z0P0

Tuolumne button-celery

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.2			
Habitat:	**General:**	VERNAL POOLS, CISMONTANE WOODLAND, LOWER MONTANE CONIFEROUS FOREST.			
	Micro:	VOLCANIC SOILS; VERNAL POOLS AND MESIC SITES WITHIN OTHER NATURAL COMMUNTIES. 70-915 M.			

Occurrence No.	6	**Map Index:** 57532	**EO Index:** 57548	**Element Last Seen:**	1983-04-06
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	1983-04-06
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2004-10-21

Quad Summary: Sonora (3712084), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.88039 / -120.50069	**Accuracy:**	specific area
UTM:	Zone-10 N4195489 E719805	**Elevation (ft):**	1250
PLSS:	T01S, R13E, Sec. 01, SW (M)	**Acres:**	2.5

Location: SOUTHWEST OF YOSEMITE JUNCTION; ABOUT 4 MI SOUTH OF NEW MELONES LAKE, TUOLUMNE COUNTY.

Detailed Location: ON TABLELAND ABOUT 1/4 MI EAST OF HIGHWAY 120/108. NW 1/4 OF SW 1/4 OF SECTION 1, AND EXTENDS INTO NE 1/4 OF SE 1/4 OF SECTION 2.

Ecological: VERNAL POOL. FOUND WITH RANUNCULUS MURICATUS AND DELPHINIUM SPP.

General: ALSO ATTRIBUTED TO THIS SITE IS ANOTHER 1983 ROGERS SOURCE THAT GIVES T-R-S OF 1S 13E SEC 1. OWNER IS RED HILLS DEVELOPMENT. THIS 1983 SOURCE ALSO INCLUDES EO 2.

Owner/Manager: PVT

Occurrence No.	9	**Map Index:**	57543	**EO Index:**	57559	**Element Last Seen:**	1983-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1983-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2004-10-21

Quad Summary:	Sonora (3712084), New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.89557 / -120.49578	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4197185 E720191	**Elevation (ft):**	1250
PLSS:	T01N, R13E, Sec. 36 (M)	**Acres:**	650.0

Location:	YOSEMITE JUNCTION AREA; ABOUT 3 MI SOUTH OF NEW MELONES LAKE.
Detailed Location:	SOURCE ONLY GIVES SEC 36 OF T 1N, R 13E.
Ecological:	SERPENTINE VERNAL POOL.
General:	NEEDS FIELDWORK.
Owner/Manager:	PVT?

Occurrence No.	10	**Map Index:**	57551	**EO Index:**	57567	**Element Last Seen:**	2006-XX-XX
Occ. Rank:	Excellent			**Presence:**	Presumed Extant	**Site Last Seen:**	2006-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-06

Quad Summary:	Copperopolis (3712086)
County Summary:	Calaveras

Lat/Long:	37.96931 / -120.65449	**Accuracy:**	specific area
UTM:	Zone-10 N4205006 E706028	**Elevation (ft):**	980
PLSS:	T01N, R12E, Sec. 04, NE (M)	**Acres:**	3.0

Location:	ABOUT 1 AIR MILE SOUTHWEST OF COPPEROPOLIS IN VICINITY OF SAWMILL CREEK.
Detailed Location:	1.1 MILES SOUTHWEST FROM JUNCTION OF HIGHWAY 4 AND ROCK CREEK ROAD ON HIGHWAY 4. FOUR COLONIES MAPPED BY CNDDB AS THREE POLYGONS ACCORDING TO A 2007 MAP FROM NORTH FORK ASSOCIATES.
Ecological:	GRASSY SLOPE, SOUTH-FACING, WITH SMALL VERNAL DRAINAGE STREAMBED. FOUND WITH RHAMNUS, JUNCUS, RUMEX, LOTUS, BOISDUVALIA, AND CENTAURIUM.
General:	UNKNOWN NUMBER OF PLANTS OBSERVED IN 1987 AND 2006. 1921 COLLECTIONS BY GREGORY AND TRACY FROM COPPEROPOLIS ATTRIBUTED HERE, 1958 COLLECTIONS BY CONSTANCE AND BACIGALUPI FROM "1.1 MI SW COPPEROPOLIS" ALSO ATTRIBUTED HERE.
Owner/Manager:	UNKNOWN

Occurrence No.	22	**Map Index:**	79266	**EO Index:**	80241	**Element Last Seen:**	1992-05-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1992-05-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-08

Quad Summary: Copperopolis (3712086)

County Summary: Calaveras

Lat/Long:	37.96357 / -120.66657	**Accuracy:**	specific area
UTM:	Zone-10 N4204342 E704983	**Elevation (ft):**	900
PLSS:	T01N, R12E, Sec. 04, SW (M)	**Acres:**	10.0

Location: ALONG AN UNNAMED TRIBUTARY BETWEEN HIGHWAY 4 AND HORSESHOE LANE, ABOUT 1.5-2 AIR MILES SOUTHWEST OF COPPEROPOLIS.

Detailed Location: MAPPED BY CNDDB ACCORDING TO WRITTEN DESCRIPTION: 0.47 AND 0.77 MILES SOUTHWEST OF THE NORTHERN APEX OF FLOWERS RANCH PROPERTY. THE SOUTHWESTERN COLONY IS AT THE NORTHWEST EDGE OF A POND FORMED BY IMPOUNDING THE TRIBUTARY.

Ecological:

General: ABOUT 5 PLANTS OBSERVED AT EACH COLONY IN 1992.

Owner/Manager: PVT

Occurrence No.	23	**Map Index:**	79268	**EO Index:**	80243	**Element Last Seen:**	2006-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2006-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-02

Quad Summary: Copperopolis (3712086)

County Summary: Calaveras

Lat/Long:	37.96043 / -120.64742	**Accuracy:**	specific area
UTM:	Zone-10 N4204035 E706675	**Elevation (ft):**	800
PLSS:	T01N, R12E, Sec. 03, SW (M)	**Acres:**	1.0

Location: SAWMILL CREEK, ABOUT 0.3 AIR MILE SOUTH OF THE LAKE AND 1.75 AIR MILES SOUTHWEST OF ABBOTTS PEAK.

Detailed Location: MAPPED IN THE SW 1/4 OF THE SW 1/4 OF SECTION 3.

Ecological:

General: UNKNOWN NUMBER OF PLANTS OBSERVED IN 2006. NEEDS POPULATION INFO.

Owner/Manager: PVT

Occurrence No.	24	**Map Index:**	79269	**EO Index:**	80244	**Element Last Seen:**	1992-05-22
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1992-05-22
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-02

Quad Summary:	Copperopolis (3712086)
County Summary:	Calaveras

Lat/Long:	37.95302 / -120.64136	**Accuracy:**	specific area
UTM:	Zone-10 N4203227 E707228	**Elevation (ft):**	800
PLSS:	T01N, R12E, Sec. 10, E (M)	**Acres:**	12.0

Location:	SAWMILL CREEK, ABOUT 1 AIR MILE SSE OF THE LAKE AND 1.9 AIR MILES SSW OF ABBOTTS PEAK.
Detailed Location:	4 COLONIES MAPPED BY CNDDB AS 2 POLYGONS ACCORDING TO DESCRIPTION: ALONG SAWMILL CREEK 0.52, 0.53, 0.56, AND 0.67 MILES SSE OF THE POINT WHICH IT ENTERS FLOWERS RANCH. N COLONIES FOUND ON THE W SIDE OF THE CREEK, S COLONY ON THE E SIDE.
Ecological:	
General:	1992: THE 0.53 MILE LOCALITY (CENTER OF THE NORTHERN POLYGON) HAD 4 PLANTS; REMAINING COLONIES HAD 1 PLANT EACH.
Owner/Manager:	PVT

Occurrence No.	25	**Map Index:**	79270	**EO Index:**	80245	**Element Last Seen:**	2007-05-31
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2007-05-31
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-08

Quad Summary:	Copperopolis (3712086)
County Summary:	Calaveras

Lat/Long:	37.94361 / -120.63526	**Accuracy:**	80 meters
UTM:	Zone-10 N4202196 E707790	**Elevation (ft):**	690
PLSS:	T01N, R12E, Sec. 15, NE (M)	**Acres:**	0.0

Location:	2.6 AIR MILES SOUTH OF COPPEROPOLIS, ON EAST BANK OF SAWMILL CREEK.
Detailed Location:	MAPPED IN THE NE 1/4 OF THE NE 1/4 OF SECTION 15.
Ecological:	SEEP. ASSOCIATED WITH HORDEUM MARINUM SSP. GUSSONEANUM, LYTHRUM HYSSOPIFOLIUM, RUMEX TRIANGULARIS, RANUNCULUS MURICATUS, TRIFOLIUM VARIEGATUM, AND ELEOCHARIS ACICULARIS.
General:	30 PLANTS OBSERVED IN 2007.
Owner/Manager:	PVT

Eryngium spinosepalum

Element Code: PDAPI0Z0Y0

spiny-sepaled button-celery

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.2			
Habitat:	**General:**	VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND.			
	Micro:	SOME SITES ON CLAY SOIL OF GRANITIC ORIGIN; VERNAL POOLS, WITHIN GRASSLAND. 15-1270 M.			

Occurrence No.	24 **Map Index:** 40385	**EO Index:**	35392	**Element Last Seen:**	1994-XX-XX
Occ. Rank:	Unknown	**Presence:**	Presumed Extant	**Site Last Seen:**	1994-XX-XX
Occ. Type:	Natural/Native occurrence	**Trend:**	Unknown	**Record Last Updated:**	1998-12-14

Quad Summary: New Melones Dam (3712085)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.89636 / -120.55026	**Accuracy:**	1 mile
UTM:	Zone-10 N4197145 E715399	**Elevation (ft):**	900
PLSS:	T01N, R13E, Sec. 33 (M)	**Acres:**	0.0

Location: VICINITY OF SHOTGUN CREEK, EAST OF TULLOCH RESERVOIR AND SOUTHWEST OF TABLE MOUNTAIN. SW OF NEW MELONES RESERVOIR.

Detailed Location: WITHIN SITE OF PROPOSED SHOTGUN CREEK ESTATES. EXACT LOCATION NOT KNOWN, BUT MAPPED IN AREA OF SHOTGUN CREEK, BETWEEN THE TULLOCH RESERVOIR AND TABLE MOUNTAIN.

Ecological: CLARKIA ROSTRATA IS IN THE GENERAL AREA.

General: MAP AND ECOLOGICAL INFORMATION NEEDED FOR THIS SITE.

Owner/Manager: PVT

Lomatium congdonii

Element Code: PDAPI1B0B0

Congdon's lomatium

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.2, BLM_S-Sensitive			
Habitat:	**General:**	CISMONTANE WOODLAND, CHAPARRAL.			
	Micro:	SERPENTINE SOILS WITH SERPENTINE CHAPARRAL PLANTS AND GREY PINES. 335-625 M.			

Occurrence No.	15	**Map Index:** 13310	**EO Index:** 19951	**Element Last Seen:**	1975-XX-XX
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	1975-XX-XX
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	1989-08-11

Quad Summary: Chinese Camp (3712074), Keystone (3712075), Sonora (3712084), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.87131 / -120.50743	**Accuracy:**	1 mile
UTM:	Zone-10 N4194465 E719239	**Elevation (ft):**	
PLSS:	T01S, R13E, Sec. 02, S (M)	**Acres:**	0.0

Location: 2.5 MILES NORTH OF KEYSTONE.

Detailed Location:

Ecological:

General: SCATTERED IN THE AREA.

Owner/Manager: BLM-FOLSOM RA, PVT

Occurrence No.	21	**Map Index:** 74934	**EO Index:** 75937	**Element Last Seen:**	1955-04-29
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	1955-04-29
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2009-04-30

Quad Summary: New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.88820 / -120.54206	**Accuracy:**	4/5 mile
UTM:	Zone-10 N4196259 E716144	**Elevation (ft):**	1100
PLSS:	T01S, R13E, Sec. 04 (M)	**Acres:**	0.0

Location: 2.5 MILES NW OF SONORA RD (HWY 120), BASE OF HILL BETWEEN O'BYRNES FERRY AND YOSEMITE JUNCTION.

Detailed Location: MAPPED BY CNDDB AS BEST GUESS ~2.5 ROAD MILES W OF HWY 120 ALONG OBYRNES FERRY RD (COUNTY HWY E15).

Ecological: AMONG FOOTHILL PINES AND ARCTOSTAPHYLOS.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1955 BACIGALUPI ET AL. COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Calycadenia hooveri

Element Code: PDAST1P040

Hoover's calycadenia

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.3, BLM_S-Sensitive			
Habitat:	**General:**	CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.			
	Micro:	ON EXPOSED, ROCKY, BARREN SOIL. 60-260 M.			

Occurrence No.	2	**Map Index:**	13134	**EO Index:**	6015	**Element Last Seen:**	2016-06-17
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2016-06-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2017-07-20

Quad Summary:	Keystone (3712075)
County Summary:	Stanislaus

Lat/Long:	37.76626 / -120.61477	**Accuracy:**	specific area
UTM:	Zone-10 N4182560 E710095	**Elevation (ft):**	350
PLSS:	T02S, R12E, Sec. 14, NE (M)	**Acres:**	11.6

Location:	5.5 MILES SOUTHEAST OF KNIGHTS FERRY ON WILLMS ROAD.
Detailed Location:	FOUND UNDER, AND TO THE NORTH OF, THE FIRST TRANSMISSION TOWER WEST OF THE ROAD. THE POPULATION EXTENDS 100-400 METERS NORTHEAST OF THE ROAD.
Ecological:	ANNUAL GRASSLAND ON BARE ROCKY HILLTOP OF IONE FORMATION.
General:	TYPE LOCALITY. ABUNDANT IN (EARLY?) 1980'S. LOCALLY COMMON IN 1987. 10,000+ PLANTS OBSERVED BY STONE IN 1988. A 2016 PARK PHOTO FROM "WILLMS RD" IS ATTRIBUTED HERE. LAND USE AS DRY PASTURE CONSISTENT WITH CONTINUED EXISTENCE OF THIS PLANT.
Owner/Manager:	PVT-HETCH HETCHY WATER & POWER

Occurrence No.	3	**Map Index:**	12966	**EO Index:**	17171	**Element Last Seen:**	1976-05-28
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	1976-05-28
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2017-07-20

Quad Summary:	Montpelier (3712056), Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.62718 / -120.66858	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4167008 E705739	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 32, SE (M)	**Acres:**	151.0

Location:	BARNETT RANCH, ABOUT 6 MILES EAST OF WATERFORD.
Detailed Location:	MAPPED AS BEST GUESS BY CNDDB BASED ON GIVEN TRS: SE CORNER SECTION 32.
Ecological:	TUFFACEOUS OUTCROP.
General:	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1976 MALLOCH COLLECTION.
Owner/Manager:	PVT

Occurrence No.	15	**Map Index:**	13225	**EO Index:**	17162	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2017-07-20

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71111 / -120.56614	**Accuracy:**	80 meters
UTM:	Zone-10 N4176551 E714539	**Elevation (ft):**	290
PLSS:	T02S, R13E, Sec. 32, SW (M)	**Acres:**	5.0

Location:	BARNETT RANCH, 2.5 AIR MILES SSW OF COOPERSTOWN.
Detailed Location:	MAPPED IN THE SE 1/4 OF THE SW 1/4 OF SECTION 32.
Ecological:	POCKETS OF SOIL ON OUTCROPS AND IN SOIL MIXED WITH DISINTEGRATED ROCK. VALLEY GRASSLAND, FOOTHILL WOODLAND. LIGHT, SANDY SOIL. ASSOCIATED WITH STIPA CERNUA, ERODIUM BOTRYS, SILENE GLAUCA, GILIA TRICOLOR, PLAGIOBOTHRYS SHASTENSIS, ETC.
General:	FEWER THAN 50 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #19 IN 1977.
Owner/Manager:	PVT

Occurrence No.	16	**Map Index:**	13266	**EO Index:**	17163	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-10-26

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71893 / -120.53842	**Accuracy:**	specific area
UTM:	Zone-10 N4177483 E716958	**Elevation (ft):**	280
PLSS:	T02S, R13E, Sec. 33, NE (M)	**Acres:**	1.0

Location:	1.75 AIR MILES SOUTH OF COOPERSTOWN ON SMALL KNOLL ON DRY CREEK FLOODPLAIN.
Detailed Location:	MAPPED IN THE SE 1/4 OF THE NE 1/4 OF SECTION 33.
Ecological:	ON HORNITOS SANDSTONE IN VALLEY GRASSLAND ASSOCIATED WITH STIPA CERNUA, SILENE GALLICA, GILIA TRICOLOR, AND PLAGIOBOTHRYS SHASTENSIS.
General:	FEWER THAN 50 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #18 IN 1977.
Owner/Manager:	PVT

Occurrence No.	17	**Map Index:**	13239	**EO Index:**	17161	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2017-07-20

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.7402 / -120.55861	**Accuracy:**	80 meters
UTM:	Zone-10 N4179796 E715118	**Elevation (ft):**	270
PLSS:	T02S, R13E, Sec. 20, SE (M)	**Acres:**	5.0

Location:	ON SOUTH SIDE OF COOPERSTOWN ROAD, 0.7 MILE EAST OF NORTH FORK OF DRY CREEK.
Detailed Location:	MAPPED IN THE SE 1/4 OF THE SE 1/4 OF SECTION 20.
Ecological:	POCKETS OF SOIL ON OUTCROPS AND IN SOIL MIXED WITH DISINTEGRATED ROCK. VALLEY GRASSLAND, FOOTHILL WOODLAND. LIGHT, SANDY SOIL. ASSOCIATED WITH STIPA CERNUA, ERODIUM BOTRYS, SILENE GLAUCA, GILIA TRICOLOR, PLAGIOBOTHRYS SHASTENSIS, ETC.
General:	FEWER THAN 10 PLANTS OBSERVED IN 1977.
Owner/Manager:	PVT

Occurrence No.	18	**Map Index:**	13256	**EO Index:**	17159	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-10-30

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71597 / -120.54865	**Accuracy:**	specific area
UTM:	Zone-10 N4177131 E716065	**Elevation (ft):**	275
PLSS:	T02S, R13E, Sec. 33, SW (M)	**Acres:**	11.0

Location:	2.0 AIR MILES SSW OF COOPERSTOWN, SOUTH SIDE OF DRY CREEK.
Detailed Location:	3 POLYGONS MAPPED IN THE NE 1/4 OF THE SW 1/4 OF SECTION 33.
Ecological:	ON HORNITOS SANDSTONE IN VALLEY GRASSLAND ASSOCIATED WITH STIPA CERNUA, SILENE GALLICA, GILIA TRICOLOR, AND PLAGIOBOTHRYS SHASTENSIS.
General:	FEWER THAN 50 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #16 IN 1977.
Owner/Manager:	PVT

Occurrence No.	19	**Map Index:** 13198	**EO Index:**	17160	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2017-07-20

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.71561 / -120.5747	**Accuracy:**	80 meters
UTM:	Zone-10 N4177031 E713770	**Elevation (ft):**	260
PLSS:	T02S, R13E, Sec. 31, SE (M)	**Acres:**	5.0

Location: BARNETT RANCH, 2.75 AIR MILES SOUTHWEST OF COOPERSTOWN.

Detailed Location: MAPPED IN THE NE 1/4 OF THE SE 1/4 OF SECTION 31.

Ecological: POCKETS OF SOIL ON OUTCROPS AND IN SOIL MIXED WITH DESINTEGRATED ROCK. VALLEY GRASSLAND, FOOTHILL WOODLAND. LIGHT, SANDY SOIL. ASSOCIATED WITH STIPA CERNUA, ERODIUM BOTRYS, SILENE GLAUCA, GILIA TRICOLOR, PLAGIOBOTHRYS SHASTENSIS, ETC.

General: FEWER THAN 50 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #15 IN 1977.

Owner/Manager: PVT

Lagophylla dichotoma

Element Code: PDAST5J070

forked hare-leaf

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.			
	Micro:	SOMETIMES CLAY. 190-335 M.			

Occurrence No.	14	**Map Index:** 85755	**EO Index:**	86786	**Element Last Seen:**	1937-05-04
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1937-05-04
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2012-04-18

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.73226 / -120.59675	**Accuracy:**	1 mile
UTM:	Zone-10 N4178829 E711778	**Elevation (ft):**	
PLSS:	T02S, R12E, Sec. 25 (M)	**Acres:**	0.0

Location: WARNERVILLE, 13.5 MILES EAST OF OAKDALE.

Detailed Location: EXACT LOATION UNKNOWN. MAPPED BY CNDDB AROUND WARNERVILLE ACCORDING TO A 1937 HOOVER COLLECTION.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1937 HOOVER COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Occurrence No.	15	**Map Index:**	32807	**EO Index:**	86787	**Element Last Seen:**	1938-05-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1938-05-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2012-04-18

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81844 / -120.67240	**Accuracy:**	1 mile
UTM:	Zone-10 N4188223 E704873	**Elevation (ft):**	
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY, ABOUT 10 MILES EAST OF OAKDALE.

Detailed Location: MAPPED BY CNDDB AROUND KNIGHTS FERRY ACCORDING TO TWO HOOVER COLLECTIONS.

Ecological:

General: OCCURRENCE KNOWN ONLY FROM 1937 AND 1938 HOOVER COLLECTIONS. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Occurrence No.	16	**Map Index:**	85764	**EO Index:**	86794	**Element Last Seen:**	2000-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2000-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2012-04-18

Quad Summary: New Melones Dam (3712085), Copperopolis (3712086)

County Summary: Calaveras

Lat/Long:	37.92885 / -120.62800	**Accuracy:**	1 mile
UTM:	Zone-10 N4200574 E708470	**Elevation (ft):**	
PLSS:	T01N, R12E, Sec. 23 (M)	**Acres:**	0.0

Location: BLACK CREEK RANCH, SOUTH OF COPPEROPOLIS, SIERRA NEVADA FOOTHILLS.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS AROUND BLACK CREEK RANCH ACCORDING TO A 2000 HRUSA OBSERVATION.

Ecological: MOIST ROCKS, CATCHMENTS, SAWMILL CREEK.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 2000 HRUSA OBSERVATION.

Owner/Manager: UNKNOWN

Pseudobahia bahiifolia

Element Code: PDAST7P010

Hartweg's golden sunburst

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G2
	State:	Endangered		**State:**	S2
	Other:	Rare Plant Rank - 1B.1, SB_RSABG-Rancho Santa Ana Botanic Garden			
Habitat:	**General:**	VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND.			
	Micro:	CLAY SOILS, OFTEN ACIDIC. PREDOMINANTLY ON THE NORTHERN SLOPES OF KNOLLS, BUT ALSO ALONG SHADY CREEKS OR NEAR VERNAL POOLS. 60-170 M.			

Occurrence No.	3	**Map Index:**	13183	**EO Index:**	7971	**Element Last Seen:**	1990-04-13
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-04-15

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.72168 / -120.58132	**Accuracy:**	specific area
UTM:	Zone-10 N4177689 E713169	**Elevation (ft):**	240
PLSS:	T02S, R13E, Sec. 31 (M)	**Acres:**	47.0

Location: APPROXIMATELY 1 AIR MILE SE OF WARNERVILLE, EAST OF DRY CREEK, SW OF COOPERSTOWN.

Detailed Location: MAPPED BY CNDDB AS 4 POLYGONS TO ENCOMPASS DATA FROM MULTIPLE SOURCES.

Ecological: ON ACIDIC AMADOR LOAM SOIL IN NON-NATIVE GRASSLAND W/ BRIZA MINOR, CLARKIA PURPUREA, PLAGIOBOTHRYS SP., ERODIUM BOTRYS, ERODIUM CICUTARIUM, LEPIDIUM NITIDUM, BROMUS RUBENS, B. MOLLIS, AGOSERIS HETEROPHYLLA, AND LASTHENIA FREMONTII.

General: 5 COLONIES OBSERVED IN 1977. 196 PLANTS IN 3 POPULATIONS OBSERVED IN 1990. NOT OBSERVED IN 2010 BUT HABITAT REMAINS IN EXCELLENT CONDITION. RARE CLARKIA ROSTRATA FOUND NEARBY. THIS SITE INCLUDES FORMER OCCURRENCES 13 AND 14.

Owner/Manager: PVT

Occurrence No.	11	**Map Index:**	30237	**EO Index:**	16910	**Element Last Seen:**	1939-04-01
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-04-15

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.80038 / -120.72096	**Accuracy:**	1 mile
UTM:	Zone-10 N4186113 E700647	**Elevation (ft):**	200
PLSS:	T01S, R11E, Sec. 35 (M)	**Acres:**	0.0

Location: HAYSTACK HILL, 8 MILES EAST OF OAKDALE.

Detailed Location: MAPPED ABOUT 8 MILES EAST OF OAKDALE ALONG HWY 120/108. THE LIKELY SITE FOR HOOVER'S COLLECTIONS IS NOW AN OLD SOIL QUARRY ON THE SOUTH SIDE OF THE ROAD, 7.6 MILES EAST OF OAKDALE ACCORDING TO J. STEBBINS.

Ecological:

General: THE ACCESSIBLE LANDS ON BOTH SIDES OF THE HWY, 4-12 MI E OF OAKDALE WERE SURVEYED IN 1990; NO PLANTS FOUND. SOME NATIVE GRASSLAND STILL EXISTS TO THE SE OF OAKDALE, BUT SOIL CONDITIONS DIDN'T SEEM FAVORABLE IN 1990. NONE OBSERVED IN 2010.

Owner/Manager: PVT

Occurrence No.	15	**Map Index:**	13222	**EO Index:**	7974	**Element Last Seen:**	2010-04-09
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-04-15

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71863 / -120.55653	**Accuracy:**	specific area
UTM:	Zone-10 N4177407 E715363	**Elevation (ft):**	300
PLSS:	T02S, R13E, Sec. 32 (M)	**Acres:**	31.0

Location:	WEST OF DRY CREEK, FROM 1.3 AIR MILES SSW TO 2 AIR MILES SOUTH OF COOPERSTOWN.
Detailed Location:	MAPPED AS 11 POLYGONS TO ENCOMPASS MULTIPLE SOURCES OF INFORMATION.
Ecological:	GROWING ON ACIDIC AMADOR LOAM SOILS IN NON-NATIVE GRASSLAND. ASSOCIATED WITH MICROPUS CALIFORNICUS, BROMUS MOLLIS, B. RUBENS, LUPINUS BICOLOR, PLAGIOBOTHRYS TENELLUS, ERODIUM CICUTARIUM, E. BOTRYS, LASTHENIA FREMONTII, AND TRITELEIA SP.
General:	FEWER THAN 100 PLANTS SEEN IN PORTIONS OF OCCURRENCE IN 1977, 280 PLANTS SEEN IN 1990. THOUSANDS OF PLANTS OBSERVED IN 4 SUBPOPULATIONS IN 2010. INCLUDES FORMER OCCURRENCES 16, 19, AND 20.
Owner/Manager:	PVT

Occurrence No.	17	**Map Index:**	13240	**EO Index:**	7975	**Element Last Seen:**	1990-04-12
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-04-15

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.73438 / -120.55417	**Accuracy:**	specific area
UTM:	Zone-10 N4179161 E715525	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 28 (M)	**Acres:**	25.0

Location:	APPROXIMATELY 0.5 TO 1.5 AIR MILES WSW OF COOPERSTOWN.
Detailed Location:	MAPPED BY CNDDB AS 4 POLYGONS BASED ON 1977 MAPS AND 1991 STEBBINS MAPS IN THE NW 1/4 OF SECTION 28 AND THE SE 1/4 OF SECTION 29. OFTEN OCCURS WITH LASTHENIA CHRYSOSTOMA; THE TWO ARE DIFFICULT TO SEPARATE.
Ecological:	GROWING ON ACIDIC AMADOR LOAMS IN NON-NATIVE GRASSLAND. ASSOCIATED WITH MICROPUS CALIFORNICUS, LASTHENIA FREMONTII, MICROSTERIS GRACILIS, CALANDRINIA CILIATA, LEPIDIUM NITIDUM, ERODIUM CICUTARIUM, AND PLAGIOBOTHRYS SCRIPTUS.
General:	OBSERVED IN 2 SUBPOPULATIONS IN 1977. 16 PLANTS IN 1990 IN SEC 29. LARGE POPULATION IN SEC 28; OVER 15,000 PLANTS SEEN WITHIN 5 ACRE SITE IN 1990. NOT OBSERVED IN SEC 29 IN 2010 BUT EXCELLENT HABITAT WAS PRESENT. INCLUDES FORMER EO #18.
Owner/Manager:	PVT

Occurrence No.	27	**Map Index:**	22193	**EO Index:**	7973	**Element Last Seen:**	2010-04-09
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-04-25

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71999 / -120.56567	**Accuracy:**	specific area
UTM:	Zone-10 N4177537 E714554	**Elevation (ft):**	260
PLSS:	T02S, R13E, Sec. 32, NW (M)	**Acres:**	8.0

Location:	APPROXIMATELY 1.2 AIR MILES SOUTH OF JUNCTION OF COOPERSTOWN ROAD AND NORTH FORK DRY CREEK, 2 MILES SE OF WARNERVILLE.
Detailed Location:	MAPPED BY CNDDB TO ENCOMPASS A 1977 ALLEN MAP AND 2010 VOLLMAR CONSULTING DATA.
Ecological:	NORTH-FACING SLOPE ON AMADOR LOAM SOILS. ASSOCIATED WITH ERODIUM BOTRYS, HYPOCHAERIS GLABRA, AND TRIFOLIUM WILDENOVII.
General:	SMALL POPULATION NOTED BY ALLEN IN 1977 DURING SURVEYS FOR PROPOSED NUCLEAR POWER PLANT SITE. APPROXIMATELY 200 PLANTS OBSERVED IN 2010.
Owner/Manager:	PVT

Occurrence No.	28	**Map Index:**	22191	**EO Index:**	7976	**Element Last Seen:**	1990-04-13
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-04-25

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.74030 / -120.57273	**Accuracy:**	80 meters
UTM:	Zone-10 N4179775 E713873	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 20, SW (M)	**Acres:**	0.0

Location:	1.5 MILES WEST OF COOPERSTOWN, 0.3 MILE NORTH OF COOPERSTOWN ROAD.
Detailed Location:	GROWING ON BLUFFS IMMEDIATELY WEST OF NORTH FORK OF DRY CREEK. EXTREME SW CORNER OF SECTION 20.
Ecological:	NORTH-FACING BLUFFS. ACIDIC AMADOR LOAM SOILS IN NON-NATIVE GRASSLAND. ASSOCIATED WITH BROMUS RUBENS, MICROPUS CALIFORNICUS, AND ERODIUM BOTRYS.
General:	26 PLANTS SEEN IN 1990. POPULATION MAY BE MORE EXTENSIVE DURING FAVORABLE YEARS. NO PLANTS OBSERVED IN 2010 THOUGH SUITABLE HABITAT WSS PRESENT.
Owner/Manager:	PVT

Occurrence No.	34	**Map Index:** 46009	**EO Index:**	63657	**Element Last Seen:**	1937-04-01
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	2010-04-09
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2011-04-14

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus, Tuolumne

Lat/Long:	37.81954 / -120.64529	**Accuracy:**	3/5 mile
UTM:	Zone-10 N4188405 E707257	**Elevation (ft):**	
PLSS:	T01S, R12E, Sec. 27 (M)	**Acres:**	0.0

Location: 1 MILE EAST OF KNIGHTS FERRY.

Detailed Location: LOCATION DESCRIPTION VAGUE; MAPPED AS BEST GUESS 1 AIR MILE EAST OF KNIGHTS FERRY, IN VICINITY OF HIGHWAY 108/120.

Ecological: AROUND MARGINS OF VOLCANIC BOULDERS.

General: OCCURRENCE KNOWN ONLY FROM A 1937 COLLECTION BY BELSHAW. NOT OBSERVED HERE IN 2010 AND HABITAT CONDITIONS DID NOT APPEAR SUITABLE FOR SPECIES (SUBSTATE IS DARK VOLCANIC MATERIAL, NOT AMADOR LOAM).

Owner/Manager: PVT

Cryptantha hooveri

Element Code: PDBOR0A190

Hoover's cryptantha

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	GH
	State:	None		**State:**	SH
	Other:	Rare Plant Rank - 1A			
Habitat:	**General:**	VALLEY AND FOOTHILL GRASSLAND, INLAND DUNES.			
	Micro:	IN COARSE SAND. 50-365 M.			

Occurrence No.	2	**Map Index:** 13254	**EO Index:**	57194	**Element Last Seen:**	1937-05-16
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1937-05-16
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2017-04-07

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.64020 / -120.54659	**Accuracy:**	1 mile
UTM:	Zone-10 N4168727 E716467	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 28 (M)	**Acres:**	0.0

Location: GOBIN RANCH, ABOUT 13.0 MILES EAST OF WATERFORD.

Detailed Location: EXACT LOCATION UNKNOWN. UNABLE TO LOCATE GOBIN RANCH. MAPPED AS BEST GUESS BY CNDDB IN THE VICINITY OF HWY 132 AT RUSHING ROAD WHICH IS ABOUT 13 MILES EAST OF WATERFORD.

Ecological:

General: UNKNOWN NUMBER OF PLANTS SEEN BY HOOVER IN 1936 AND 1937. NEEDS FIELDWORK.

Owner/Manager: PVT

Cryptantha mariposae

Element Code: PDBOR0A1Q0

Mariposa cryptantha

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2G3
	State:	None		**State:**	S2S3
	Other:	Rare Plant Rank - 1B.3, BLM_S-Sensitive			
Habitat:	**General:**	CHAPARRAL.			
	Micro:	ON SERPENTINE OUTCROPS. 90-825 M.			

Occurrence No.	7 **Map Index:** 58633	**EO Index:**	58669	**Element Last Seen:**	198X-XX-XX
Occ. Rank:	Unknown	**Presence:**	Presumed Extant	**Site Last Seen:**	1998-05-XX
Occ. Type:	Natural/Native occurrence	**Trend:**	Unknown	**Record Last Updated:**	2010-06-07

Quad Summary: Chinese Camp (3712074), Keystone (3712075)

County Summary: Tuolumne

Lat/Long:	37.84065 / -120.44737	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4191206 E724616	**Elevation (ft):**	1100
PLSS:	T01S, R14E, Sec. 16 (M)	**Acres:**	10689.7

Location: RED HILLS.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS THE AREA OF RED HILLS. NEARLY UNMAPPABLE; MAPPED AS BEST GUESS TO INCLUDE ENTIRE SET OF HILLS.

Ecological:

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS AN UNDATED COLLECTION BY CLIFTON. TAYLOR RECORDED IT AS PRESENT DURING 1980 INVENTORY WORK, BUT WAS UNABLE TO RELOCATE IN 1998; CONCLUDES THAT POPULATIONS, IF PRESENT, ARE SMALL. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Cryptantha spithamaea

Element Code: PDBOR0A2M2

Red Hills cryptantha

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.3			
Habitat:	**General:**	CHAPARRAL, CISMONTANE WOODLAND.			
	Micro:	SERPENTINITE, SOMETIMES STREAMBEDS, SOMETIMES OPENINGS. 275-460 M.			

Occurrence No.	5	**Map Index:** 95439	**EO Index:**	96559	**Element Last Seen:**	1996-04-15
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1996-04-15
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2015-03-11

Quad Summary: Sonora (3712084), New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.92137 / -120.50400	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4200029 E719392	**Elevation (ft):**	900
PLSS:	T01N, R13E, Sec. 24, SW (M)	**Acres:**	0.0

Location: PEORIA BASIN; SLOPES AT SE EDGE OF BASIN ABOUT 1 MILE EAST OF PEORIA PASS RD.

Detailed Location: MAPPED AROUND COORDINATES GIVEN BY TAYLOR IN A 2014 EMAIL INTERPRETING THE LOCATION OF HIS 1996 COLLECTION; ACCURACY OF COORDINATES IS UNCERTAIN. COLLECTION LABEL INDICATES SITE IS IN THE SW 1/4 OF THE SW 1/4 OF SECTION 24.

Ecological: STONY RED WEATHERED SERPENTINE SOILS DOMINATED BY CEANOTHUS CUNEATUS CHAPARRAL.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1996 TAYLOR COLLECTION.

Owner/Manager: UNKNOWN

Downingia pusilla

Element Code: PDCAM060C0

dwarf downingia

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	GU
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 2B.2			
Habitat:	**General:**	VALLEY AND FOOTHILL GRASSLAND (MESIC SITES), VERNAL POOLS.			
	Micro:	VERNAL LAKE AND POOL MARGINS WITH A VARIETY OF ASSOCIATES. IN SEVERAL TYPES OF VERNAL POOLS. 1-490 M.			

Occurrence No.	8	**Map Index:**	13199	**EO Index:**	28165	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-08

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.72589 / -120.57640	**Accuracy:**	specific area
UTM:	Zone-10 N4178168 E713591	**Elevation (ft):**	240
PLSS:	T02S, R13E, Sec. 30 (M)	**Acres:**	8.2

Location:	1.35 AIR MILES ESE OF WARNERVILLE.
Detailed Location:	SEVEN COLONIES LOCATED IN THE SE 1/4 OF THE SE 1/4 OF SECTION 30, THE NE 1/4 OF SECTION 31 AND THE SW 1/4 OF THE SW 1/4 OF SECTION 29.
Ecological:	VALLEY GRASSLAND IN AMADOR SOIL. SCATTERED IN DEEPEST AREAS OF DRIED VERNAL POOLS. ASSOCIATED WITH GRATIOLA EBRACTEATA, LASTHENIA FREMONTII, PLAGIOBOTHRYS STIPITATUS, AND OTHER TYPICAL VERNAL POOL ANNUALS.
General:	IN 1977: 3 POPULATIONS WITH FEWER THAN 10 PLANTS EACH OBSERVED IN SECTION 30. SPARSE POPULATIONS WERE FOUND IN SECTION 29. AN UNKNOWN NUMBER WAS OBSERVED IN SECTION 31. INCLUDES FORMER OCCURRENCE #24.
Owner/Manager:	PVT

Occurrence No.	9	**Map Index:**	13236	**EO Index:**	17412	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-08

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.72687 / -120.56159	**Accuracy:**	specific area
UTM:	Zone-10 N4178311 E714893	**Elevation (ft):**	270
PLSS:	T02S, R13E, Sec. 29, SE (M)	**Acres:**	8.0

Location:	APPROXIMATELY 1.5 AIR MILES SW OF COOPERSTOWN.
Detailed Location:	TWO POLYGONS MAPPED IN THE WESTERN HALF OF THE SE 1/4 OF SECTION 29.
Ecological:	VALLEY GRASSLAND IN AMADOR SOIL. ASSOCIATED WITH GRATIOLA EBRACTEATA, LASTHENIA FREMONTII, PLAGIOBOTHRYS STIPITATUS, AND OTHER TYPICAL VERNAL POOL ANNUALS.
General:	FEWER THAN 10 PLANTS OBSERVED IN SE POLYGON IN 1977. UNKNOWN NUMBER OBSERVED IN NW POLYGON IN 1977.
Owner/Manager:	PVT

Occurrence No.	10	**Map Index:**	13231	**EO Index:**	17415	**Element Last Seen:**	1977-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2004-03-17

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71804 / -120.56262	**Accuracy:**	specific area
UTM:	Zone-10 N4177328 E714828	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 32, NE (M)	**Acres:**	1.8

Location:	2.25 AIR MILES SW OF COOPERSTOWN.
Detailed Location:	SW 1/4 OF NE 1/4 OF SECTION 32.
Ecological:	VALLEY GRASSLAND.
General:	ONLY SOURCE OF INFORMATION IS 1977 REPORT BY ALLEN. BARNETT RANCH PREFERRED SITE FOR PG&E NUCLEAR POWER PLANT IN STANISLAUS COUNTY. NEEDS FIELDWORK.
Owner/Manager:	PVT?

Occurrence No.	11	**Map Index:**	13248	**EO Index:**	17414	**Element Last Seen:**	1977-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2004-03-17

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71484 / -120.55138	**Accuracy:**	specific area
UTM:	Zone-10 N4176999 E715828	**Elevation (ft):**	260
PLSS:	T02S, R13E, Sec. 33, SW (M)	**Acres:**	2.1

Location:	APPROXIMATELY 2.0 AIR MILES SSW OF COOPERSTOWN.
Detailed Location:	THREE COLONIES MAPPED IN THE NORTH HALF OF THE SW 1/4 OF SECTION 33.
Ecological:	VALLEY GRASSLAND ASSOCIATED WITH CALYCADENIA HOOVERI.
General:	ONLY SOURCE OF INFORMATION IS 1977 REPORT BY ALLEN. BARNETT RANCH PREFERRED SITE FOR PG&E NUCLEAR POWER PLANT IN STANISLAUS COUNTY. NEEDS FIELDWORK. FORMER OCCURRENCE #12 LUMPED HERE.
Owner/Manager:	PVT?

Occurrence No.	13	**Map Index:**	13109	**EO Index:**	17411	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-08

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71995 / -120.53789	**Accuracy:**	specific area
UTM:	Zone-10 N4177598 E717002	**Elevation (ft):**	280
PLSS:	T02S, R13E, Sec. 33, NE (M)	**Acres:**	13.0

Location:	1.8 AIR MILES SOUTH OF COOPERSTOWN NEAR SMALL KNOLL ON DRY CREEK FLOODPLAIN.
Detailed Location:	TWO COLONIES MAPPED IN THE SW 1/4 OF THE NW 1/4 OF SECTION 34 AND THE WESTERN HALF OF THE NE 1/4 OF SECTION 33.
Ecological:	VALLEY GRASSLAND IN AMADOR SOIL. ASSOCIATED WITH GRATIOLA EBRACTEATA, LASTHENIA FREMONTII, PLAGIOBOTHRYS STIPITATUS, AND OTHER TYPICAL VERNAL POOL ANNUALS.
General:	FEWER THAN 10 PLANTS OBSERVED IN EACH COLONY IN 1977. INCLUDES FORMER OCCURRENCE #14.
Owner/Manager:	PVT

Occurrence No.	15	**Map Index:**	13301	**EO Index:**	17408	**Element Last Seen:**	1977-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2006-10-06

Quad Summary: La Grange (3712064), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.67599 / -120.50412	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4172797 E720109	**Elevation (ft):**	280
PLSS:	T03S, R13E, Sec. 14, NE (M)	**Acres:**	80.0

Location: UPPER WATERSHED OF LOWER DOMINICI CREEK; VERNAL POOL ON TRIBUTARY.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB IN THE VICINITY OF LOWER DOMINICI CREEK. INCLUDES COLLECTION BY P. ALLEN (1969) FROM 2 MILES WEST OF LA GRANGE ALONG DOMINICI CREEK.

Ecological: VALLEY GRASSLAND; VERNAL POOL.

General: INCLUDES FORMER EO #116. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Occurrence No.	16	**Map Index:**	13223	**EO Index:**	17410	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-08

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.73812 / -120.56478	**Accuracy:**	80 meters
UTM:	Zone-10 N4179552 E714579	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 29, NW (M)	**Acres:**	0.0

Location: DITCH ALONG EDGE OF SIERRA RAILROAD, APPROXIMATELY 2.3 MILES ENE OF WARNERVILLE.

Detailed Location: ALONG DITCH IN THE NE 1/4 OF THE NW 1/4 OF SECTION 29.

Ecological: VALLEY GRASSLAND.

General: FEWER THAN 1000 PLANTS OBSERVED IN 1977 BETWEEN THIS OCCURRENCE AND OCCURRENCE #17 COMBINED.

Owner/Manager: PVT

Occurrence No.	17	**Map Index:**	13201	**EO Index:**	17407	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-13

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.73611 / -120.57449	**Accuracy:**	specific area
UTM:	Zone-10 N4179307 E713729	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 30, NE (M)	**Acres:**	3.0

Location: DITCH ALONG EDGE OF SIERRA RAILROAD, 0.1 MILE EAST OF COOPERSTOWN CROSSING.

Detailed Location: ALONG DITCH IN THE NE 1/4 OF THE NE 1/4 OF SECTION 30.

Ecological: VALLEY GRASSLAND. ASSOCIATED WITH ISOETES ORCUTTII AND PILULARIA AMERICANA.

General: SEVERAL HUNDRED PLANTS OBSERVED IN 1977.

Owner/Manager: PVT

Occurrence No.	18	**Map Index:**	13193	**EO Index:**	17406	**Element Last Seen:**	1977-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-08

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.69232 / -120.57514	**Accuracy:**	80 meters
UTM:	Zone-10 N4174446 E713798	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 07, NE (M)	**Acres:**	0.0

Location: 2.9 AIR MILES SSE OF WARNERVILLE AND 0.1 MILE SOUTH OF BARNETT ROAD.

Detailed Location: NEAR THE CENTER OF THE EASTERN HALF OF THE NE 1/4 OF SECTION 7.

Ecological: VALLEY GRASSLAND, DRY BED OF VERNAL POOL.

General: 1975 COLLECTION BY RUBTZOFF AND ALLEN FROM "CA 1.5 MILE EAST OF BARNETT ROAD JUNCTION WITH CRABTREE ROAD, ON SOUTH SIDE OF BARNETT ROAD, REGION WEST OF LA GRANGE" ATTRIBUTED TO SITE.

Owner/Manager: UNKNOWN

Occurrence No.	19	**Map Index:**	70798	**EO Index:**	17405	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-02-08

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.70499 / -120.58075	**Accuracy:**	80 meters
UTM:	Zone-10 N4175839 E713267	**Elevation (ft):**	230
PLSS:	T03S, R13E, Sec. 06, NE (M)	**Acres:**	0.0

Location: 2.0 AIR MILES SSE OF WARNERVILLE.

Detailed Location: MAPPED IN SW1/4 OF NE1/4 SECTION 6.

Ecological: VALLEY GRASSLAND IN AMADOR SOIL. ASSOCIATED WITH GRATIOLA EBRACTEATA, LASTHENIA FREMONTII, PLAGIOBOTHRYS STIPITATUS, AND OTHER TYPICAL VERNAL POOL ANNUALS.

General: OBSERVED POPULATION COVERED LESS THAN 10 SQUARE METERS IN 1977.

Owner/Manager: PVT

Occurrence No.	25	**Map Index:**	43381	**EO Index:**	43381	**Element Last Seen:**	1937-04-25
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1937-04-25
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2002-09-04

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.77978 / -120.65363	**Accuracy:**	1 mile
UTM:	Zone-10 N4183974 E706633	**Elevation (ft):**	490
PLSS:	T02S, R12E, Sec. 09 (M)	**Acres:**	0.0

Location: FLAT IN LOW HILLS, 3 MILES SOUTH OF KNIGHTS LANDING.

Detailed Location: EXACT LOCATION NOT KNOWN; MAPPED SOUTH OF WILDCAT CREEK AND EAST OF CASHMAN CREEK.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1937 COLLECTION BY JEPSON. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Euphorbia hooveri

Element Code: PDEUP0D150

Hoover's spurge

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G1
	State:	None		**State:**	S1
	Other:	Rare Plant Rank - 1B.2			
Habitat:	**General:**	VERNAL POOLS.			
	Micro:	VERNAL POOLS ON VOLCANIC MUDFLOW OR CLAY SUBSTRATE. 25-130 M.			

Occurrence No.	11	**Map Index:** 13276	**EO Index:**	2790	**Element Last Seen:** 1986-08-31
Occ. Rank:	Good		**Presence:**	Presumed Extant	**Site Last Seen:** 1986-08-31
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:** 2008-06-27

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.65085 / -120.52638	**Accuracy:**	80 meters
UTM:	Zone-10 N4169955 E718220	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 27, NE (M)	**Acres:**	0.0

Location: VERNAL POOL 1.6 MILES NORTH OF TUOLUMNE RIVER AND 0.4 MILE EAST OF RAIRDEN GULCH, JUST SOUTH OF MODESTO MAIN CANAL.

Detailed Location: POOL MAPPED SOUTHWEST OF DIRT ROAD WITHIN THE NW 1/4 OF THE NE 1/4 OF SECTION 27. IN 1986, THE POOL BED APPEARED BARREN FROM A DISTANCE DUE TO SEVERE GRAZING AND TRAMPLING.

Ecological: VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND AND OPEN QUERCUS DOUGLASII WOODLAND. ASSOCIATED WITH NEOSTAPFIA COLUSANA, MARSILEA VESTITA, AND EREMOCARPUS SETIGERUS. SOIL MAPPED AS WHITNEY SANDY LOAM.

General: SITE FIRST DOCUMENTED BY P. ALLEN IN 1962. SITE VISITED IN 1983. ABOUT 50-100 PLANTS SEEN IN 1986. OTHER POOLS NEARBY HAVE BEEN PLANTED WITH CLOVER AND CONVERTED TO CATTLE WATERING PONDS.

Owner/Manager: PVT

Lupinus spectabilis **Element Code:** PDFAB2B3P0

shaggyhair lupine

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.2, BLM_S-Sensitive			
Habitat:	**General:**	CHAPARRAL, CISMONTANE WOODLAND.			
	Micro:	OPEN ROCKY SLOPES OF SERPENTINE. MOSTLY ON SERPENTINE CHAPARRAL SURROUNDED BY GREY PINE WOODLAND. 300-825 M.			

Occurrence No.	28	**Map Index:**	78660	**EO Index:**	79609	**Element Last Seen:**	1998-04-15
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1998-04-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-04-26

Quad Summary:	Sonora (3712084), New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.92243 / -120.50082	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4200154 E719669	**Elevation (ft):**	1000
PLSS:	T01N, R13E, Sec. 24, SW (M)	**Acres:**	0.0

Location:	SLOPES AT SOUTHEAST EDGE OF PEORIA BASIN, ABOUT 1.9 AIR MILES NORTH OF PEORIA PASS.
Detailed Location:	MAPPED ACCORDING TO COORDINATES PROVIDED BY TAYLOR; 120D 30' 01"W, 37D 55' 21"N. DATUM UNKNOWN, MAPPED BETWEEN NAD27 AND NAD83. T-R-S ALSO GIVEN AS SW1/4 SW 1/4 SEC 24, BUT COORDINATES PUT THIS SITE IN THE N 1/2 SW 1/4 OF SEC 24.
Ecological:	STONY RED WEATHERED SERPENTINE SOILS DOMINATED BY CEANOTHUS CUNEATUS CHAPARRAL.
General:	UNKNOWN NUMBER OF PLANTS OBSERVED IN 1998; NEEDS POPULATION DATA.
Owner/Manager:	UNKNOWN

Monardella venosa **Element Code:** PDLAM18082

veiny monardella

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G1
	State:	None		**State:**	S1
	Other:	Rare Plant Rank - 1B.1, BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden			
Habitat:	**General:**	VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND.			
	Micro:	IN HEAVY CLAY; MOSTLY WITH GRASSLAND ASSOCIATES. REDISCOVERED IN 1992. 30-405 M.			

Occurrence No.	4 **Map Index:** 13283	**EO Index:**	13536	**Element Last Seen:**	1998-07-03
Occ. Rank:	Excellent	**Presence:**	Presumed Extant	**Site Last Seen:**	1998-07-03
Occ. Type:	Natural/Native occurrence	**Trend:**	Unknown	**Record Last Updated:**	2011-05-03

Quad Summary: New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.92041 / -120.51082	**Accuracy:**	80 meters
UTM:	Zone-10 N4199906 E718796	**Elevation (ft):**	860
PLSS:	T01N, R13E, Sec. 23, SE (M)	**Acres:**	0.0

Location: PEORIA BASIN (ABOUT 2 AIR MI S OF NEW MELONES DAM).

Detailed Location: REACHED VIA NEARBY NEW PEORIA FLAT ROAD.

Ecological: IN GRAY BLACK VERTISOL ON VERNALLY WET FLAT IN LARGE PATCH OF PERIDERIDIA KELLOGGII, & ZIGADENUS FREMONTII. GRASSLAND W/HORDEUM CA., ELYMUS GLAUCUS, & LOLIUM PERENNE. FRITILLARIA AGRESTIS & TRICHOSTEMA RUBISEPALUM FOUND NEARBY.

General: FIRST COLLECTED HERE BY J. RUTTER IN 1935 FROM "COPPERPOLIS (=COPPEROPOLIS), 1 3/4 MI NNW OF PEORIA PASS." SITE VISITED BY JOKERST IN 1988, BUT NO PLANTS FOUND. 2500 SEEN BY TAYLOR AT MAPPED LOCATION IN 1998.

Owner/Manager: PVT

Monardella leucocephala

Element Code: PDLAM180C0

Merced monardella

Listing Status: **Federal:** None
State: None
Other: Rare Plant Rank - 1A

CNDDB Element Ranks: **Global:** GH **State:** SH

Habitat: **General:** VALLEY AND FOOTHILL GRASSLAND.
Micro: KNOWN FROM RIVERBEDS, MOIST SANDY DEPRESSIONS; REQUIRES MOIST SUBALKALINE SANDS ASSOC W/LOW ELEV GRASSLAND. 35-100 M.

Occurrence No. 1 **Map Index:** 17383 **EO Index:** 11942 **Element Last Seen:** 1896-07-15
Occ. Rank: None **Presence:** Extirpated **Site Last Seen:** 1997-XX-XX
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2005-06-15

Quad Summary: La Grange (3712064), Cooperstown (3712065)
County Summary: Stanislaus

Lat/Long: 37.64725 / -120.49729 **Accuracy:** 1 mile
UTM: Zone-10 N4169624 E720797 **Elevation (ft):** 200
PLSS: T03S, R13E, Sec. 25, NW (M) **Acres:** 0.0

Location: NEAR BASSO BRIDGE BELOW LA GRANGE, TUOLUMNE RIVER.
Detailed Location:
Ecological: INFO FROM HERBARIUM LABEL SAYS PLANTS "ABUNDANT IN SANDY GRAIN FIELDS IN ROLLING COUNTRY."
General: NOT FOUND IN 1990, '91, '92, OR '97. JEPSON'S 1896 COLLECTIONS ARE ONLY KNOWN OBSERVATIONS AT THIS SITE. ALLEN, 1975, SAYS "CERTAINLY EXTINCT AT THIS SITE." THIS SITE WAS FORMERLY REFERRED TO AS OCCURRENCE #3.
Owner/Manager: UNKNOWN

Occurrence No. 3 **Map Index:** 17399 **EO Index:** 11936 **Element Last Seen:** 1936-05-27
Occ. Rank: None **Presence:** Extirpated **Site Last Seen:** 1997-XX-XX
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2011-02-01

Quad Summary: Cooperstown (3712065)
County Summary: Stanislaus

Lat/Long: 37.64406 / -120.59226 **Accuracy:** 1 mile
UTM: Zone-10 N4169050 E712426 **Elevation (ft):** 180
PLSS: T03S, R12E, Sec. 25, SE (M) **Acres:** 0.0

Location: 9 MILES EAST OF WATERFORD. 1 MILE NORTH OF TURLOCK LAKE STATE PARK.
Detailed Location: OTHER NEARBY COLLECTIONS INCLUDE "10-12 MI E OF WATERFORD, NEAR OIL WELL." ALLEN REPORTS THAT THE OIL WELL EXISTED ABOUT 10.5 MILES EAST OF WATERFORD NEAR CREE RANCH RESORT.
Ecological:
General: NO PLANTS FOUND IN 1990, '91, '92, OR '97. HOOVER COLLECTIONS (#693, 1107, 2594, & 3627) ATTRIBUTED HERE. NO SUITABLE HABITAT REMAINS. INCLUDES FORMER OCCURRENCE #4 (9 MI E OF WATERFORD) AND #5 (10-12 MI E OF WATERFORD NEAR OIL WELL).
Owner/Manager: UNKNOWN

Clarkia rostrata

Element Code: PDONA050Y0

beaked clarkia

Listing Status: **Federal:** None
State: None
Other: Rare Plant Rank - 1B.3, BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G2G3 **State:** S2S3

Habitat: **General:** CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.

Micro: NORTH-FACING SLOPES; SOMETIMES ON SANDSTONE. 60-915 M.

Occurrence No.	7	**Map Index:**	50484	**EO Index:**	50484	**Element Last Seen:**	1937-05-04
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1937-05-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-08-09

Quad Summary: Waterford (3712067)

County Summary: Stanislaus

Lat/Long:	37.70885 / -120.82128	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4175746 E692050	**Elevation (ft):**	
PLSS:	T03S, R10E, Sec. 01 (M)	**Acres:**	70.0

Location: 4 MILES SOUTH OF OAKDALE.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB 3.5-4.5 ROAD MILES SOUTH OF OAKDALE ALONG OAKDALE WATERFORD HIGHWAY.

Ecological:

General: ONLY SOURCES OF INFORMATION FOR THIS SITE ARE 1936 AND 1937 COLLECTIONS BY HOOVER. ALLEN (1974) FEELS PLANT MAY HAVE BEEN COLLECTED 4 MILES EAST OF OAKDALE, WHERE MORE SUITABLE HABITAT IS FOUND. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Occurrence No.	8	**Map Index:**	32807	**EO Index:**	50485	**Element Last Seen:**	1938-05-09
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1938-05-09
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-07

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81844 / -120.67240	**Accuracy:**	1 mile
UTM:	Zone-10 N4188223 E704873	**Elevation (ft):**	
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN VICINITY OF KNIGHTS FERRY.

Ecological:

General: ONLY SOURCES OF INFORMATION FOR THIS SITE ARE 1936 AND 1938 COLLECTIONS BY HOOVER, NEEDS FIELDWORK. LAND IN IMMEDIATE VICINITY OF TOWN BEING CONSIDERED FOR HISTORICAL PRESERVE (ALLEN, 1974).

Owner/Manager: UNKNOWN

Occurrence No.	9	**Map Index:**	13206	**EO Index:**	13832	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-08

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.65356 / -120.57022	**Accuracy:**	specific area
UTM:	Zone-10 N4170155 E714344	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 20, SW (M)	**Acres:**	38.9

Location: SALTER GULCH, ABOUT 1.6 AIR MILES NORTH OF NORTH BOUNDARY OF TURLOCK LAKE STATE PARK.

Detailed Location: MAPPED IN THE SW 1/4 OF SECTION 20, THE NW 1/4 OF THE NW 1/4 OF SECTION 29, AND THE NE 1/4 OF THE NE 1/4 OF SECTION 30.

Ecological: BLUFFS ALONG GULCH IN VALLEY GRASSLAND-FOOTHILL WOODLAND ON LIGHT, SANDY SOIL. ASSOCIATED WITH CLARKIA UNGUICULATA, COLLINSIA HETEROPHYLLA, THYSANOCARPUS CURVIPES, AND LAYIA PENTACHAETA.

General: SEVERAL SMALL COLONIES SEEN IN 1977.

Owner/Manager: PVT

Occurrence No.	10	**Map Index:**	13249	**EO Index:**	17786	**Element Last Seen:**	1977-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-07

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.73567 / -120.55215	**Accuracy:**	specific area
UTM:	Zone-10 N4179308 E715700	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 28, NW (M)	**Acres:**	10.0

Location: ABOUT 0.6 AIR MILE SOUTHWEST OF COOPERSTOWN ON NORTHERN TRIBUTARY TO DRY CREEK.

Detailed Location: MAPPED ALONG BENDS OF UNNAMED TRIBUTARY TO DRY CREEK. 2 COLONIES WITHIN THE W 1/2 OF THE NW 1/4 OF SECTION 28.

Ecological:

General: UNKNOWN NUMBER OF PLANTS OBSERVED IN 1977. MAP DETAIL IS THE ONLY SOURCE OF INFORMATION FOR THIS SITE, NEEDS FIELDWORK. INCLUDES FORMER OCCURRENCE #12.

Owner/Manager: PVT

Occurrence No.	11	**Map Index:**	13160	**EO Index:**	13833	**Element Last Seen:**	1977-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1995-02-23

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.70862 / -120.59772	**Accuracy:**	specific area
UTM:	Zone-10 N4176202 E711761	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 01, NE (M)	**Acres:**	62.0

Location: ABOUT 1.7 AIR MILES N-NNE OF JCT CRABTREE RD AND BARNETT RD, ALONG TRIBUTARY TO DRY CREEK.

Detailed Location:

Ecological: ON TUFFACEOUS OUTCROPS ALONG STREAM.

General: SEVERAL COLONIES SEEN IN 1977.

Owner/Manager: PVT

Occurrence No.	13	**Map Index:**	13220	**EO Index:**	13179	**Element Last Seen:**	1988-04-08
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1988-04-08
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-07

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.73262 / -120.56779	**Accuracy:**	specific area
UTM:	Zone-10 N4178935 E714330	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 29, W (M)	**Acres:**	17.0

Location:	DRY CREEK EAST OF CONFLUENCE WITH NORTH FORK DRY CREEK, ABOUT 1.4 AIR MILES SOUTHWEST OF COOPERSTOWN.
Detailed Location:	5 COLONIES ALONG DRY CREEK 0.2-0.6 MILES EAST OF JUNCTION WITH NORTH FORK DRY CREEK, MAPPED BY CNDDB AS 2 POLYGONS. ADDITIONAL COLONY ABOUT 0.1 MILE NORTHWEST ON NORTH FORK DRY CREEK; STEEP NORTH-FACING SLOPE AT CONFLUENCE WITH TRIBUTARY.
Ecological:	VALLEY GRASSLAND/FOOTHILL WOODLAND ON ROCKY AND LIGHT SANDY SOIL. ASSOCIATED WITH CLARKIA UNGUICULATA, COLLINSIA HETEROPHYLLA, LAYIA PENTACHAETA, PLECTRITIS SPP., AND THYSANOCARPUS CURVIPES.
General:	UNKNOWN NUMBER OF PLANTS OBSERVED IN EASTERN AND CENTRAL POLYGONS IN 1977. 100 PLANTS OBSERVED IN NORTHWESTERN POLYGON IN 1988.
Owner/Manager:	PVT

Occurrence No.	14	**Map Index:**	13187	**EO Index:**	13831	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-08

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.72396 / -120.58032	**Accuracy:**	specific area
UTM:	Zone-10 N4177944 E713251	**Elevation (ft):**	200
PLSS:	T02S, R13E, Sec. 31, N (M)	**Acres:**	102.3

Location:	ALONG DRY CREEK 1.1 AIR MILES SE OF WARNERVILLE.
Detailed Location:	SEVERAL COLONIES MAPPED BY CNDDB AS ONE POLYGON IN THE SW 1/4 OF THE SE 1/4 OF SECTION 30 AND THE N 1/2 OF SECTION 31.
Ecological:	VALLEY GRASSLAND/FOOTHILL WOODLAND ON ROCKY AND LIGHT SOILS AND SANDY NORTH SLOPES IN OPEN AREAS.
General:	UNKNOWN NUMBER OF PLANTS OBSERVED IN 1977. NEEDS POPULATION INFORMATION.
Owner/Manager:	PVT

Occurrence No.	15	**Map Index:**	13207	**EO Index:**	6004	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-07-07

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.72707 / -120.57062	**Accuracy:**	80 meters
UTM:	Zone-10 N4178312 E714096	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 29, SW (M)	**Acres:**	0.0

Location: ALONG AN UNNAMED TRIBUTARY TO DRY CREEK, ABOUT 1.8 AIR MILES SOUTHWEST OF COOPERSTOWN.

Detailed Location: ALONG INTERMITTENT CREEK 700 METERS SOUTH OF CONFLUENCE OF DRY CREEK AND NORTH FORK DRY CREEK. MAPPED IN THE SW 1/4 OF THE SW 1/4 OF SECTION 29.

Ecological: VALLEY GRASSLAND/FOOTHILL WOODLAND ON LIGHT SANDY OR ROCKY SOILS ON NORTH SLOPES IN OPEN AREAS. ASSOCIATED WITH CLARKIA UNGUICULATA, COLLINSIA HETEROPHYLLA, LAYIA PENTACHAETA, PLECTRITIS SPP., AND THYSANOCARPUS CURVIPES.

General: UNKNOWN NUMBER OF PLANTS OBSERVED IN 1977. NEEDS POPULATION INFO.

Owner/Manager: PVT

Occurrence No.	18	**Map Index:**	25509	**EO Index:**	11803	**Element Last Seen:**	1988-04-08
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	1988-04-08
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1994-02-22

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.74246 / -120.56697	**Accuracy:**	specific area
UTM:	Zone-10 N4180028 E714374	**Elevation (ft):**	240
PLSS:	T02S, R13E, Sec. 20, SW (M)	**Acres:**	9.8

Location: ALONG THE NORTH FORK OF DRY CREEK ABOUT 0.2 MILE NORTH TO 0.4 MILE NORTHEAST OF THE WARNERVILLE ROAD BRIDGE.

Detailed Location:

Ecological: UPPERMOST PORTION OF STEEP, NORTH-FACING BANK IN ANNUAL GRASSLAND. ASSOCIATED WITH AMSINCKIA MENZIESII, ERIOGONUM NUDUM, TRITELLIA LAXA, T. HYACINTHINA, POA SCABRELLA, LAYIA FREMONTII, ALLIUM HYALINUM, AND CLARKIA PURPUREA.

General: MORE THAN 200 PLANTS OBSERVED IN THREE COLONIES IN 1988. STONE SPECULATES THAT POPULATION MIGHT EXPAND BEYOND STEEP BANKS IF SEASONALITY OF GRAZING IS ADJUSTED.

Owner/Manager: PVT

Occurrence No.	25	**Map Index:**	40385	**EO Index:**	50470	**Element Last Seen:**	1994-XX-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1994-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2003-03-06

Quad Summary:	New Melones Dam (3712085)
County Summary:	Calaveras, Tuolumne

Lat/Long:	37.89636 / -120.55026	**Accuracy:**	1 mile
UTM:	Zone-10 N4197145 E715399	**Elevation (ft):**	900
PLSS:	T01N, R13E, Sec. 33 (M)	**Acres:**	0.0

Location:	VICINITY OF SHOTGUN CREEK, EAST OF TULLOCH RESERVOIR AND SOUTHWEST OF TABLE MOUNTAIN. SW OF NEW MELONES RESERVOIR.
Detailed Location:	WITHIN SITE OF PROPOSED SHOTGUN CREEK ESTATES. EXACT LOCATION NOT KNOWN, BUT MAPPED IN AREA OF SHOTGUN CREEK, BETWEEN THE TULLOCH RESERVOIR AND TABLE MOUNTAIN.
Ecological:	ERYNGIUM SPINOSEPALUM IS IN THE GENERAL AREA.
General:	MAP AND ECOLOGICAL INFORMATION NEEDED FOR THIS SITE.
Owner/Manager:	PVT

Erythranthe marmorata

Element Code: PDPHR01130

Stanislaus monkeyflower

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2?
	State:	None		**State:**	S2?
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	CISMONTANE WOODLAND, LOWER MONTANE CONIFEROUS FOREST.			
	Micro:	300-1435 M.			

Occurrence No.	3	**Map Index:** A2149	**EO Index:**	103742	**Element Last Seen:** 1923-04-01
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:** 1923-04-01
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:** 2016-10-10

Quad Summary: Keystone (3712075)

County Summary: Tuolumne

Lat/Long:	37.84234 / -120.52508	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4191209 E717773	**Elevation (ft):**	1000
PLSS:	T01S, R13E, Sec. 15, S (M)	**Acres:**	75.0

Location: 1 MILE WEST OF KEYSTONE.

Detailed Location: EXACT LOCATION UNKNOWN. OTHER ABRAMS COLLECTIONS FROM THE SAME DAY FOR DIFFERENT SPECIES SAY "1 MILE W OF KEYSTONE NEAR JUNCTION OF COPPEROPOLIS RD." MAPPED AS BEST GUESS BY CNDDB ALONG HWY 120 ABOUT 1 AIR MILE NW OF KEYSTONE.

Ecological: VOLCANIC TABLE LAND.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1923 ABRAMS COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Occurrence No.	4	**Map Index:** 32807	**EO Index:**	103743	**Element Last Seen:** 1895-04-09
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:** 1895-04-09
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:** 2016-10-14

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.81844 / -120.67240	**Accuracy:**	1 mile
UTM:	Zone-10 N4188223 E704873	**Elevation (ft):**	
PLSS:	T01S, R12E, Sec. 29 (M)	**Acres:**	0.0

Location: KNIGHTS FERRY.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB AROUND KNIGHTS FERRY, BASED ON AN 1895 BANCROFT COLLECTION.

Ecological: MOIST ROCKS.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1895 BANCROFT COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Navarretia paradoxiclara

Element Code: PDPLM0C150

Patterson's navarretia

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.3			
Habitat:	**General:**	MEADOWS AND SEEPS.			
	Micro:	SERPENTINITE, OPENINGS, VERNALLY MESIC, OFTEN DRAINAGES. 150-435 M.			

Occurrence No.	3	**Map Index:** A2172	**EO Index:** 103769	**Element Last Seen:**	2009-05-28
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	2009-05-28
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2016-10-12

Quad Summary: Keystone (3712075)

County Summary: Tuolumne

Lat/Long:	37.84378 / -120.50669	**Accuracy:**	80 meters
UTM:	Zone-10 N4191412 E719387	**Elevation (ft):**	1065
PLSS:	T01S, R13E, Sec. 14, SE (M)	**Acres:**	5.0

Location: JUST NORTH OF JUNCTION OF HWY 59 AND HWY 108/120, ABOUT 3.9 MILES SW OF YOSEMITE JUNCTION.

Detailed Location: BETWEEN HIGHWAY AND RAILROAD TRACK. MAPPED BY CNDDB BASED ON 2009 JOHNSON COORDINATES, IN THE SW 1/4 OF THE SE 1/4 OF SECTION 14.

Ecological: AT EDGES OF LONG SEEP AREA WITH SERPENTINE SOILS AMONG GRASSES.

General: SITE BASED ON A 2009 JOHNSON COLLECTION. 1953 CANTELOW COLLECTION FROM "3.6 MILES WEST OF YOSEMITE JUNCTION, HIGHWAY 120" ATTRIBUTED HERE.

Owner/Manager: PVT

Castilleja campestris var. succulenta

Element Code: PDSCR0D3Z1

succulent owl's-clover

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G4?T2T3
	State:	Endangered		**State:**	S2S3
	Other:	Rare Plant Rank - 1B.2			
Habitat:	**General:**	VERNAL POOLS.			
	Micro:	MOIST PLACES, OFTEN IN ACIDIC SOILS. 20-705 M.			

Occurrence No.	2	**Map Index:**	13188	**EO Index:**	17664	**Element Last Seen:**	1977-04-16
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-04-16
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-11-08

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.70380 / -120.58137	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4175705 E713215	**Elevation (ft):**	230
PLSS:	T03S, R13E, Sec. 06, NE (M)	**Acres:**	0.0

Location:	NORTH SIDE OF BARNETT ROAD ABOUT 2 MILES NORTHEAST OF JUNCTION WITH CRABTREE ROAD, NORTHWEST OF LA GRANGE.
Detailed Location:	ROBASCO RANCH, NEAR NE CORNER OF BARNETT RANCH. PLANTS FOUND ABOUT 0.5 MI NW OF RANCH BUILDINGS OFF N SIDE OF BARNETT ROAD. MAPPED ACCORDING TO A VAGUE MAP FROM 1981.
Ecological:	DRY BED OF VERNAL POOL.
General:	MAIN SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE A 1975 RUBTZOFF COLLECTION AND A 1977 ALLEN COLLECTION. NEEDS FIELDWORK.
Owner/Manager:	UNKNOWN

Occurrence No.	3	**Map Index:**	25508	**EO Index:**	17661	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-06-27

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71948 / -120.53762	**Accuracy:**	80 meters
UTM:	Zone-10 N4177545 E717028	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 33, NE (M)	**Acres:**	0.0

Location:	BARNETT RANCH, 1.7 AIR MILES SOUTH OF COOPERSTOWN BETWEEN DRY CREEK AND RYDBERG CREEK.
Detailed Location:	NEAR SANDSTONE KNOLL. TWO ADJACENT COLONIES MAPPED JUST EAST OF 289' KNOLL WITHIN THE SE 1/4 NE 1/4 SECTION 33 ACCORDING TO A 1977 BOWIE MAP.
Ecological:	VERNAL POOLS ON AMADOR AND REDDING ACID SOILS WITHIN VALLEY GRASSLAND. ASSOCIATED WITH DOWNINGIA SPP, GRATIOLA EBRACTEATA, LASTHENIA FREMONTII, PLAGIOBOTHRYS STIPITATUS, AND OTHER TYPICAL VERNAL POOL ANNUALS.
General:	<50 PLANTS SEEN IN 1977. INCLUDES FORMER EO #20.
Owner/Manager:	PVT

Occurrence No.	19	**Map Index:**	13228	**EO Index:**	17790	**Element Last Seen:**	1977-06-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1977-06-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1994-02-21

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.72970 / -120.56285	**Accuracy:**	80 meters
UTM:	Zone-10 N4178621 E714774	**Elevation (ft):**	250
PLSS:	T02S, R13E, Sec. 29, SE (M)	**Acres:**	0.0

Location:	BARNETT RANCH, ABOUT 1.6 AIR MILES SOUTHWEST OF COOPERSTOWN, SOUTH OF DRY CREEK.
Detailed Location:	
Ecological:	AMADOR AND REDDING ACID SOILS IN VERNAL POOL WITHIN VALLEY GRASSLAND. ASSOCIATED WITH DOWNINGIA SPP, GRATIOLA EBRACTEATA, LASTHENIA FREMONTII, PLAGIOBOTHRYS STIPITATUS, AND OTHER TYPICAL VERNAL POOL ANNUALS.
General:	FEWER THAN 100 PLANTS OBSERVED IN 1977.
Owner/Manager:	PVT

Occurrence No.	38	**Map Index:**	25507	**EO Index:**	5754	**Element Last Seen:**	1978-04-19
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1978-04-19
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-12-11

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.71075 / -120.51156	**Accuracy:**	2/5 mile
UTM:	Zone-10 N4176637 E719351	**Elevation (ft):**	300
PLSS:	T02S, R13E, Sec. 35, SW (M)	**Acres:**	0.0

Location:	2.8 MILES SSE OF COOPERSTOWN.
Detailed Location:	COLLECTION LABEL SAYS COLLECTION WAS MADE "2.8 MI SSE OF COOPERSTOWN AT RR JCT". NO RR JCT EXISTS IN THIS VICINITY. DIRECTIONS WERE INTERPRETED TO MEAN 2.8 MILES FROM THE COOPERSTOWN RR JUNCTION ALONG COOPERSTOWN ROAD.
Ecological:	
General:	ONLY SOURCE OF INFORMATION IS 1978 COLLECTION BY HECKARD. AREA NEEDS TO BE FIELD CHECKED TO DETERMINE ACTUAL SITE OF HECKARD COLLECTION.
Owner/Manager:	UNKNOWN

Occurrence No.	101	**Map Index:** 13301	**EO Index:**	90264	**Element Last Seen:**	1969-05-03
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1969-05-03
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2013-05-23

Quad Summary: La Grange (3712064), Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.67599 / -120.50412	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4172797 E720109	**Elevation (ft):**	
PLSS:	T03S, R13E, Sec. 14 (M)	**Acres:**	80.0

Location: LOWER DOMINICI CREEK, 2 MILES WEST OF LA GRANGE.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB ALONG PORTION OF LOWER DOMINICI CREEK THAT OCCURS IN A BROAD VALLEY WITH POTENTIAL VERNAL POOL HABITAT.

Ecological: BED OF DRIED VERNAL POOL IN VALLEY.

General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1969 COLLECTION BY ALLEN. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Verbena californica

Element Code: PDVER0N050

Red Hills vervain

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G2
	State:	Threatened		**State:**	S2
	Other:	Rare Plant Rank - 1B.1, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_UCBBG-UC Berkeley Botanical Garden			
Habitat:	**General:**	CISMONTANE WOODLAND, VALLEY AND FOOTHILL GRASSLAND.			
	Micro:	MESIC SITES ON SERPENTINE; USUALLY SERPENTINE SEEPS OR CREEKS. 255-350 M.			

Occurrence No.	12	**Map Index:** 21577	**EO Index:**	9007	**Element Last Seen:**	2011-09-08
Occ. Rank:	Excellent		**Presence:**	Presumed Extant	**Site Last Seen:**	2011-09-08
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2013-09-13

Quad Summary: Chinese Camp (3712074), Keystone (3712075)

County Summary: Tuolumne

Lat/Long:	37.86935 / -120.50128	**Accuracy:**	specific area
UTM:	Zone-10 N4194263 E719786	**Elevation (ft):**	1100
PLSS:	T01S, R13E, Sec. 11, NE (M)	**Acres:**	29.0

Location: ANDREW CREEK, EAST OF HWY 108/120, APPROXIMATELY 1.6 AIR MILES SSW OF YOSEMITE JUNCTION.

Detailed Location: 9 POLYGONS MAPPED ACCORDING TO A 1998 MAP BY KNOX. WITHIN THE SE 1/4 OF SECTION 2, THE NE 1/4 OF SECTION 11, AND THE NW 1/4 OF SECTION 12.

Ecological: ON SHALLOW, OPEN/ROCKY SOIL IN WET DRAINAGE ON SERPENTINE WITHIN RIPARIAN AND GRASSLAND COMMUNITIES. ASSOC W/ MIMULUS GUTTATUS, RHAMNUS, EPILOBIUM GLANDULOSUM, SENECIO CLEVELANDII HETEROPHYLLUS, CAREX SPP., JUNCUS SPP., HELIANTHUS, ETC.

General: FEWER THAN 50 PLANTS SEEN IN 1991, SEVERAL THOUSAND REPORTED IN 1992. AT LEAST 530 PLANTS IN 1996, FEWER IN 1997. GREATER THAN 1000 PLANTS OBSERVED IN 2011, ENTIRE SITE NOT SURVEYED. 1938 & 1939 COLLECTIONS BY HOOVER ATTRIBUTED TO SITE.

Owner/Manager: PVT, BLM

Allium tuolumnense

Element Code: PMLIL022W0

Rawhide Hill onion

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.2, BLM_S-Sensitive			
Habitat:	**General:**	CISMONTANE WOODLAND.			
	Micro:	RESTRICTED TO SERPENTINE SOIL, USUALLY IN GREY PINE CHAPARRAL. STEEP, ROCKY, SOUTH-FACING SLOPES OR SMALL DRAINAGES. 210-505 M.			

Occurrence No.	29	**Map Index:** 79371	**EO Index:** 80355	**Element Last Seen:**	2005-04-21
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	2005-04-21
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2010-07-09

Quad Summary: New Melones Dam (3712085)

County Summary: Tuolumne

Lat/Long:	37.92331 / -120.51916	**Accuracy:**	4/5 mile
UTM:	Zone-10 N4200209 E718054	**Elevation (ft):**	
PLSS:	T01N, R13E, Sec. 23 (M)	**Acres:**	0.0

Location: PEORIA BASIN.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB IN VICINITY OF PEORIA BASIN.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2005 TAYLOR PHOTO FROM CALPHOTOS. NEEDS LOCATION INFORMATION.

Owner/Manager: UNKNOWN

Brodiaea pallida

Element Code: PMLIL0C0C0

Chinese Camp brodiaea

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G1
	State:	Endangered		**State:**	S1
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND.			
	Micro:	OFTEN IN ROCKY, INTERMITTENT STREAMBEDS. AT LEAST SOMETIMES ON SERPENTINE. 165-385 M.			

Occurrence No.	2	**Map Index:**	43988	**EO Index:**	43988	**Element Last Seen:**	2008-06-05
Occ. Rank:	Excellent			**Presence:**	Presumed Extant	**Site Last Seen:**	2008-06-05
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-04-22

Quad Summary:	New Melones Dam (3712085), Copperopolis (3712086)
County Summary:	Calaveras

Lat/Long:	37.93151 / -120.62206	**Accuracy:**	specific area
UTM:	Zone-10 N4200883 E708985	**Elevation (ft):**	550
PLSS:	T01N, R12E, Sec. 14, S (M)	**Acres:**	175.0

Location:	SAWMILL & BLACK CREEKS, FROM JUST N OF THE WEST ARM OF TULLOCH RESERVOIR TO 0.5 MI UP SAWMILL CR, W OF NEW MELONES DAM.
Detailed Location:	ALONG BLACK CREEK FROM ABOUT 0.12 MILE SOUTH OF COPPER COVE DRIVE CROSSING (NOT MARKED ON TOPO MAP) TO BRIDGE IMMEDIATELY ABOVE TULLOCK RESERVOIR AND ALONG SAWMILL CREEK FROM CONFLUENCE WITH BLACK CREEK UPSTREAM (NORTH) ABOUT 0.5 MILE.
Ecological:	IN SOIL CATCHMENTS WITHIN AN OPEN, SEASONAL CREEKBED WITH HARD MEDISEDIMENTARY ROCK BASE. SOUTH SLOPES WITH BLUE OAK WOODLAND, NORTH SLOPES WITH MIXED FOOTHILL WOODLAND. ASSOC W/ POLYPOGON MONSPELIENSIS, JUNCUS BALTICUS, ETC.
General:	5000+ PLANTS OBSERVED IN 2000, MANY OF WHICH WERE CLONES. ~570 INDIVIDUAL PLANTS COUNTED AT SE END OF OCCURRENCE IN 2006. 15,313 FLOWERING STALKS COUNTED IN 2008. PORTION OF CREEK MAY HAVE BEEN DREDGED (2000).
Owner/Manager:	PVT

Occurrence No.	3	**Map Index:**	79098	**EO Index:**	80064	**Element Last Seen:**	2005-07-13
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2005-07-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-02-24

Quad Summary:	Copperopolis (3712086)
County Summary:	Calaveras

Lat/Long:	37.89751 / -120.63038	**Accuracy:**	specific area
UTM:	Zone-10 N4197092 E708349	**Elevation (ft):**	675
PLSS:	T01N, R12E, Sec. 35, NW (M)	**Acres:**	1.0

Location:	LITTLE JOHNS CREEK, ABOUT 1.3 AIR MILES WNW OF ALTO MINE.
Detailed Location:	LOCATED WITHIN THE ORDINARY HIGH WATER MARK OF THE CREEK, VISIBLE DURING LOW FLOW PERIODS AND SUMMER MONTHS. UNSECTIONED PORTION OF THE RANCHERIA DEL RIO ESTANISLAO LAND GRANT.
Ecological:	GROWING IN ROCKY SUBSTRATE. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, PASPALUM DILATATUM, POLYPOGON MONSPELIENSIS, CYNODON DACTYLON, TRIFOLIUM VARIEGATUM, AND LEONTODON TARAXACOIDES.
General:	~11 PLANTS OBSERVED IN 2005. ID CONFIRMED BY BARRETT ANDERSON AND ROB PRESTON, 8/2010.
Owner/Manager:	PVT

Occurrence No.	4	**Map Index:**	79099	**EO Index:**	80065	**Element Last Seen:**	2005-07-13
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2005-07-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-16

Quad Summary: Copperopolis (3712086)

County Summary: Calaveras

Lat/Long:	37.89358 / -120.62726	**Accuracy:**	specific area
UTM:	Zone-10 N4196662 E708635	**Elevation (ft):**	650
PLSS:	T01N, R12E, Sec. 35, SW (M)	**Acres:**	1.0

Location: LITTLE JOHNS CREEK, ABOUT 1.1 AIR MILES WEST OF ALTO MINE.

Detailed Location: LOCATED WITHIN THE ORDINARY HIGH WATER MARK OF THE CREEK, VISIBLE DURING LOW FLOW PERIODS AND SUMMER MONTHS. UNSECTIONED PORTION OF THE RANCHERIA DEL RIO ESTANISLAO LAND GRANT.

Ecological: GROWING IN ROCKY SUBSTRATE. ASSOCIATED W/ ELEOCHARIS MACROSTACHYA, PASPALUM DILATATUM, HORDEUM MARINUM, POLYPOGON MONSPELIENSIS, CYNODON DACTYLON, TRIFOLIUM VARIEGATUM, LEONTODON TARAXACOIDES, NAVARRETIA INTERTEXTA, LOLIUM MULTIFLORUM, ETC.

General: ~69 PLANTS OBSERVED IN 2005. ID CONFIRMED BY BARRETT ANDERSON AND ROB PRESTON, 8/2010.

Owner/Manager: PVT

Occurrence No.	5	**Map Index:**	79100	**EO Index:**	80066	**Element Last Seen:**	2005-07-13
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2005-07-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-16

Quad Summary: Copperopolis (3712086)

County Summary: Calaveras

Lat/Long:	37.87648 / -120.63730	**Accuracy:**	specific area
UTM:	Zone-10 N4194741 E707800	**Elevation (ft):**	560
PLSS:	T01S, R12E, Sec. 03, SE (M)	**Acres:**	2.0

Location: LITTLE JOHNS CREEK, ABOUT 1.75 AIR MILES WEST OF TULLOCH DAM.

Detailed Location: LOCATED WITHIN THE ORDINARY HIGH WATER MARK OF THE CREEK, VISIBLE DURING LOW FLOW PERIODS AND SUMMER MONTHS. UNSECTIONED PORTION OF THE RANCHERIA DEL RIO ESTANISLAO LAND GRANT.

Ecological: GROWING IN ROCKY SUBSTRATE. ASSOCIATED W/ ELEOCHARIS MACROSTACHYA, PASPALUM DILATATUM, HORDEUM MARINUM, POLYPOGON MONSPELIENSIS, AND RANUNCULUS BONARIENSIS.

General: ~32 PLANTS OBSERVED IN 2005. ID CONFIRMED BY BARRETT ANDERSON AND ROB PRESTON, 8/2010.

Owner/Manager: PVT

Chlorogalum grandiflorum

Element Code: PMLIL0G020

Red Hills soaproot

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3
	Other:	Rare Plant Rank - 1B.2, BLM_S-Sensitive			
Habitat:	**General:**	CISMONTANE WOODLAND, CHAPARRAL, LOWER MONTANE CONIFEROUS FOREST.			
	Micro:	OCCURS FREQUENTLY ON SERPENTINE OR GABBRO, BUT ALSO ON NON-ULTRAMAFIC SUBSTRATES; OFTEN ON "HISTORICALLY DISTURBED" SITES. 265-1695 M.			

Occurrence No.	16	**Map Index:**	13299	**EO Index:**	8420	**Element Last Seen:**	1980-04-28
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1980-04-28
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1992-09-16

Quad Summary:	New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.91234 / -120.51034	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4199011 E718862	**Elevation (ft):**	1025
PLSS:	T01N, R13E, Sec. 26, NE (M)	**Acres:**	114.9

Location:	PEORIA BASIN ALONG ROAD TO NEW MELONES DAM AT ROAD MARKER A83+70.
Detailed Location:	
Ecological:	LOW ROCKY KNOB IN DELPIEDRA (SERPENTINE) SOIL WITH SCATTERED CEANOTHUS CUNEATUS AND SPARSE HERBACEOUS COVER.
General:	AREA FROM MOUNTAIN TOP TO STANISLAUS RIVER IS ALSO SERPENTINE AND SHOULD BE SEARCHED FOR PLANTS ACCORDING TO POWELL.
Owner/Manager:	PVT

Occurrence No.	78	**Map Index:**	79071	**EO Index:**	80032	**Element Last Seen:**	2005-05-25
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2005-05-25
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-15

Quad Summary:	New Melones Dam (3712085)
County Summary:	Calaveras

Lat/Long:	37.95052 / -120.56176	**Accuracy:**	2/5 mile
UTM:	Zone-10 N4203130 E714229	**Elevation (ft):**	1079
PLSS:	T01N, R13E, Sec. 09 (M)	**Acres:**	0.0

Location:	NEW MELONES RESERVOIR, 100 METERS FROM FRENCH CREEK AND 100 METERS FROM THE ROAD.
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB IN VICINITY OF FRENCH CREEK AND ASSOCIATED UNNAMED ROADS AROUND GIVEN ELEVATION OF 1079 FT.
Ecological:	THE PLOT IS DOMINATED BY A HIGH PERCENTAGE OF COBBLE AND THIN SOILS AND A DISTINCT COMMUNITY OF CHLOROGALUM AND HOLOCARPHA.
General:	UNKNOWN NUMBER OF PLANTS OBSERVED IN 2005. NEEDS LOCATION INFORMATION.
Owner/Manager:	USBOR, BLM

Occurrence No.	79	**Map Index:**	79072	**EO Index:**	80033	**Element Last Seen:**	2003-08-01
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2003-08-01
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-15

Quad Summary:	New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.94530 / -120.52284	**Accuracy:**	80 meters
UTM:	Zone-10 N4202640 E717665	**Elevation (ft):**	1505
PLSS:	T01N, R13E, Sec. 14, NW (M)	**Acres:**	0.0

Location:	NORTHWEST FACE OF PEORIA RIDGE, ABOUT 1 AIR MILE NORTHEAST OF CENTRAL FERRY (SITE).
Detailed Location:	MAPPED IN THE NW 1/4 OF THE NW 1/4 OF SECTION 14.
Ecological:	ROCKY NW-FACING SLOPE; AESCULUS CALIFORNICA W/ QUERCUS DOUGLASII AND SOME Q. WISLIZENI. EXOTIC ANNUAL GRASSES SIGNIFICANT PART OF THE HERB LAYER BUT MANY NATIVE FORBS AND GRASSES FOUND ON ROCKY OUTCROPS. ASSOC W/ AVENA FATUA, BROMUS, ETC.
General:	0.2% COVER OF THIS PLANT IN 2003.
Owner/Manager:	USBOR

Occurrence No.	80	**Map Index:**	79073	**EO Index:**	80035	**Element Last Seen:**	2003-07-30
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2003-07-30
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-15

Quad Summary:	New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.93689 / -120.53395	**Accuracy:**	80 meters
UTM:	Zone-10 N4201681 E716714	**Elevation (ft):**	876
PLSS:	T01N, R13E, Sec. 15, SE (M)	**Acres:**	0.0

Location:	WESTERN SLOPES OF PEORIA RIDGE, NW OF PAVED ACCESS ROAD TO NEW MELONES DAM LOOKOUT, JUST EAST OF CENTRAL FERRY (SITE).
Detailed Location:	STAND OCCURS ON S AND W FACING SLOPES OF PEORIA RIDGE. MAPPED IN THE NW 1/4 OF THE SE 1/4 OF SECTION 15.
Ecological:	OPEN QUERCUS DOUGLASII WOODLAND W/ ANNUAL GRASS UNDERSTORY. PINUS SABINIANA OCCURS OCCASIONALLY WITHIN STAND AND IS MORE ABUNDANT ON W-FACING SLOPE OF STAND ABOVE STANISLAUS RIVER. ASSOC W/ BROMUS HORDACEUS, AVENA FATUA, ETC.
General:	0.2% COVER OF THIS PLANT IN 2003.
Owner/Manager:	USBOR

Occurrence No.	81	**Map Index:**	79074	**EO Index:**	80036	**Element Last Seen:**	2003-07-30
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2003-07-30
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-15

Quad Summary:	New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.93076 / -120.53067	**Accuracy:**	80 meters
UTM:	Zone-10 N4201008 E717020	**Elevation (ft):**	870
PLSS:	T01N, R13E, Sec. 22, NE (M)	**Acres:**	0.0

Location:	NORTHEAST OF BASELINE CONSERVATION CAMP, NW SLOPES OF PEORIA BASIN, ABOUT 0.6 AIR MI SOUTHEAST OF CENTRAL FERRY (SITE).
Detailed Location:	MAPPED IN THE NW 1/4 OF THE NE 1/4 OF SECTION 22.
Ecological:	QUERCUS DOUGLASII WOODLAND ON LOW, GENTLY SLOPING RIDGE. CANOPY COVER VARIES FROM 15-50%. OVERSTORY TREES PREDOMINATELY Q. DOUGLASII WITH A FEW Q. WISLIZENI, UNDERSTORY LARGELY EXOTIC ANNUAL GRASSES. ASSOC W/ BROMUS HORDACEUS, AVENA, ETC.
General:	0.2% COVER OF THIS PLANT IN 2003.
Owner/Manager:	USBOR

Occurrence No.	82	**Map Index:**	79076	**EO Index:**	80039	**Element Last Seen:**	2003-08-01
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2003-08-01
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-06-15

Quad Summary:	New Melones Dam (3712085)
County Summary:	Tuolumne

Lat/Long:	37.93927 / -120.50262	**Accuracy:**	80 meters
UTM:	Zone-10 N4202019 E719460	**Elevation (ft):**	1571
PLSS:	T01N, R13E, Sec. 13, W (M)	**Acres:**	0.0

Location:	RIDGE BETWEEN PEORIA MOUNTAIN AND NEW MELONES RESERVOIR, ABOUT 1.9 AIR MILES EAST OF CENTRAL FERRY (SITE).
Detailed Location:	ON A ROCKY SOUTH FACING KNOLL THAT DRAINS TOWARDS A SMALL WATERSHED. MAPPED IN THE SW 1/4 OF THE NW 1/4 OF SECTION 13.
Ecological:	INTERMITTENT SHRUB LAYER AND AN INTERMITTENT HERB LAYER; ENTIRE STAND SURROUNDED BY QUERCUS DOUGLASII. ASSOC W/ AVENA FATUA, TOXICODENDRON DIVERSILOBUM, VICIA VILLOSA, BROMUS HORDACEUS, KECKIELLA BREVIFLORA, PHACELIA CICUTARIA, ETC.
General:	0.2% COVER OF THIS PLANT IN 2003.
Owner/Manager:	USBOR

Fritillaria agrestis **Element Code:** PMLIL0V010

stinkbells

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3
	Other:	Rare Plant Rank - 4.2			
Habitat:	**General:**	CISMONTANE WOODLAND, CHAPARRAL, VALLEY AND FOOTHILL GRASSLAND, PINYON AND JUNIPER WOODLAND.			
	Micro:	SOMETIMES ON SERPENTINE; MOSTLY FOUND IN NONNATIVE GRASSLAND OR IN GRASSY OPENINGS IN CLAY SOIL. 10-1555 M.			

Occurrence No.	24	**Map Index:** 21056	**EO Index:**	9189	**Element Last Seen:**	1978-XX-XX
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1978-XX-XX
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	1992-04-24

Quad Summary:	Knights Ferry (3712076)
County Summary:	Stanislaus

Lat/Long:	37.76156 / -120.69216	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4181868 E703290	**Elevation (ft):**	360
PLSS:	T02S, R12E, Sec. 18, SW (M)	**Acres:**	0.0

Location:	ALONG DIRT SECTION OF WAMBLE ROAD WHERE IT DEAD ENDS IN CENTER OF SECTION 18.
Detailed Location:	
Ecological:	
General:	VERY LARGE POPUOLATION SEEN IN 1978 ACC TO MEDEIROS.
Owner/Manager:	UNKNOWN

Agrostis hendersonii

Element Code: PMPOA040K0

Henderson's bent grass

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G2Q
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 3.2			
Habitat:	**General:**	VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.			
	Micro:	MOIST PLACES IN GRASSLAND OR VERNAL POOL HABITAT. 65-1030 M.			

Occurrence No.	2	**Map Index:** 17315	**EO Index:** 9795	**Element Last Seen:**	1936-04-07
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	1936-04-07
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2010-11-10

Quad Summary: New Melones Dam (3712085)

County Summary: Calaveras, Tuolumne

Lat/Long:	37.90973 / -120.57022	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4198584 E713604	**Elevation (ft):**	950
PLSS:	T01N, R13E, Sec. 29 (M)	**Acres:**	641.0

Location: 1 MILE SOUTHWEST OF SUGARLOAF MOUNTAIN.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AROUND SECTION 29 ACCORDING TO GIVEN T-R-S: 1N13E29.

Ecological: SLOPE 5%.

General: ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE TWO CARLSON COLLECTIONS FROM 1936. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Neostapfia colusana

Element Code: PMPOA4C010

Colusa grass

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G1
	State:	Endangered		**State:**	S1
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	VERNAL POOLS.			
	Micro:	USUALLY IN THE BOTTOMS OF LARGE, OR DEEP VERNAL POOLS; ADOBE SOILS. 5-125 M.			

Occurrence No.	4	**Map Index:**	13298	**EO Index:**	2789	**Element Last Seen:**	2009-09-02
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2009-09-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-17

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.65101 / -120.50800	**Accuracy:**	specific area
UTM:	Zone-10 N4170016 E719841	**Elevation (ft):**	280
PLSS:	T03S, R13E, Sec. 26, NE (M)	**Acres:**	5.0

Location:	NEAR CORRAL ON RODDEN RANCH, 3 MILES SOUTHWEST OF LA GRANGE IN 2 SMALL POOLS NORTH OF SMALL RESERVOIR.
Detailed Location:	MAPPED JUST EAST OF WINDMILL AND WITHIN THE NW 1/4 OF THE NE 1/4 OF SECTION 26.
Ecological:	VERNAL POOLS AND OR ARTIFICIAL PONDS SURROUNDED BY ANNUAL GRASSLAND. IN A DEEP DRAINAGE AREA - PLANTS MUCH GREENER HERE THAN ELSEWHERE ON PROPERTY; NO CRYPSIS IN POOL (HOGLE, 2001). PENTZ GRAVELLY LOAM SOIL.
General:	~200 PLANTS SEEN IN 1981. HABITAT OBSERVED AT A DISTANCE IN 1986; INTACT BUT HEAVILY GRAZED. <10,000 PLANTS IN 2001. 10,000 PLANTS IN 2008. ~100 PLANTS IN 2009 IN LARGER POOL; NOT SEEN IN 2 SMALLER POOLS, POSSIBLY BECAUSE OF DRY YEAR.
Owner/Manager:	PVT

Occurrence No.	5	**Map Index:**	13168	**EO Index:**	14368	**Element Last Seen:**	2008-XX-XX
Occ. Rank:	Excellent			**Presence:**	Presumed Extant	**Site Last Seen:**	2008-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-17

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.64954 / -120.58856	**Accuracy:**	specific area
UTM:	Zone-10 N4169667 E712737	**Elevation (ft):**	230
PLSS:	T03S, R13E, Sec. 30, NW (M)	**Acres:**	17.0

Location:	RODDEN RANCH NEAR CANAL, 1.2 MILES ENE OF WHERE CRABTREE ROAD CROSSES MODESTO MAIN CANAL.
Detailed Location:	TWO POOLS MAPPED; ONE IN THE NW 1/4 OF THE NW 1/4 OF SECTION 30 AND ONE IN THE NE 1/4 OF THE NE 1/4 OF SECTION 25.
Ecological:	TWO LARGE VERNAL POOLS SURROUNDED BY ANNUAL GRASSLAND. ASSOCIATED WITH EREMOCARPUS SETIGERUS, ERYNGIUM VASEYI, HORDUEM, ALLOCARYA, NAVARRETIA, BOISDUVALIA, ALOPECURUS, AND HEMIZONIA. SOIL MAPPED AS MEIKLE CLAY.
General:	MENTIONED AS ABUNDANT AT BOTH POOLS IN 1986; UNDER CURRENT GRAZING REGIME THIS POPULATION IS DAMAGED BUT LARGE AND PROBABLY STABLE. 2001: 50,000 PLANTS IN E POOL, 1 MILLION PLANTS IN W POOL. >1 MILLION PLANTS SEEN IN 2008.
Owner/Manager:	PVT

Occurrence No.	6	**Map Index:**	13289	**EO Index:**	14403	**Element Last Seen:**	1962-XX-XX
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	2001-09-08
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-07-20

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.64410 / -120.51504	**Accuracy:**	specific area
UTM:	Zone-10 N4169233 E719240	**Elevation (ft):**	260
PLSS:	T03S, R13E, Sec. 26, SW (M)	**Acres:**	6.2

Location:	ABOUT 1.1 MILES EAST OF THE JUNCTION OF HWY 132 AND LAKE ROAD, NORTHEAST OF TURLOCK LAKE AND NORTH OF TUOLUMNE RIVER.
Detailed Location:	MAPPED IN THE NW 1/4 OF THE SW 1/4 OF SECTION 26.
Ecological:	ORIGINALLY A VERNAL POOL, NOW AN IRRIGATED FIELD (2001). PENTZ GRAVELLY LOAM SOILS.
General:	INDIVIDUALS VERY SPARSE WHEN OBSERVED BY PERRY ALLEN IN 1962. NO PLANTS SEEN IN 1986 BY R. STONE OR BY HOGLE IN 2001; SITE BELIEVED TO BE EXTIRPATED. SITE IS NOW A SMALL DEPRESSION THAT IS A PERMANENT POND DUE TO IRRIGATION RUNOFF.
Owner/Manager:	PVT

Occurrence No.	7	**Map Index:**	13287	**EO Index:**	2788	**Element Last Seen:**	1969-XX-XX
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	2001-08-17
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-22

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.66361 / -120.51859	**Accuracy:**	1/10 mile
UTM:	Zone-10 N4171390 E718869	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 22, NE (M)	**Acres:**	0.0

Location:	NORTH OF TUOLUMNE RIVER AND HIGHWAY 132, APPROXIMATELY 3 MILES WEST OF LA GRANGE.
Detailed Location:	SMALL POOL NEAR FENCE. MAPPED ON THE BORDER BETWEEN THE NE 1/4 OF SECTION 22 AND THE NW 1/4 OF SECTION 23 ACCORDING TO A 1974 MAP BY ALLEN.
Ecological:	IN SMALL VERNAL POOL ALONG A MINOR DRAINAGEWAY AND SURROUNDED BY ANNUAL GRASSLAND. SOIL MAPPED AS BEAR CREEK LOAM.
General:	SITE REPORTED BY ALLEN IN 1969. HOGLE SEARCHED SITE EXTENSIVELY IN 2001 & FOUND NO VERNAL POOLS, HYDROLOGY MAY HAVE BEEN ALTERED. BASED ON AERIAL PHOTO INTERPRETATION, WITHAM THINKS THIS MAY BE MIS-MAPPED; EXTENSIVE HABITAT TO THE W (2013).
Owner/Manager:	PVT

Occurrence No.	8	**Map Index:**	13276	**EO Index:**	22379	**Element Last Seen:**	1986-08-31
Occ. Rank:	Poor			**Presence:**	Presumed Extant	**Site Last Seen:**	1986-08-31
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2011-08-02

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.65085 / -120.52638	**Accuracy:**	80 meters
UTM:	Zone-10 N4169955 E718220	**Elevation (ft):**	240
PLSS:	T03S, R13E, Sec. 27, NE (M)	**Acres:**	0.0

Location: NE OF TURLOCK LAKE AND NORTH OF TUOLUMNE RIVER, ABOUT 0.5 MILE EAST OF MODESTO MAIN CANAL CROSSING OF RAIRDEN GULCH.

Detailed Location: JUST SOUTH OF UNPAVED ROAD IN THE NW 1/4 OF THE NE 1/4 OF SECTION 27.

Ecological: VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND AND OPEN QUERCUS DOUGLASII WOODLAND. DEPAUPERATE NEOSTAPFIA PLANTS SCATTERED OVER POOL BED WITH MARSILEA VESTITA. ASSOCIATED WITH CHAMAESYCE HOOVERI AND EREMOCARPUS ON WHITNEY SANDY LOAMS.

General: SITE VISITED IN 1983; TOO FULL TO SEE SPECIES. 1000 PLANTS OBSERVED IN 1986 BY STONE; SITE TOO DAMAGED TO COLLECT. SITE SEVERELY GRAZED AND TRAMPLED; UNDER CURRENT GRAZING REGIME THIS POPULATION IS DAMAGED AND PROBABLY DECLINING.

Owner/Manager: PVT

Occurrence No.	9	**Map Index:**	13233	**EO Index:**	22277	**Element Last Seen:**	1938-07-10
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1986-09-01
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-22

Quad Summary: Cooperstown (3712065)

County Summary: Stanislaus

Lat/Long:	37.65021 / -120.56048	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4169806 E715213	**Elevation (ft):**	230
PLSS:	T03S, R13E, Sec. 29, NE (M)	**Acres:**	0.0

Location: NORTH OF HWY 132 AND NORTH OF MODESTO MAIN CANAL IN VICINITY OF RUSHING ROAD.

Detailed Location: BASED ON HOOVER COLLECTION "12 MILES WEST OF WATERFORD." STONE SUGGESTS THAT THE MOST LIKELY LOCATION FOR THIS COLLECTION IS "THE LARGE DEPRESSION 0.1 MI NORTH OF MODESTO MAIN CANAL AND ON THE WEST SIDE OF RUSHING ROAD."

Ecological:

General: SITE IS KNOWN FROM TWO HOOVER COLLECTIONS FROM 1936 AND 1938. NO PLANTS OBSERVED IN AREA IN 1986. NEOSTAPFIA IS PRESUMED EXTIRPATED DUE TO ELIMINATION OF HABITAT.

Owner/Manager: UNKNOWN

Occurrence No.	11	**Map Index:**	31445	**EO Index:**	2304	**Element Last Seen:**	2001-08-16
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2010-09-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2013-05-17

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.64546 / -120.64656	**Accuracy:**	specific area
UTM:	Zone-10 N4169084 E707631	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 28, E (M)	**Acres:**	9.9

Location:	6 MILES EAST OF WATERFORD ALONG BOTH SIDES OF DIENSTAG ROAD & SOUTH OF MODESTO LAKE.
Detailed Location:	THREE COLONIES; ONE ON THE EAST SIDE OF THE ROAD ABOUT 0.2 MILE NORTH OF HWY 132, AND 2 ON THE WEST SIDE OF THE ROAD ABOUT 0.2 AND 0.5 MILE NORTH OF THE HIGHWAY.
Ecological:	VERNAL POOLS IN ANNUAL GRASSLAND. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, EREMOCARPUS SETIGERUS, MARSILEA VESTITA, RUMEX CRISPUS, TRICHOSTEMA LANCEOLATUM, ERYNGIUM, POLYPOGON, MOLLUGO, HEMIZONIA, AMARANTHUS, AND BERGIA. MIEKLE CLAY SOILS.
General:	BASED ON 1958-1963 CRAMPTON COLLECTIONS AND 1973 REEDER COLLECTIONS. E POLY: <1000 PLANTS IN 1986, 1000 PLANTS IN 2001, NONE IN 2010; AREA WAS DEEP RIPPED AND NOW APPEARS TO BE ORCHARD BASED ON 2011 AERIAL PHOTO. INCLUDES FORMER EO #30.
Owner/Manager:	PVT

Occurrence No.	20	**Map Index:**	13255	**EO Index:**	19992	**Element Last Seen:**	2001-07-31
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2010-09-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-20

Quad Summary:	Turlock Lake (3712055), Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.62479 / -120.54235	**Accuracy:**	specific area
UTM:	Zone-10 N4167026 E716886	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 33, SE (M)	**Acres:**	14.0

Location:	EAST OF TURLOCK LAKE, 0.8 MILE NNE OF LAKE ROAD CROSSING OF TURLOCK MAIN CANAL.
Detailed Location:	MAPPED 400 METERS NORTH OF BENCHMARK 248. WITHIN THE SW 1/4 OF THE SE 1/4 OF SECTION 33.
Ecological:	VERNAL POOL WITH NEAR "MONOCULTURE" OF NEOSTAPFIA. ASSOCIATED WITH CRYPSIS SCHOENOIDES, MARSILEA VESTITA, CYNODON DACTYLON, JUSSIAEA REPENS, AND LIPPIA NODIFLORA. MEIKLE CLAY SOIL.
General:	GOOD SHAPE IN 1979, ABUNDANT IN DENSE STAND ON POOL BOTTOM IN 1987, NO STANDING WATER OR PLANTS IN 1988. MILLIONS OF PLANTS IN "MONOCULTURE" SEEN IN 1989. 14 PLANTS IN 2001. SITE BEING FILLED FOR AGRICULTURAL PRODUCTION IN 2010; EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	22	**Map Index:**	12626	**EO Index:**	6322	**Element Last Seen:**	1937-06-22
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1987-09-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-01-09

Quad Summary:	Waterford (3712067)
County Summary:	Stanislaus

Lat/Long:	37.67298 / -120.79660	**Accuracy:**	1 mile
UTM:	Zone-10 N4171816 E694320	**Elevation (ft):**	155
PLSS:	T03S, R11E, Sec. 18, NE (M)	**Acres:**	0.0

Location:	3 MILES NORTHWEST OF WATERFORD.
Detailed Location:	MAPPED ALONG ROAD TO OAKDALE.
Ecological:	
General:	PERRY ALLEN VISITED SITE IN 1974 AND DISCOVERED IT TO BE AN IRRIGATED FIELD. R. STONE SEARCHED IN 1987 AND INDICATED THAT NO VERNAL POOL HABITAT REMAINS IN THIS AREA. SITE EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	23	**Map Index:**	12859	**EO Index:**	22271	**Element Last Seen:**	1958-07-22
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1987-07-21
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2011-07-26

Quad Summary:	Montpelier (3712056), Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.62298 / -120.69577	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4166482 E703350	**Elevation (ft):**	200
PLSS:	T04S, R12E, Sec. 06, NW (M)	**Acres:**	0.0

Location:	3 MILES EAST OF HICKMAN, 1.4 MILES SOUTH OF LA GRANGE ROAD (YOSEMITE BLVD).
Detailed Location:	
Ecological:	DRIED AND CRACKED LEAD-GREY ADOBE OF A LARGE VERNAL POOL, EDGES OF LOW HILLS.
General:	ACCORDING TO JOE MEDEIROS 1976, THIS AREA IS NOW A 1000 ACRE VINEYARD. SITE EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	41	**Map Index:**	31444	**EO Index:**	4102	**Element Last Seen:**	1973-09-27
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2001-09-06
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-20

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.65532 / -120.66211	**Accuracy:**	specific area
UTM:	Zone-10 N4170144 E706232	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 21, SW (M)	**Acres:**	36.0

Location:	4-5 MILES EAST OF WATERFORD, ALONG BOTH SIDES OF RESERVOIR ROAD AND EAST OF WATERFORD LOWER MAIN CANAL.
Detailed Location:	5 COLONIES MAPPED WITHIN THE SW 1/4 OF SECTION 21 AND THE SE 1/4 OF SECTION 20.
Ecological:	VERNAL POOLS. GROWING IN LIGHT GRAY SOIL IN THE MIDDLE OF A MOSTLY BARREN, CIRCULAR, VERNAL POOL, IN A BARLEY FIELD, WITH ELEOCHARIS ENGELMANNII, MOLLUGO, & GNAPHALIUM. ALSO ASSOCIATED WITH ORCUTTIA PILOSA & O. INAEQUALIS. MEIKLE CLAY SOIL.
General:	SITE KNOWN HISTORICALLY FROM COLLECTIONS BY CRAMPTON IN THE 50'S & 60'S AND BY REEDER & REEDER IN 1973. POOL NORTH OF ROAD IS WITHIN MODESTO RESERVOIR COUNTY PARK. AREA SURVEYED AND DETERMINED TO BE EXTIRPATED IN 1987 & AGAIN IN 2001.
Owner/Manager:	PVT, STA COUNTY

Occurrence No.	47	**Map Index:**	12702	**EO Index:**	19591	**Element Last Seen:**	1986-07-24
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	1986-07-24
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2016-02-09

Quad Summary:	Bachelor Valley (3712087)
County Summary:	Stanislaus

Lat/Long:	37.88724 / -120.75800	**Accuracy:**	specific area
UTM:	Zone-10 N4195674 E697154	**Elevation (ft):**	340
PLSS:	T01N, R11E, Sec. 34, SW (M)	**Acres:**	6.9

Location:	APPROX 6 AIR MILES NORTHWEST OF KNIGHTS FERRY, AT HEADWATERS OF SHIRLEY CREEK.
Detailed Location:	5 MILES ESE OF EUGENE. INTERMITTENT POND WITHIN THE SW 1/4 OF THE SW 1/4 OF SECTION 34.
Ecological:	IN A 15 FOOT WIDE BAND BETWEEN BARE MUD AND AREA OF CRYPSIS VAGINIFLORA. IN THE DEEPEST PART OF A VERNAL POOL IN AN ANNUAL GRASSLAND. SOILS ARE A REDDING-PENTZ-PETERS ASSOCIATION.
General:	~150 INDIVIDUALS IN FLOWER IN 1986. CATTLE GRAZING IN AREA DOESN'T APPEAR TO DISTURB HABITAT HERE ALTHOUGH IT MAY FACILITATE INVASION OF CRYPSIS VAGINIFLORA. BASED ON AERIAL IMAGERY, POOL MAY HAVE BEEN EXTIRPATED BY AG BTWN 2011 & 2013.
Owner/Manager:	PVT

Occurrence No.	55	**Map Index:**	25009	**EO Index:**	6269	**Element Last Seen:**	2017-07-10
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2017-07-10
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2018-11-16

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.76111 / -120.64585	**Accuracy:**	specific area
UTM:	Zone-10 N4181919 E707371	**Elevation (ft):**	340
PLSS:	T02S, R12E, Sec. 15, SW (M)	**Acres:**	7.8

Location: POND UNDER TRANSMISSION LINES ABOUT 4.7 AIR MILES SSE OF KNIGHTS LANDING.

Detailed Location: 1.6 MILES WEST OF WILLIAMS ROAD WITHIN THE NW 1/4 OF THE SW 1/4 OF SECTION 15 (ADJACENT TO SECTION LINE). IN 2017, PLANTS ONLY OBSERVED ON THE WILLMS RANCH SIDE OF STOCKPOND; ADJACENT RANCH SUBJECT TO INTENSE GRAZING.

Ecological: ARTIFICIAL POND ALONG INTERMITTENT DRAINAGE. ASSOCIATED WITH CRYPSIS VAGINIFLORA, XANTHIUM STRUMARIUM, AND AMARANTHUS. ANNUAL GRASSLAND SURROUNDS.

General: 1000+ PLANTS OBSERVED IN 1988 AND 2017. PRESENT GRAZING REGIME MAY BE CONSISTENT WITH EXISTENCE OF THIS OCCURRENCE, THOUGH TRAMPLING OF POND PROBABLY RESTRICTS DENSITY OF NEOSTAPFIA SEEDLINGS.

Owner/Manager: PVT

Occurrence No.	56	**Map Index:**	25010	**EO Index:**	2786	**Element Last Seen:**	2001-08-15
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2001-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2017-03-24

Quad Summary: Paulsell (3712066)

County Summary: Stanislaus

Lat/Long:	37.66920 / -120.71429	**Accuracy:**	specific area
UTM:	Zone-10 N4171571 E701591	**Elevation (ft):**	170
PLSS:	T03S, R11E, Sec. 13, SW (M)	**Acres:**	4.0

Location: APPROXIMATELY 3 MILES NORTHEAST OF WATERFORD AND 2 MILES WEST OF MODESTO RESERVOIR.

Detailed Location: ALONG THE SOUTH SIDE OF TIM BELL ROAD ABOUT 0.7 MILE WEST OF HAZEL DEAN ROAD. MAPPED WITHIN THE SE 1/4 OF THE SW 1/4 OF SECTION 13.

Ecological: VERNAL POOL IN ANNUAL GRASSLAND. ASSOCIATED WITH EREMOCARPUS SETIGERUS AS SCATTERED PLANTS OVER THE RELATIVELY BARE EASTERN PORTION OF THE POOL. CLAYPAN SOIL MAPPED AS MEIKLE CLAY.

General: MORE THAN 1,000 PLANTS SEEN IN 1986 & IN 2001. GRAZING APPEARS TO HAVE REDUCED NEOSTAPFIA DENSITY; OVERALL QUALITY IS DAMAGED AND POSSIBLY DECLINING (1986). BASED ON 2016 AERIAL IMAGERY, SITE EXTIRPATED BY PLANTING OF ORCHARDS.

Owner/Manager: PVT

Occurrence No.	57	**Map Index:**	25011	**EO Index:**	2787	**Element Last Seen:**	1987-06-27
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	1987-06-27
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-21

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.74688 / -120.65946	**Accuracy:**	specific area
UTM:	Zone-10 N4180310 E706211	**Elevation (ft):**	260
PLSS:	T02S, R12E, Sec. 21, W (M)	**Acres:**	10.4

Location:	2.5 MILES NORTHEAST OF THE OLD PAUSELL WAREHOUSE, WEST OF COOPERSTOWN.
Detailed Location:	LARGE INTERMITTENT POND ABOUT 1 MILE NORTH OF WARNERVILLE ROAD AND 1.6 MILES NORTHEAST OF JUNCTION WITH TIM BELL ROAD. JUST WEST OF CENTER OF SECTION 21.
Ecological:	ARTIFICIAL POND SURROUNDED BY ANNUAL GRASSLAND. ASSOCIATED WITH CRYPSIS SCHOENOIDES, ERYNGIUM VASEYI, ALLOCARYA STIPITATA, ELEOCHARIS, EREMOCARPUS, CONVOLVULUS, MOLLUGO, LOLIUM, AND PASPALUM. SOILS MAPPED AS RAYNOR CLAY AND PETERS CLAY.
General:	10,000 PLANTS OBSERVED IN 1987. DEEP RIPPING WAS OCCURING SOUTH OF THE OCCURRENCE IN 2010, POPULATION MAY HAVE BEEN IN THE AREA OF DESTRUCTION; POSSIBLY EXTIRPATED ACCORDING TO WITHAM.
Owner/Manager:	PVT

Occurrence No.	62	**Map Index:**	31450	**EO Index:**	12259	**Element Last Seen:**	2008-XX-XX
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2008-XX-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-21

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.65239 / -120.58176	**Accuracy:**	80 meters
UTM:	Zone-10 N4169999 E713329	**Elevation (ft):**	240
PLSS:	T03S, R13E, Sec. 19, S (M)	**Acres:**	0.0

Location:	0.2 MILE NORTH OF MODESTO MAIN CANAL, 1.8 MILES ENE OF INTERSECTION OF HWY 132 AND CRABTREE RD, 10 MILES E OF WATERFORD.
Detailed Location:	SINGLE POOL MAPPED ABOUT MIDWAY ALONG THE LINE BETWEEN SECTIONS 19 AND 30.
Ecological:	VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND. DENSE, PURE STAND OF ELEOCHARIS MACROSTACHYA FORMED DOMINANT PLANT COVER ON THE MAJORITY OF THE POOL BED; NEOSTAPFIA OCCURING OVER RELATIVELY BARREN PORTIONS OF POOL. SOIL MAPPED AS MEIKLE CLAY.
General:	FEWER THAN 500 PLANTS SEEN IN 1986, 300 IN 2001, 500 IN 2008. PRESENT GRAZING REGIME IS DAMAGING BUT CESSATION OF GRAZING MIGHT LEAD TO ELEOCHARIS COMPETITION; MODERATE LEVEL OF GRAZING MAY BE IMPORTANT IN HABITAT MANAGEMENT.
Owner/Manager:	PVT

Occurrence No.	63	**Map Index:**	31443	**EO Index:**	4588	**Element Last Seen:**	1973-09-27
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1987-06-29
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-21

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.64904 / -120.65781	**Accuracy:**	80 meters
UTM:	Zone-10 N4169457 E706629	**Elevation (ft):**	210
PLSS:	T03S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location:	ABOUT 0.8 MILE NORTHWEST OF THE JUNCTION OF HWY 132 AND DEINSTAG ROAD, ABOUT 4.5 MILES EAST OF WATERFORD.
Detailed Location:	MAPPED ABOUT 100 METERS EAST OF WINDMILL. WITHIN THE NE 1/4 OF THE NW 1/4 OF SECTION 28.
Ecological:	VERNAL POOL. MEIKLE CLAY SOIL.
General:	PLANTS PROBABLY SEEN HERE IN 1958 BY CRAMPTON AND IN 1973 BY REEDER. HABITAT ELIMINATED; SITE IS NOW AN ALMOND ORCHARD. SITE EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	64	**Map Index:**	31441	**EO Index:**	2666	**Element Last Seen:**	2001-08-15
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2001-08-15
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2017-03-24

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.66666 / -120.72211	**Accuracy:**	specific area
UTM:	Zone-10 N4171272 E700908	**Elevation (ft):**	170
PLSS:	T03S, R11E, Sec. 23, NE (M)	**Acres:**	3.9

Location:	ABOUT 2.5 MILES WEST OF MODESTO RESERVOIR AND ABOUT 3 MILES NORTHEAST OF WATERFORD.
Detailed Location:	SITE IS 1.2 AIR MILES WSW OF THE INTERSECTION OF TIM BELL ROAD AND HAZEL DEAN ROAD.
Ecological:	VERNAL POOL IN ANNUAL GRASSLAND. ASSOCIATED WITH EREMOCARPUS, ERYNGIUM VASEYI, HORDEUM GENICULATUM, LOLIUM MULTIFLORUM, CRYPSIS VAGINIFLORA, AND PHALARIS PARADOXA. SOIL MAPPED AS MEIKLE CLAY. TUCTORIA GREENEI FORMERLY AT THIS SITE.
General:	MORE THAN 1000 PLANTS OBSERVED IN 1986, 1987, & 2001. NEOSTAPFIA DENSITY HAS BEEN REDUCED; UNDER PRESENT GRAZING REGIME SITE IS DAMAGED AND PROBABLY DECLINING (1986/1987). 2016 AERIAL IMAGERY SHOWS SITE EXTIRPATED BY PLANTING OF ORCHARDS.
Owner/Manager:	PVT

Occurrence No.	65	**Map Index:**	31442	**EO Index:**	2783	**Element Last Seen:**	2010-09-03
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2010-09-03
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2017-03-24

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.65337 / -120.71339	**Accuracy:**	specific area
UTM:	Zone-10 N4169817 E701712	**Elevation (ft):**	180
PLSS:	T03S, R11E, Sec. 24, SW (M)	**Acres:**	1.0

Location:	ABOUT 0.5 MILE NORTH OF MODESTO MAIN CANAL AND ABOUT 2.5 MILES ENE OF WATERFORD.
Detailed Location:	SITE IS 1.1 MILES NORTHWEST OF INTERSECTION OF HAZEL DEAN ROAD AND HIGHWAY 132. TO ACCESS SITE, BIKE OR WALK ALONG CANAL LEVEE TO SILVER TOWER. GO STRAIGHT THROUGH ORCHARD TO SEE POOL. WITHIN THE SE 1/4 OF THE SW 1/4 OF SECTION 24.
Ecological:	VERNAL POOL ON ALLUVIAL BASIN SITE. ASSOCIATED WITH EREMOCARPUS SETIGERUS, BOISDUVALIA, ALLOCARYA STIPITATA, ERYNGIUM VASEYI, LOLIUM, PHALARIS, POLYPOGON, ALOPECURUS, HORDEUM, CAPSELLA, SIDA, POA ANNUA, ETC. SOILS MAPPED AS MEIKLE CLAY.
General:	ABOUT 1000 OR MORE PLANTS SEEN IN 1987. UNKNOWN NUMBER SEEN IN 2001. 300 PLANTS SEEN IN 2010, PLANTS OCCUPY SMALL CLAY INCLUSION WITHIN LARGER POOL. 2016 AERIAL IMAGERY INDICATES SITE HAS BEEN EXTIRPATED BY PLANTING OF ORCHARDS.
Owner/Manager:	PVT

Occurrence No.	71	**Map Index:**	48996	**EO Index:**	48996	**Element Last Seen:**	2010-09-03
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2010-09-03
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-22

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.65025 / -120.54330	**Accuracy:**	specific area
UTM:	Zone-10 N4169850 E716728	**Elevation (ft):**	230
PLSS:	T03S, R13E, Sec. 28, NE (M)	**Acres:**	8.0

Location:	0.8 MILE EAST OF RUSHING ROAD ON NORTH SIDE OF MODESTO MAIN CANAL.
Detailed Location:	FOUND ON THE WESTERN AND NORTHERN MARGINS OF THE POOL. MAPPED IN THE NW 1/4 OF THE NE 1/4 OF SECTION 28 ACCORDING TO 2013 WITHAM DIGITAL DATA.
Ecological:	HEAVILY GRAZED POLYPOGON AND ELEOCHARIS IN POOL. BORDERED BY ANNUAL GRASSLAND TO NORTH, EAST, AND WEST. ROAD AND CANAL TO THE SOUTH.
General:	23 PLANTS OBSERVED IN 2001. APPROXIMATELY 1000 PLANTS OBSERVED IN 2010.
Owner/Manager:	PVT

Occurrence No.	75	**Map Index:**	B1448	**EO Index:**	113354	**Element Last Seen:**	2017-07-10
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2017-07-10
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2018-11-19

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.76826 / -120.63559	**Accuracy:**	80 meters
UTM:	Zone-10 N4182736 E708256	**Elevation (ft):**	375
PLSS:	T02S, R12E, Sec. 15, NE (M)	**Acres:**	5.0

Location: APPROXIMATELY 3.4 AIR MILES SSE OF THE JUNCTION OF CA-108 WITH WILLMS ROAD, WILLMS RANCH.

Detailed Location: MAPPED AROUND STOCKPOND AT COORDINATES PROVIDED, IN THE NW 1/4 OF THE NE 1/4 OF SECTION 15.

Ecological: LARGE STOCKPOND THAT ENCOMPASSES PART OF NATURAL DRAINAGE ON PENTZ CLAY LOAM. ASSOCIATED WITH CRYPSIS SCHOENOIDES AND AMARANTHUS ALBUS.

General: 25 PLANTS OBSERVED IN 2017.

Owner/Manager: PVT

Occurrence No.	76	**Map Index:**	B1449	**EO Index:**	113355	**Element Last Seen:**	2017-07-10
Occ. Rank:	Fair			**Presence:**	Presumed Extant	**Site Last Seen:**	2017-07-10
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2018-11-19

Quad Summary: Knights Ferry (3712076)

County Summary: Stanislaus

Lat/Long:	37.75948 / -120.65809	**Accuracy:**	80 meters
UTM:	Zone-10 N4181712 E706297	**Elevation (ft):**	355
PLSS:	T02S, R12E, Sec. 16, SW (M)	**Acres:**	5.0

Location: APPROXIMATELY 3.8 AIR MILES SOUTH OF THE JUNCTION OF CA-108 WITH WILLMS ROAD, WILLMS RANCH.

Detailed Location: MAPPED AROUND STOCKPOND AT COORDINATES PROVIDED, IN THE NE 1/4 OF THE SW 1/4 OF SECTION 16.

Ecological: ADJACENT TO TAILINGS PILE. LARGE STOCKPOND THAT ENCOMPASSES PART OF NATURAL DRAINAGE ON PENTZ CLAY LOAM. ASSOCIATED WITH CRYPSIS SCHOENOIDES AND AMARANTHUS ALBUS.

General: 6 PLANTS OBSERVED IN 2017. LAND MANAGER PERIODICALLY REMOVES SEDIMENT FROM STOCKPONDS PLACING THESE TAILINGS AROUND EDGE OF POND AND IN AREAS WHERE NEOSTAPFIA SEEMS TO OCCUR.

Owner/Manager: PVT

Orcuttia pilosa

Element Code: PMPOA4G040

hairy Orcutt grass

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G1
	State:	Endangered		**State:**	S1
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	VERNAL POOLS.			
	Micro:	25-125 M.			

Occurrence No.	1	**Map Index:**	71488	**EO Index:**	5631	**Element Last Seen:**	1973-05-29
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2010-09-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-04-24

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.64586 / -120.64689	**Accuracy:**	specific area
UTM:	Zone-10 N4169128 E707601	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 28, NE (M)	**Acres:**	10.0

Location:	WEST OF DIENSTAG ROAD, 6.8 MILES EAST OF WATERFORD, SOUTH OF MODESTO LAKE.
Detailed Location:	MAPPED IN TWO POOLS IN THE FAR EAST HALF OF THE OF NE 1/4 OF SEC 28. POOLS LOCATED ABOUT 0.2 AND 0.5 MILE NORTH OF HIGHWAY 132.
Ecological:	PLANTS GROWING ON MARGIN OF LARGE VERNAL POOL. ASSOCIATED SPECIES INCLUDE NEOSTAPFIA COLUSANA IN 1958.
General:	SITE KNOWN FROM TWO 1958 CRAMPTON COLLECTIONS AND A 1973 REEDER & REEDER COLLECTION. SITE SURVEYED BY STONE IN 1986 AND WINDSHIELD SURVEY DONE BY WITHAM IN 2010; HABITAT ELIMINATED, SITE EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	7	**Map Index:**	13233	**EO Index:**	22329	**Element Last Seen:**	1938-06-11
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1986-09-01
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2008-06-12

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.65021 / -120.56048	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4169806 E715213	**Elevation (ft):**	250
PLSS:	T03S, R13E, Sec. 29, NE (M)	**Acres:**	0.0

Location:	12 MILES EAST OF WATERFORD.
Detailed Location:	MAPPED BY CNDDB AT 1.3 MILES WEST OF RAIRDEN GULCH, IN VICINITY OF MODESTO MAIN CANAL AND RUSHING ROAD; BIOSYSTEMS ANALYSIS 1988 REPORT MENTIONS THAT THIS AREA IS THE MOST LIKELY LOCATION FOR HOOVER'S COLLECTION OF O. PILOSA.
Ecological:	
General:	SITE KNOWN FROM THREE COLLECTIONS BY HOOVER BETWEEN 1936 AND 1938. TOM GRIGGS DID NOT LIST THIS POPULATION IN A 1977 STATUS REPORT. SITE INSPECTED BY STONE IN 1986; HABITAT ELIMINATED, SITE EXTIRPATED.
Owner/Manager:	UNKNOWN

Occurrence No.	20	**Map Index:** 89046	**EO Index:**	4421	**Element Last Seen:**	1973-07-02
Occ. Rank:	None		**Presence:**	Extirpated	**Site Last Seen:**	1986-09-01
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2013-04-25

Quad Summary: Paulsell (3712066)

County Summary: Stanislaus

Lat/Long:	37.65504 / -120.66171	**Accuracy:**	specific area
UTM:	Zone-10 N4170114 E706267	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 21, SW (M)	**Acres:**	20.0

Location: 4 MILES EAST OF WATERFORD, SOUTH OF RESERVOIR ROAD AT MODESTO RESERVOIR, NORTH OF TUOLUMNE RIVER.

Detailed Location: 4 POLYGONS MAPPED WITHIN THE SW 1/4 OF SECTION 21 AND THE SE 1/4 OF SECTION 20.

Ecological: VERNAL POOLS. GROWING IN ASSOCIATION WITH NEOSTAPFIA COLUSANA.

General: PLANTS "THRIVING WELL" ACCORDING TO 1958 CRAMPTON COLLECTIONS. BOTH NEOSTAPFIA COLUSANA AND O. PILOSA WERE NOTED AS "COMMON" IN 1973. HABITAT ELIMINATED AT THIS SITE BY ALMOND ORCHARD; SITE EXTIRPATED.

Owner/Manager: PVT

Occurrence No.	21	**Map Index:** 31443	**EO Index:**	4582	**Element Last Seen:**	XXXX-XX-XX
Occ. Rank:	None		**Presence:**	Extirpated	**Site Last Seen:**	1986-09-01
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2008-06-20

Quad Summary: Paulsell (3712066)

County Summary: Stanislaus

Lat/Long:	37.64904 / -120.65781	**Accuracy:**	80 meters
UTM:	Zone-10 N4169457 E706629	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 28, NW (M)	**Acres:**	0.0

Location: 6-7 MILES EAST OF WATERFORD. SOUTH OF MODESTO RESERVOIR AND NORTH OF TUOLUMNE RIVER.

Detailed Location: MAPPED ACCORDING TO A MAP IN A 1988 BIOSYSTEMS ANALYSIS REPORT. MAPPED NEAR CENTER OF NW1/4 SEC 28.

Ecological: VERNAL POOL.

General: DATE THIS POPUALTION WAS SEEN IS UNKNOWN. NO PLANTS SEEN BY STONE DURING A 1986 SURVEY. HABITAT ELIMINATED; SITE EXTIRPATED.

Owner/Manager: PVT

Orcuttia inaequalis

Element Code: PMPOA4G060

San Joaquin Valley Orcutt grass

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G1
	State:	Endangered		**State:**	S1
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	VERNAL POOLS.			
	Micro:	10-755 M.			

Occurrence No.	11	**Map Index:**	12859	**EO Index:**	22396	**Element Last Seen:**	1958-07-22
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2010-07-20
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-05-13

Quad Summary:	Montpelier (3712056), Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.62298 / -120.69577	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4166482 E703350	**Elevation (ft):**	180
PLSS:	T04S, R12E, Sec. 06, NW (M)	**Acres:**	0.0

Location:	3 MILES EAST OF HICKMAN AT EDGE OF LOW HILLS.
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB BASED ON 1958 COLLECTION LOCALITY.
Ecological:	IN A LARGE VERNAL POOL ON EDGE OF LOW HILLS.
General:	OCCURRENCE IS BASED ON A 1958 CRAMPTON COLLECTION. THIS SITE IS NOW PART OF AN EXTENSIVE VINEYARD ACCORDING TO STONE AND BUCK (1987). 2010 WINDSHIELD SURVEY BY WITHAM CONFIRMED THAT NO HABITAT REMAINS; SITE EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	16	**Map Index:**	13059	**EO Index:**	22395	**Element Last Seen:**	1973-07-02
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1986-09-01
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2010-12-16

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.65173 / -120.65772	**Accuracy:**	4/5 mile
UTM:	Zone-10 N4169756 E706629	**Elevation (ft):**	200
PLSS:	T03S, R12E, Sec. 28 (M)	**Acres:**	0.0

Location:	WEST OF DIENSTAG ROAD & SOUTH OF RESERVOIR ROAD, SOUTH OF MODESTO RESERVOIR IN VERNAL POOL.
Detailed Location:	EXACT LOCATION UNK. MAPPED BY CNDDB IN THE VICINITY OF ORCUTTIA PILOSA & NEOSTAPFIA COLUSANA POPS S OF RESERVOIR RD, W OF DIENSTAG RD AND N OF HWY 132. VAGUE COLLECTIONS FROM 4 MILES TO 6.8 MILES E OF WATERFORD ALSO ATTRIBUTED TO THIS SITE.
Ecological:	DRY BED OF VERNAL POOL SURROUNDED BY GRAINFIELDS. ASSOCIATED WITH ORCUTTIA PILOSA AND NEOSTAPFIA COLUSANA.
General:	HABITAT ELIMINATED, LAND PLOWED FOR ALMONDS IN SUMMER OF 1974; SITE EXTIRPATED. INCLUDES FORMER OCCURRENCES #17 & 42.
Owner/Manager:	UNKNOWN

Occurrence No.	18	**Map Index:** 12626	**EO Index:**	22390	**Element Last Seen:**	1937-06-22	
Occ. Rank:	None		**Presence:**	Extirpated	**Site Last Seen:**	1987-09-04	
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2010-12-16	

Quad Summary:	Waterford (3712067)
County Summary:	Stanislaus

Lat/Long:	37.67298 / -120.79660	**Accuracy:**	1 mile
UTM:	Zone-10 N4171816 E694320	**Elevation (ft):**	155
PLSS:	T03S, R11E, Sec. 18 (M)	**Acres:**	0.0

Location:	3 MILES NW OF WATERFORD.
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS ABOUT 3 MILES NW OF WATERFORD ALONG COUNTY HWY J9 (OAKDALE WATERFORD HWY).
Ecological:	
General:	OCCURRENCE IS BASED ON HOOVER COLLECTIONS FROM 1936 AND 1937. PLANTS EXTIRPATED ACCORDING TO TOM GRIGGS (1983).
Owner/Manager:	PVT

Tuctoria greenei

Element Code: PMPOA6N010

Greene's tuctoria

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G1
	State:	Rare		**State:**	S1
	Other:	Rare Plant Rank - 1B.1			
Habitat:	**General:**	VERNAL POOLS.			
	Micro:	VERNAL POOLS IN OPEN GRASSLANDS. 25-1325 M.			

Occurrence No.	5	**Map Index:** 12916	**EO Index:**	22359	**Element Last Seen:**	1980-XX-XX	
Occ. Rank:	None		**Presence:**	Extirpated	**Site Last Seen:**	1987-06-27	
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2008-06-17	

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.71971 / -120.68110	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4177248 E704379	**Elevation (ft):**	195
PLSS:	T02S, R12E, Sec. 32, NW (M)	**Acres:**	0.0

Location:	EAST OF THE OLD PAULSELL WAREHOUSE; ABOUT 12.8 ROAD MILES SOUTHEAST OF OAKDALE.
Detailed Location:	MAPPED ACCORDING TO A 1988 BIOSYSTEMS ANALYSIS MAP INDICATING THAT THE OCCURRENCE OCCURS IN A "LARGE...PLAYA AT THE SW BASE OF A PROMINENT KNOB-LIKE HILL".
Ecological:	LARGE PLAYA WITH DEEPLY CRACKED LEAD-GREY ADOBE SOIL.
General:	SEEN BY GRIGGS IN 1980. SITE WAS FALLOW IN 1987, HAD BEEN PLANTED TO BARLEY AND WORKED BY TILLAGE TOOLS. NO HABITAT REMAINS, SITE EXTIRPATED.
Owner/Manager:	PVT

Occurrence No.	6	**Map Index:**	12626	**EO Index:**	7501	**Element Last Seen:**	1937-06-22
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1987-09-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1996-01-11

Quad Summary: Waterford (3712067)

County Summary: Stanislaus

Lat/Long:	37.67298 / -120.79660	**Accuracy:**	1 mile
UTM:	Zone-10 N4171816 E694320	**Elevation (ft):**	155
PLSS:	T03S, R11E, Sec. 18, E (M)	**Acres:**	0.0

Location: 3 MILES NORTHWEST OF WATERFORD.

Detailed Location: ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE SEVERAL COLLECTIONS BY HOOVER IN 1936 & 1937. EXACT LOCATION UNKNOWN.

Ecological:

General: PLANTS EXTIRPATED ACCORDING TO GRIGGS (1983) & STONE (1987). SITE IS NOW AN IRRIGATED PASTURE. THERE WAS SOME QUESTION AS TO THE DIRECTIONS FOR THIS SITE; P. ALLEN THOUGHT IT WAS SOUTHEAST OF TOWN, BUT LABEL SAYS NORTHWEST.

Owner/Manager: PVT

Occurrence No.	14	**Map Index:**	12859	**EO Index:**	22350	**Element Last Seen:**	1958-XX-XX
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	2010-07-20
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-04-22

Quad Summary: Montpelier (3712056), Paulsell (3712066)

County Summary: Stanislaus

Lat/Long:	37.62298 / -120.69577	**Accuracy:**	1/5 mile
UTM:	Zone-10 N4166482 E703350	**Elevation (ft):**	180
PLSS:	T04S, R12E, Sec. 06, NW (M)	**Acres:**	0.0

Location: 1.4 MILES SOUTH OF LA GRANGE ROAD, 3 MILES EAST OF HICKMAN.

Detailed Location: IN VALLEY BETWEEN LOW HILLS. EXACT LOCATION UNKNOWN, MAPPED BY CNDDB AS A BEST GUESS.

Ecological: LARGE PLAYA WITH DRIED AND CRACKED LEAD-GRAY ADOBE SOIL. ASSOCIATED SPECIES INCLUDE ORCUTTIA INAEQUALIS AND NEOSTAPFIA COLUSANA.

General: PLANT VERY RARE AT THIS SITE IN 1958 ACCORDING TO CRAMPTON. EXTIRPATED IN 1980 PER GRIGGS, 1987 PER STONE AND BUCK, & 2010 PER WITHAM. INCLUDES FORMER EO #25 (SOUTH OF LAKE ROAD ABOUT 2 MILES EAST OF HICKMAN; HARRISON AND FERREIRA, 1981).

Owner/Manager: PVT

Occurrence No.	21	**Map Index:**	13234	**EO Index:**	22343	**Element Last Seen:**	1938-07-10
Occ. Rank:	None			**Presence:**	Possibly Extirpated	**Site Last Seen:**	2010-09-03
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2013-04-22

Quad Summary:	Cooperstown (3712065)
County Summary:	Stanislaus

Lat/Long:	37.65308 / -120.55851	**Accuracy:**	nonspecific area
UTM:	Zone-10 N4170129 E715378	**Elevation (ft):**	240
PLSS:	T03S, R13E, Sec. 20, SE (M)	**Acres:**	37.0

Location:	NEAR OIL WELL JUST WEST OF RUSHING ROAD, ABOUT 1.5 MILES NORTH OF JUNCTION WITH HIGHWAY 132.
Detailed Location:	MAPPED ACCORDING TO A 1974 CNPS MAP AND A 1988 BIOSYSTEMS ANALYSIS MAP.
Ecological:	DRY POOLS WITH CLAY SOIL.
General:	S POLY MAPPED ACC TO A 1988 BIOSYSTEMS ANALYSIS MAP; NO PLANTS IN 1986; HABITAT ELIMINATED. N POLY MAPPED ACC TO A 1974 CNPS MAP (DATE SEEN UNK), NO PLANTS IN 1986 & 2010; HABITAT EXTANT, BUT MAY BE ERRONEOUS. INCL FORMER EO #38.
Owner/Manager:	PVT

Occurrence No.	39	**Map Index:**	31441	**EO Index:**	22322	**Element Last Seen:**	1973-09-09
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1987-09-04
Occ. Type:	Natural/Native occurrence			**Trend:**	Decreasing	**Record Last Updated:**	2017-03-24

Quad Summary:	Paulsell (3712066)
County Summary:	Stanislaus

Lat/Long:	37.66666 / -120.72211	**Accuracy:**	specific area
UTM:	Zone-10 N4171272 E700908	**Elevation (ft):**	180
PLSS:	T03S, R11E, Sec. 23, NE (M)	**Acres:**	3.9

Location:	ABOUT 0.1 MILE SOUTH OF TIM BELL ROAD AND 1.1 MILES WEST OF HAZEL DEAN ROAD, 2 MILES WEST OF MODESTO.
Detailed Location:	MAPPED WITHIN THE NE 1/4 OF THE NE 1/4 OF SECTION 23.
Ecological:	VERNAL POOL IN ANNUAL GRASSLAND. ASSOCIATED WITH NEOSTAPFIA COLUSANA, EREMOCARPUS SETIGERUS, ERYNGIUM VASEYI, HORDEUM GENICULATUM, LOLIUM MULTIFLORUM, CRYPSIS VAGINIFLORA, AND PHALARIS PARADOXA.
General:	SEEN BY GRIGGS IN 1973. SITE VISITED IN 1986 & 1987 (THE FIRST FOLLOWING A YEAR OF FAVORABLE RAINFALL); NO PLANTS FOUND. PRESUMED EXTANT ACC TO 2011 WINDSHIELD SURVEY & AERIALS, NO PLANTS SEEN FROM ROAD. 2016 AERIALS SHOW SITE EXTIRPATED.
Owner/Manager:	PVT

SECTION 02230

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements for clearing and grubbing within the limits of the Project work areas. Clearing and Grubbing includes:

1. Removing unsuitable organic and inorganic material, including trees, tree stumps, brush, other vegetation, rocks, concrete rubble, trash and debris.

2. Preparing the specific areas of the Project Site for construction operations.

B. Work Inclusions – The Work shall include all labor, materials, equipment, and incidentals to perform the Work outlined and/or specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Contract Drawings and the Contract Specifications do not specifically show or indicate trees and stumps, vegetative materials, trash piles or other surficial rubbish to be removed and disposed of off-site.

B. The Contractor shall inspect the Project Site and determine the nature, location, size and extent of these materials to be removed and disposed of off-site.

C. The Contractor shall determine the locations of the disposal sites.

1.03 DEFINITIONS

A. Drip Line – The limits established by the outermost tips of the branches of a single plant, bush or tree, or group thereof, projected to the ground in plan view.

B. Clearing – Clearing of grass, brush, trees, stumps, tree roots, debris and otherwise unsuitable material from the ground surface at areas to receive excavation, fill or improvements.

C. Grubbing – The removal of vegetative material greater than one (1) inch in diameter to a depth of twelve (12) inches below the existing ground surface.

D. Vegetative Material – Any portion of a plant, bush or tree.

E. Spoil – Excavated, demolished, or removed inorganic rock, soil, cementitious material or other material.

F. Debris and Waste – Organic and/or inorganic waste and debris.

G. Topsoil – Excavated and reused material graded, free of roots, rocks larger than ½-inch, debris, vegetation and foreign matter.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or stated differently in this Specification Section or Related Work Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports, and their latest published edition.

1. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition, Section 17 "Clearing and Grubbing."

1.05 RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02210	Site Preservation and Materials Disposal
02280	Erosion, Sediment and Pollution Control
02290	Stormwater Management
02320	Earthwork

1.06 DESIGN PARAMETERS (NOT USED)

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. General – Refer to General Requirements Specification Section 01250 Quality Control and Assurance.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. Work Compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction

Safety Orders (Sections 1500 - 1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6148) are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work, e.g., observations, inspections, quality assurance testing, etc., under the Contractors Safety and Health Policies, and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS

A. Local dumping permit(s) for organic waste and inorganic debris disposal may be required at landfill(s). The Contractor shall research and secure the permits at no additional cost to the Owner.

B. Inorganic spoil materials shall be disposed offsite.

C. Refer to Specification Section 02210 Site Preservation and Materials Disposal, Section 02280 Erosion, Sediment and Pollution Control, and Section 02290 Stormwater Management.

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase – The Contractor shall submit the following before the Work outlined in this Specification Section can begin:

1. Materials Disposal Work Plan, with Working Sketches if needed, of organic waste, inorganic debris, and excavated spoil removal and disposal. This plan shall be submitted to the Engineer for "review-and-acceptance."

2. Dumping permits and Owner/Engineer releases of future responsibility of the wasted material off-site. These documents shall be submitted to the Engineer for "review-and-information."

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

The Contractor shall execute the following:

A. Perform clearing operations in advance of grubbing.

B. Perform all work described in this Specification Section before surface preparation and placement of concrete, shotcrete, and other improvements. Refer to Specification Section 03470 Shotcrete.

C. Immediately dispose of non-recycled materials removed during clearing and grubbing. Do not burn on-site organic materials that were cleared and grubbed.

D. Do not disturb any area outside the limits of the Work areas. Protect areas outside the limits of the work areas from Contractor operations.

E. Do not utilize vegetative material as anchorages or for other purposes.

F. Prior to cutting or removing tree limbs or roots larger than one and one-half (1½) inches in diameter (for trees to remain), have a licensed tree surgeon or horticulturist inspect and approve cut or removal.

G. Assume all responsibility for injuries to, or death of vegetation arising from Contractor operations (except for trees and vegetation to be removed per drawings or as specified). Perform this Work at no additional cost to the Owner.

1. The term "injuries" in this context shall comprise of any bruising, scarring, or breaking of roots, trunks, or branches.

2. Repair or treat injured vegetation without delay as recommended by and under the direction of an experienced horticulturist or licensed tree surgeon.

3. Replace in kind vegetation that cannot be treated or repaired.

3.02 CLEARING AND GRUBBING

A. Clear and grub within all proposed improvements and five (5) feet beyond the limits of proposed shotcrete on existing exposed ground surfaces.

B. Clear trash piles, surficial rubbish, and fencing, including fence-post footings.

C. Remove branches that are or will be interfering with Contractor operations with the prior approval of the Engineer. Treat cuts larger than one and one-half (1½) inches in diameter with a sealing compound.

D. Remove cleared and grubbed materials that are not to be recycled and dispose of off-site in accordance with all applicable local laws, codes, and ordinances.

3.03 PROTECTION OF VEGETATION

A. Protect vegetative materials that are not cleared.

3.04 FIELD QUALITY CONTROL

A. Refer to Specification Section 02320 Earthwork.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. The areas that are cleared and grubbed for placement of shotcrete, concrete, or other improvements shall not be measured.

4.02 BASIS OF PAYMENT

A. Work outlined in this Specification Section is not subject for payment or is paid for under another Specification Section.

- END OF SECTION 02230 -

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SECTION 02280

EROSION, SEDIMENT AND POLLUTION CONTROL

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements for:

1. Implementing final erosion control and sediment pollution control measures at the end of construction, which may include, but are not limited to:

   a. Moisture conditioning and "track walking" spoils area slopes and disturbed areas.

   b. Installing final erosion and sediment control facilities such as rock filter dams and riprap.

   c. Installing final biodegradable and biotechnical erosion control facilities.

   d. Seeding, hydroseeding, planting, and straw mulching.

2. Implementing temporary erosion, sediment and pollution control measures in disturbed areas at the Project Site prior to the beginning of the wet weather season where final erosion control measures have not been installed. Measures shall include, but not be limited to:

   a. Installing wattle sediment barriers and/or silt fences at toes of fills, at bases of stockpiles, and at minor drainage discharge locations.

   b. Installing sediment control and desiltation basins in drainage courses.

   c. Placing earth berms above incomplete cut or fill slopes to divert stormwater runoff from the slopes.

   d. Placing temporary diversion ditches or berms.

   e. Placing check dams or filters consisting of coarse aggregate or rock riprap.

f. Placing crushed rock or cobblestone liners in ditches and drainage courses.

g. Hydroseeding or other suitable covering to reduce erosion from earth stockpiles.

B. Work Inclusions – The Work shall include all labor, materials, equipment and incidentals to perform the work outlined and specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Contractor shall arrange for and be responsible for the submittals as required under the Construction General Permit, No 2009-0009-DWQ. The Owner will review and certify submittals made by the Contractor to the State Water Resources Control Board (SWRCB) via the Stormwater Multi Application Report Tracking System (SMARTS) and pay for fees incurred under the General Permit Order.

B. The Best Management Practices (BMPs) and locations shown on the Contract Drawings for final stabilization are the minimum anticipated. The minimum is based on a reasonable amount of ground surface being disturbed.

C. Refer to Specification Section 02290 Stormwater Management, Article 1.03.

1.03 DEFINITIONS

A. Refer to Specification Section 02290 Stormwater Management, Article 1.03.

B. Fugitive Dust – Particulate Matter (PM) suspended in the air by wind that originates from soil disturbed as a direct result of construction activity, and that is subject to regulation by a local air pollution control district (APCD).

C. Temporary Seeding – The planning of fast-growing grasses to hold down the soils in disturbed areas so that they are less apt to be carried off-site by stormwater runoff or wind.

D. Permanent Planting – The use of permanent vegetation (grass, trees, or shrubs) to stabilize the soil by holding soil particles in place.

E. Mulching – The placement of material such as hay, grass, woodchips, straw, or gravel on the soil surface to cover and hold in place disturbed soils. (Mulching often accompanies seeding.)

F. Hydroseeding – Hydraulic application of seed, fertilizer and mulch.

G. Project Site – Areas occupied by the Contractor, equipment, and materials during mobilization, construction, and demobilization, including the improvement construction areas, staging areas, laydown areas, and access ways.

H. Substantial Completion – Date at which the Work defined in the Contract Documents and along the Project Boundary Limits must be completed.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports, and their latest published edition.

1. "Erosion and Sediment Control Field Manual," Regional Water Quality Control Board (RWQCB), California's Central Valley Regional Water Quality Board – Region 5, latest edition.

2. State of California, Department of Transportation (Caltrans) "Stormwater Quality Handbooks," latest edition.

3. "Manual of Standards for Erosion and Sediment Control Measures," Association of Bay Area Governments, latest edition.

4. "Erosion and Sediment Control Handbook," Goldman, Jackson, Bursztynsky, latest edition.

5. Best Management Practices for Construction, California Stormwater Quality Association, latest edition.

1.05 RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02210	Site Preservation and Materials Disposal
02290	Stormwater Management

1.06 DESIGN PARAMETERS (NOT USED)

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Refer to Specification Section 01250 Quality Control and Assurance.

B. Refer to Specification Section 02290 Stormwater Management, Article 1.07.

1.08 SAFETY REQUIREMENTS

A. Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 - 1938, and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6148).

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS

A. Refer to Specification Section 02210 Site Preservation and Materials Disposal, Article 1.09, and Section 02290 Stormwater Management, Article 1.07.

B. Owner shall certify Contractor's Notice-of-Intent to comply with the General Permit.

C. All work shall be done in compliance with all applicable federal and state environmental laws and regulations.

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase

1. Erosion, Sediment and Pollution Control Work Plan – The Contractor shall provide a narrative Work Plan, which incorporates the Contractor's erosion, sediment and pollution control Working Sketches. The Work Plan shall include description and location of erosion, sediment and pollution control devices, measures to mitigate fugitive dust, and methods and means (the Work Plan may be incorporated in the Contractor's SWPPP or WPCP required in Specification Section 02290 Stormwater Management). The Work Plan shall be submitted to the Engineer for "review-and-acceptance."

2. Sediment, Erosion and Pollution Control Working Sketches – The Contractor shall provide Working Sketches and descriptions which, at a minimum, indicate the following. The Working Sketches shall be submitted to the Engineer for "review-and-acceptance."

    a. Sediment, erosion and pollution control methods and components.

    b. Arrangement, location, and layout of system components.

    c. Description of the site-specific methods to be used.

    d. Instrument installation, monitoring and maintenance procedures.

e. Methods of disposing accumulated sediments.

3. Product Data – For each type of product or material specified or used.

B. Construction Phase

1. Records

a. Provide to the Engineer for "review-and-information" a narrative inspection report, on a weekly basis or after every storm event, whichever is the most frequent, describing the status of system components, improvements needed, and abatement deadlines.

b. If required by the RWQCB and/or SWPPP, provide results of stormwater monitoring data to the Engineer for "review-and-information."

C. Close-Out Phase

1. Submit the following to the Engineer for "review-and-acceptance":

a. As-built – Provide as-built documentation of final erosion control with Working Sketches.

b. Guarantee – Provide guarantee to repair and/or replace final erosion control products for six (6) months after demobilization.

c. Notice-of-Termination as per Specification Section 02290 Stormwater Management.

PART 2 - PRODUCTS

2.01 MATERIALS

A. All materials and components shall conform to the requirements of Article 1.04 "Specifications, Codes, Standards and Reports," in these Specifications and Related Specification Section 02290 Stormwater Management, and as indicated on the Contract Drawings.

B. Temporary and Final Erosion Control Materials

1. Hydroseed: The hydroseed mix shall be based on recommendations from the local office of the United States Department of Agriculture, Natural Resources Conservation Service.

a. Alternatively, the following seed mix can be used:

Botanical Name **Common Name**	**Percent Germination (Minimum)**	**Kilograms Pure Live Seed Per Hectare (Slope Measurement)**
Lotus purshianus Spanish Clover	40	3.0
Lupinus bicolor Annual Lupine	40	6.0
Eschscholzia californica California Poppy	35	4
Hordeum vulgare var. UC337	80	60.0
Elymus multisetus Big Squirreltail	30	5.0
Hordeum. californicum (California Barley)	40	6.0
Leymus triticoides Creeping Wildrye	35	5.0
Poa secunda ssp. *secunda* Pine Bluegrass	30	5.0
Deschampsia elongata Slender hairgrass	40	6.0

b. The seed shall be applied in the following hydroseed mixture:

Material	Kilograms Per Hectare (Slope Measurement)
Fiber	320
Seed	100
Compost	940

2. Seed: All seed shall be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee, and dates of test. The container shall be labeled to clearly reflect the amount of Pure Live Seed (PLS) contained. All legume seed shall be pellet inoculated. Inoculant source shall be species specific and shall be applied at a rate of two (2) pounds of inoculant per 100 pounds of seed.

   Seed shall conform to the provisions in Caltrans Standard Specification Section 21-2.02F.

3. Hydraulic Mulch:

   a. Tackifier shall conform to the provisions in Caltrans Standard Specification Section 21-2.02E, "Tackifier," and these special provisions. Tackifier shall be nonflammable, non-toxic to plants and animals, shall have no growth or germination inhibiting factors, and shall have an effective life of at least one (1) year.

   b. Fiber shall conform to the provisions in Caltrans Standard Specification Section 21-2.02D, "Fiber," and these special provisions. Fiber shall be long strand, virgin wood fibers, thermo-mechanically defibrated from clean whole wood chips, containing a minimum of 25 percent of the fibers averaging 10 mm long, with a minimum of 50 percent or more retained on a #24 mesh screen. The wood chips shall be processed in such manner to contain no lead paint, printing ink, varnish, petroleum products, or seed germination inhibitors. Fiber shall not be produced from recycled material such as sawdust, paper, cardboard, or chlorine bleached paper mill residue. A coloring agent shall be included and shall be biodegradable and non-toxic.

4. Rip Rap: Caltrans Standard Specification Section 72.

5. Crushed Rock: Caltrans Standard Specification Sections 19, 20, 37, 72, 78 or 90 depending on use.

6. Cobblestone: Aggregate (rocks) greater than 64 mm in least dimension and less than 256 mm in the greatest dimension, typically 11 kg to 34 kg.

7. Coarse Aggregate: Caltrans Standard Specification Sections 19, 20, 37, 72, 78 or 90 depending on use.

8. Dust Palliatives: Any approved fugitive dust suppressant, including water, or any chemical acceptable by the local APCD.

9. Straw Wattles (Fiber Rolls): Straw wattles are manufactured from straw wrapped in tubular black plastic netting. They are approximately 8 to 9 inches (200 mm) in diameter by 25 to 30 feet (8 to 9 m) long. Rolls are placed and staked along the contour of newly constructed or disturbed slopes.

   California Straw Works Straw Wattles™ are manufactured from rice straw and are wrapped in a tubular plastic netting to the following specification:

   The netting shall have a strand thickness of 0.03 inches and a knot thickness of 0.055 inches and a weight of 0.35 ounce per foot (each +/- 10 percent)

and shall be made from 85 percent high density polyethylene, 14 percent ethyl vinyl acetate and 1 percent color for UV inhibition. Straw Wattles shall be 9 inches in diameter (±1 inch), 25 feet long (± 0.5 feet) and weigh approximately 35 pounds (± 10 percent).

10. Silt Fence: Silt fence fabric will be woven polypropylene with a minimum width of 36 inches and a minimum tensile strength of 1,000 lbs force. The fabric will conform to the requirements in ASTM designation D4632 and will have an integral reinforcement layer. The reinforcement layer shall be a polypropylene, or equivalent, net provided by the manufacturer. The permittivity of the fabric shall be between 0.1 sec-1 and 0.15 sec-1 in conformance with the requirements in ASTM designation D4491.

11. Filter Fabric: Filter Fabric shall be a woven, slit film fabric. The fabric shall be non-biodegradable, resistant to deterioration by sunlight, and inert to most soil chemicals. Edges of the film fabric shall be selvage or serge to prevent unraveling. The film fabric shall also conform to the following requirements**:**

Specification	Requirements
Grab tensile strength (25-mm grip), kilonewtons, minimum ASTM Designation: D4632*	0.89
Elongation at break, percent, minimum ASTM Designation: D4632*	15
Toughness, kilonewtons, minimum (percent elongation x grab tensile strength)	13.3
Permittivity, 1/sec, maximum, (liters per minute per square meter) ASTM Designation: D 4491	0.08 (244)
Ultraviolet light stability, percent tensile strength retained after 500 hours, minimum ASTM Designation: D 4355 (xenon arc lamp method)	70

* or appropriate test method for specific polymer

a. Temporary cover fabric shall be manufactured from polyethylene or polypropylene, or comparable polymers. The polymer materials may be virgin, recycled, or a combination of virgin and recycled materials. The polymer materials shall not contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric.

2.01 CONSTRUCTION FACILITIES AND EQUIPMENT (NOT USED)

2.02 TEMPORARY FACILITIES (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

The Contractor shall execute the following:

A. Provide and install all the erosion sediment and pollution control measures in accordance with:

1. This Specifications and Related Specifications.

2. The Contract Drawings.

3. RWQCBs Erosion and Sediment Control Field Manual.

4. Caltrans Stormwater Quality Manuals and Handbooks.

B. Follow the Contractor's SWPPP or WPCP and, if not incorporated with SWPPP, Erosion, Sediment and Pollution Control Work Plan and Working Sketches, as "reviewed-and-accepted" by the Engineer.

C. Maintain in proper and reasonable condition the temporary erosion, sediment and pollution control from Notice-to-Proceed to Final Completion when the Project is accepted by the Engineer and the Owner.

D. Protect the Project Site, adjacent lands and water courses from damage and or adverse environmental impacts resulting from erosion, sedimentation and other project generated pollutants.

3.02 HYDRAULIC MULCH APPLICATION

The Contractor shall execute the following:

A. Temporary hydraulic mulch (bonded fiber matrix) shall be applied to active and non-active areas where the soil is moist to a minimum depth of 10 mm. Prior to applying temporary hydraulic mulch (bonded fiber matrix), water shall be applied to areas that lack sufficient soil moisture. Water shall be applied with hydro-seeding equipment in a uniform manner using the proper nozzle to disperse the flow such that the soil surface is wetted to a minimum depth of 10 mm. Water application shall not generate excessive run-off or create erosion.

B. The following mixture in the proportions indicated shall be applied with hydroseeding equipment. Successive applications shall be used to achieve the indicated rate:

Material	Kilograms Per Hectare (Slope measurement)
Bonded Fiber*	4,000

*Includes fiber and emulsion material (solids).

C. The dilution of bonded fiber (kilograms) to water (liter) per hectare shall be as required to facilitate even application of material.

D. Materials shall be applied to form a continuous mat covering one hundred percent (100%) of the soil surface, shall have a minimum thickness of 3 mm, and shall have no gaps between the mat and the soil surface.

E. Materials shall be applied from two (2) or more directions to avoid shadowing effects and achieve a continuous mat.

F. Materials shall be applied in successive layers to avoid slumping and to aid drying.

G. Materials shall be applied during dry weather and with a minimum of twenty-four (24) hours of dry weather predicted between completion of materials application and anticipated rain.

3.03 OTHER POLLUTANT CONTROL MEASURES

The Contractor shall execute the following:

A. Address other potential sources of pollution on the Project Site(s), i.e., solid and liquid and chemical wastes.

B. Comply with applicable local, state and federal regulations and requirements for pollution control.

C. Ensure proper disposal of construction-site waste materials.

D. Treat or properly dispose of wastes that are generated on the Project Site(s).

E. Prevent off-site tracking of mud or sediments. Stabilized construction entrances or vehicle washing racks should be installed where vehicles leave the site.

F. Identify and prevent contamination of non-stormwater discharges. Where non-stormwater discharges allowed by the General Permit exist, they must be identified and steps must be taken to prevent contamination of these discharges.

G. Where dust may be a problem, implement dust control measures such as irrigation, truck watering, palliatives, etc.

H. Prevent leakage into the ground of or, if leakage occurs, collect and dispose of properly hydrocarbons – fuel, oil and grease (FOG) – and synthetic organic compounds.

3.04 FIELD QUALITY CONTROL

The Contractor shall execute the following:

A. If required by RWQCB and/or the General Permit, monitor, i.e., sample, test and analyze and report, the water quality and the water flows at the points shown on the Contract Drawings and/or elsewhere as directed by the Engineer.

B. On a weekly basis or after each storm event, whichever is more frequent, inspect, maintain and, as required, repair or replace the erosion, sediment and control devices, components and/or measures. Mitigate damaged measures during the storm event. Make improvements and repairs/replacements expeditiously before the next storm event.

C. Monitor the performance of the erosion, sediment and pollution control measures during storm events. (If able, make adjustments and improvements during the storm: if unable, before the next storm event.)

3.05 FINAL STABILIZATION

The Contractor shall execute the following:

A. Repair, replace or relocate the previously installed, temporary erosion, sediment and pollution control measures to benefit final stabilization and/or as directed by the Engineer.

B. Perform the final stabilization, as indicated on the Contract Drawings and/or as directed by the Engineer.

C. If the disturbed areas of the Project Site(s) will not be re-disturbed for three (3) weeks, or if the last planned disturbance of the site(s) will occur after two (2) weeks, start final stabilization immediately after those periods of time.

D. Provide close-out phase submittals: as per Article 1.10.C of this Specification Section.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD FOR MEASUREMENT

A. Temporary erosion, sediment and pollution control measures will not be measured for payment, except those items of Work addressed in Specification Sections 02290 Stormwater Management and 02210 Site Preservation and Materials Disposal.

4.02 BASIS OF PAYMENT

A. The Contractor will not receive additional payment for temporary erosion, sediment and pollution control measures and shall be considered incidental to the Work, unless otherwise as allowed by the Engineer.

B. If a jurisdictional agency levies fines and requires additional and/or replacement, repair and/or relocation of erosion, sediment and pollution control measures resulting from the Contractor's ground disruption, the Contractor shall pay the fines and the control measures at no cost to the Owner.

C. All other Work outlined in this Specification Section is considered incidental; therefore, not subject for payment, or is paid from under another Specification Section.

- END OF SECTION 02280 -

SECTION 02290

STORMWATER MANAGEMENT

PART 1 - GENERAL

1.01 SCOPE

A. Work Specified – This Specification Section outlines and specifies the requirements for the design, installation, inspection, maintenance, and removal of facilities for stormwater management. Stormwater management provisions and requirements are included in Contract Document Section 00100 Project Description. Stormwater facilities include, but are not limited to, stormwater flood prevention and handling drainage, dewatering, and sediment and erosion control facilities and systems, which are compatible with and support construction methods and means as necessary to properly and safely conduct surface operations described below in Article 1.05 of this Specification Section. The Work includes concrete and spoils waste management. The Work also includes, if required, sampling and testing of water flow and quality along Project-affected water courses.

B. Work Inclusions – The Work includes all labor, equipment, materials for the installations, inspections and maintenance, sampling, testing and analysis, operation and removal of stormwater, pollution prevention and handling temporary drainage and dewatering systems, monitoring, evaluation programs, and erosion and sediment control measures for the control and disposal of surface and ground waters.

1.02 BACKGROUND AND SITE CONDITIONS

A. Each year from November 1 through February 28 the District discontinues diversion, i.e., valves off, the irrigation water flows in the South Main Canal. The South Main Canal is placed in its "Dry-Canal" condition. This "Dry-Canal" condition period coincides with California's stormy, wet season. Stormwater run-off from the upslope watershed enters the South Main Canal at various locations.

B. The project construction activities are subject to the National Pollutant Discharge Elimination System (NPDES) under the 1972 Federal Clean Water Act and subsequent revisions. The construction activities, which are included in the NPDES, are ground clearing, grading, excavation of soil and rock, stockpiling, and other soil disturbances that are at least one (1) acre of total area. Also, if the construction activities significantly impair the water quality, even if the disturbance area is less than one (1) acre, the Project is subject to the NPDES. Construction activities that are routine maintenance to maintain original line and grade, original hydraulic capacity, or the original purpose of the facility, and that are emergency

construction activities to protect public health and safety are not subject to the NPDES. Emergency measures are responses to rapidly deteriorating conditions and do not include planned repairs.

C. If construction activities are subject to the NPDES, the Contractor shall comply with the General Construction Stormwater Permit (General Permit) under California's Water Quality Order 2009-0009-DWQ or subsequent replacement orders. The Contractor must provide a Draft Stormwater Pollution Prevention Plan (SWPPP) to the Owner through the Engineer for "review-and-comment." The Contractor must incorporate Engineer's comments in a Final SWPPP.

D. If the construction activities are not subject to the NPDES, the Contractor must provide and submit a Water Pollution Control Program (WPCP) to the Engineer for "review-and-acceptance."

E. The Engineer has confirmed that the Project is subject to the NPDES. Therefore, a SWPPP is required and the Contractor will file a Notice of Intent (NOI) to comply with the General Permit for Stormwater Discharges Associated with Construction Activity. The Contractor must comply with the General Permit and all other permits obtained by for this Work, including preparation of SWPPP. The Owner will provide certification of the NOI after submittal to the Stormwater Multi Application Report Tracking System (SMARTS) program.

F. The Project is within the Central Valley State Regional Water Control Board (RWQCB), Region 5. Their Sacramento Area Office is at 11020 Sun Center Drive #200, Rancho Cordova, CA 95670, telephone (916) 464-3291, fax (916) 464-4645, web-site www.waterboards.ca.gov/centralvalley.

G. All water run-off within the Project construction limits will be within the lower Stanislaus River watershed which is a 303(d) listed stream for Diazinon, Group A pesticides, mercury and unknown toxicity, but is not listed for sedimentation, siltation, and/or turbidity. Contractor will be responsible for damages, fines and penalties related to discharges to the natural drainages leading to the Stanislaus River. Though not specifically listed as 303(d) water bodies, these waters may nonetheless require monitoring and water quality sampling for other constituents under the existing or anticipated new General Permit, or as required by State Water Resources Control Board Resolution No. 2001-046.

H. Site conditions for stormwater management that will be provided by the Owner, and requirements for constructing, maintaining, and removing stormwater and canal facilities are included in Contract Documents Section 00100 Project Description.

1.03 DEFINITIONS

A. Project Right-of-Way Limits – Generally, the Project right-of-way limits are 50 feet on each side from the canal center line.

B. Project Construction Limits – As shown on the Contract Drawings, or the Project Right-of-Way if none shown.

C. Rain and Drain Days – Days with enough precipitation and storm duration to result in run-off drainage.

D. Canal – The Oakdale Irrigation District South Main Canal and associated facilities, including tunnels, laterals and diversion facilities.

E. "Dry-Canal" Condition and Season – Annually from November 1 until February 28.

F. Direct Discharge – Stormwater run-off that flows from a construction site directly into a "sensitive 303(d) listed water body" for sedimentation, siltation, and/or turbidity. Stormwater run-off from the Project Site is considered a direct discharge to a "sensitive 303(d) listed water body" unless it first flows through:

1. A municipal separate storm sewer system that has been formally accepted by and is under control and operation of a municipal entity;

2. A separate stormwater conveyance system where there is co-mingling of site stormwater with off-site sources; or

3. A tributary or segment of a water body that is not listed on the 303(d) list before reaching the "sensitive 303(d) listed water body" or segment.

G. Discharger – The person or entity subject to the NPDES and the General Permit.

H. Engineer – A Registered Professional Engineer, employed as the Owner's representative.

I. Field Measurements – Water flow and quality testing performed in the field, using temporary installed and/or portable field testing kits or meters.

J. pH – pH universal expression used to indicate the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6 and 9, with neutral being 7. Extremes of pH can have deleterious effects on aquatic systems.

K. Sampling and Analysis Plan – A document that describes how the samples will be collected and under what conditions, where and when the samples will be collected,

what the sample will be tested for, what test methods and detection limits will be used, and what methods/procedures will be maintained to ensure the integrity of the sample during collection, storage, shipping and testing (i.e., quality assurance/quality control protocols).

L. Sediment – Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

M. Sedimentation/Siltation – The process of sediment/silt deposition.

N. Settleable Solids (SS) or Materials – The solid material that can be settled-out in water during a specified time frame. This action is typically tested by placing a water sample into an Imhoff settling cone and allowing the solids to settle by gravity. Results are reported either as a volume (mL/L) or a weight (mg/L).

O. Silt – Soil particles between 0.05 mm and 0.002 mm in size. (For the purpose in this Specification Section only, it also includes clay, which is categorized by a particle size less than 0.002 mm.)

P. Soil Amendment – Any material that is added to the soil to change its chemical properties, engineering properties, or erosion resistance that could become mobilized by stormwater. Certain soil amendments may not be visible in site water run-off. Soil amendments likely to fall in this category include, but are not limited to lime, cementitious waste material, cementitious binders, chlorides, emulsions, polymers, soil stabilizers, and tackifiers applied as a stand-alone treatment (i.e., without mulch). Even some of these products may bind with the paper fibers (such as mulches and matrices), bark or wood chips, green waste or composted organic materials, and biodegradable or synthetic blanket fibers are soil amendments that are likely to be visible in stormwater run-off.

Q. Suspended Sediment Concentration (SSC) and Suspended Material – The concentration or amount of suspended solid material in a water sample by measuring the dry weight of all of the solid material from a known volume of a collected water sample. Results are reported in mg/L.

R. Total Suspended Solids (TSS) – Suspended solids in a water sample include inorganic substances, such as soil particles and organic substances, such as algae, aquatic plant/animal waste, particles related to industrial/sewage waste, etc. The total suspended solids test (TSS) measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

S. Turbidity – Cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic

particles it contains. The scattering of light increases with a greater suspended load. Turbidity is commonly measured in Nephelometric Turbidity Units (NTU).

T. Check Dam – An engineered structure across a water course, constructed of rock, soil or other materials, designed to trap sediments; also, a water tight engineered earthen manufactured structure that acts like a coffer dam or diversion dam.

U. Residual Water – Precipitation that ponds in low areas or otherwise does not run off the Site.

V. Stormwater – Precipitation that runs on to and off of the Project Site.

W. Ground water – Water that is naturally contained within the ground.

X. Construction Water – Water that is used for construction purposes or the result of altered stormwater as a result of construction activities.

Y. Surface Water – Water that is naturally occurring at the ground surface.

Z. Storm or Pump Watch – Contractor personnel assigned to visually observe stormwater run-off that may affect the Project Site during and/or following significant precipitation events, and the performance of temporary stormwater facilities.

AA. Best Management Practices (BMP) – A practice or combination of practices considered by the State of California to be the most effective means (including technological, economic and institutional considerations) of preventing or reducing the amount of pollution by non-point sources to a level compatible with water quality goals.

BB. Best Available Technology (BAT) – Industry standard for stormwater management.

CC. Best Conventional Pollutant Control Technology (BCT) – industry standard for pollution control.

DD. Construction General Permit (General Permit) – required by the State Water Resources Control Board (SWRCB) No 2009-0009-DWQ or subsequent replacement permit issued prior to end of construction activities.

EE. Notice-of-Intent (NOI) – Form required to comply with the terms of the General Permit to discharge stormwater associated with construction activities.

FF. California Regional Water Quality Control Board (RWQCB) – California State agency - Central Valley State Regional Water Control Board, Region 5. Their Sacramento Area Office is at 11020 Sun Center Drive, No. 200, Rancho Cordova,

CA 95670, phone (916) 464-3291, fax (916) 464-4645, website: www.waterboards.ca.gov/centralvalley.

GG. California State Water Resources Control Board (SWRCB) – California State agency - Division of Water Quality, Stormwater Section 1001 I Street, PO Box 100, Sacramento, CA 95814, phone (916) 341-7365, fax (916) 341-5252, website: www.waterboards.ca.gov.

HH. National Pollutant Discharge Elimination System (NPDES) – National pollutant discharge elimination system under the 1972 Federal Clean Water Act.

II. Final Stabilization – All soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of seventy percent (70%) of the cover for unpaved areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

JJ. Notice-of-Termination (NOT) – A notice submitted to RWQCB when the Project Site(s) have been finally stabilized or when a Contractor of a construction activity changes. Information to be included on the NOT includes the location of the construction site; the name, the address, and telephone number of the Contractor terminating coverage; the General Permit number; an indication of why coverage under the permit should be terminated for the Contractor; and a signed certification statement.

KK. Retention Pond – A reservoir without water run-off release except by means of evaporation, infiltration, or emergency bypass.

LL. Detention Pond – A basin that holds or detains water run-off for a limited time releasing it slowly to allow most of the sediments to drop out.

MM. Infiltration Measures – Measures that allow the percolation of water though the ground surface into subsurface soil. Specific measures include infiltration trenches, basins, and dry wells.

NN. Vegetated Swales and Natural Depressions – Grass lined ditches or depressions that transport water run-off, filter sediments from the water run-off, and enhance infiltration of the water run-off.

OO. Earth Dike – A mound of stabilized soil, which is constructed to divert run-off. Earth dikes may be used to either divert uncontaminated run-off away from disturbed areas or to divert contaminated run-off into a sediment basin or sediment trap.

PP. Silt Fence – A temporary measure consisting of posts with filter fabric stretched across the posts and sometimes with a wire support fence. The fence is installed

along the downslope or sideslope perimeter of a disturbed area. Run-off passes through the openings in the fabric, while sediment is trapped on the uphill side.

QQ. Sediment Trap – An excavated pond or an earthen embankment across a low area or drainage swale. It has an outlet or spillway made of large stones or aggregate. The trap retains the run-off long enough to allow the silt to settle out.

RR. Siltation Basin or Pond – A settling pond with a controlled water release structure, e.g., a riser and pipe outlet with a gravel filter, which slows the release of run-off. The basin detains sediment-laden run-off from larger drainage areas long enough to reduce sediment loading to acceptable levels.

SS. Environmental Protection Supervisor (ESP) – The Contractor's designated person in charge of the SWPPP implementation.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified or stated in this Specification Section and/or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. California State Water Resources Control Board (SWRCB), Water Quality Order No. 2009-0009-DWQ, General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) for the National Pollutant Discharge Elimination System (NPDES) or subsequent replacement orders.

2. California Code of Regulations, Title 23 Water.

3. State of California, Department of Transportation (Caltrans), Standard Specifications for Stormwater Quality Handbooks, latest editions.

    a. Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Review Guidance Manual, December 2003 (CTSW-RT-03-102.31.30-1).

    b. Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual, latest edition.

    c. Construction Site Best Management Practices (BMPs) Manual, latest edition.

    d. Construction Site Stormwater Quality Sampling Guidance Manual (CTSW-RT-03-116.31.30).

4. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition.

    a. Guidance for Temporary Soil Stabilization, latest edition.

    b. Field Guide for Construction Site Dewatering, latest edition.

5. California Stormwater Quality Association.

    a. Stormwater Best Management Practice (BMPs) Handbook, Construction, latest edition.

1.05 RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operations
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02050	Mobilization and Demobilization
02210	Site Preservation and Materials Disposal
02230	Clearing and Grubbing
02280	Erosion, Sediment and Pollution Control
02320	Earthwork
02460	Cement-Grouted Rock Dowels and Soil Nails
03300	Concrete Cast-in-Place
03470	Shotcrete

1.06 DESIGN PARAMETERS

A. The SWPPP (Plan) or the WPCP (Program), whichever is required, shall be designed in accordance with the Stormwater Quality Handbooks and meet the provisions required by SWRCB Water Quality Order No. 2009-0009-DWQ or subsequent replacement orders.

B. The Contractor shall design a Plan or Program, which avoids mixing stormwater with non-stormwater, e.g., groundwater, surface water, canal residual water and construction water, to the maximum degree possible for the specified improvements.

C. The following type plans and measures shall be part of the overall Plan or Program:

1. Drainage and dewatering plans and schemes.

2. Erosion and sediment controls, measures and plans.

3. Concrete waste management.

4. pH control of discharged water.

5. Spoil stockpiling and removal.

D. Any Check Dams over four (4) feet in height temporarily constructed in the Canal shall be designed by a licensed Civil Engineer registered in the State of California and shall be designed according to the following parameters:

1. Able to withstand overtopping.

2. Have an overtopping spillway.

3. Have a low elevation outlet within the canal.

4. Able to release outlet under water pressure and stormy conditions.

5. Have an impervious dam core.

E. The Plan or Program with calculations/assumptions and Working Sketches shall be stamped by the Contractor's professional engineer and shall be submitted to the Engineer for "review-and-acceptance."

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Environmental Protection Supervisor

1. The Contractor shall have on-site on a full-time basis an Environmental Protection Supervisor (EPS). This person shall be in charge of stormwater management, site environmental protection, drainage and dewatering, erosion, sediment and pollution control, and concrete and spoil waste management activities associated with the Project.

2. The EPS shall oversee and enforce the BMPs for stormwater management, site environmental protection, drainage and dewatering, erosion, sediment and pollution control, and concrete and spoil waste management, and oversee the execution of the SWPPP.

3. The EPS shall have at least three (3) years' experience with SWPPPs and/or WPCPs, stormwater, drainage, dewatering, and erosion/sediment controls and measures. The EPS shall also have experience with concrete waste and soil spoils management. The EPS should have experience with water quality monitoring and flow measuring.

4. The on-site EPS may have other collateral responsibilities on the Project.

5. The EPS shall have direct communications privileges to the Contractor's Corporate Officer in charge of environmental and/or environmental

protection matters, and not be subordinated by the Contractor's Project Manager.

B. Refer to Specification Section 01250 Quality Control and Assurance.

1.08 SAFETY REQUIREMENTS

A. All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. California Code Regulations, Title 8, Chapter 4, Division of Industrial Safety (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 - 1938) and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6148), are the most applicable regulations for this Specification Section.

C. OID/Tri-Dam – Canal irrigation water lock-out procedures at Goodwin Dam.

D. OID Safety Policy.

1.09 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase

1. Stormwater Pollution Prevention Plan (SWPPP or Plan)

a. The Contractor shall submit an NOI through the SMARTS Program for certification by the Owner. The Owner shall certify the submittal and pay the appropriate fees to the SWRCB to obtain coverage under the General Permit. Upon securing the General Permit, a copy shall be provided to the Contractor for "review-and-acknowledgement."

b. As outlined in the General Permit, the Contractor shall develop and submit to the Owner or Engineer a Project specific SWPPP. The Plan shall incorporate the Contractor's BMPs using the BATs and the BCTs for stormwater management, drainage and dewatering, erosion and sediment control, and concrete and spoil waste management to meet the requirements of the NPDES and NOI.

c. The Plan shall include provisions to manage stormwater flows as specified in Contract Document Section 00100 Project Description.

d. The Contractor shall, and is encouraged to, include an appropriate number of Working Sketches of plans, profiles, elevations, details and diagrams showing the various environmental control systems to be used.

e. Upon approval of the SWPPP by the Owner/Engineer, the Contractor shall provide an electronic (PDF) copy of the approved SWPPP to the Engineer.

f. The SWPPP shall be "reviewed-and-accepted" by the Owner/Engineer prior to the performing any Work specified in this Specification Section and Related Work Specification Sections.

2. Stormwater Management

a. Check Dam designs, including calculations/assumptions and Working Sketches, as described in Articles 1.06.D of this Specification Section.

b. Drainage and Dewatering – The Contractor shall develop and provide a SWPPP, which, at a minimum, indicate the proposed type(s) of dewatering system; the arrangement, location, and depths of systems components; a complete description of equipment and instrumentation to be used, with installation, operation and maintenance procedures; and the methods of disposal of pumped water. SWPPP shall fully address the requirements of any permits obtained by the Owner from state or federal agencies.

c. Erosion, Sediment and Pollution Control – The Contractor shall develop and provide a SWPPP, which, at a minimum, indicate the proposed erosion, sediment and pollution control methodologies and components; the arrangement, location and layout of the systems' components; a complete description of the site-specific methodologies to be used, with installation monitoring and maintenance procedures, and the methods of disposal of accumulated sediments and pollutants. SWPPP shall fully address the requirements of any permits obtained by the Owner from state or federal agencies.

d. Concrete and Spoil Waste Management – The Contractor shall develop and provide a SWPPP, which, at a minimum, indicate the proposed methodologies and components of concrete and spoil waste management; the arrangement, location, and layout of systems components; a complete description of the site-specific methodologies to be used, with installation, monitoring and maintenance procedures, and the methods of disposal of accumulated cementitious and soil sediments and stockpiling, hauling, and dumping spoils, specifically include concrete transit truck wash-outs. SWPPP shall fully address the requirements of any permits obtained by the Owner from state or federal agencies.

3. Monitoring Programs

   a. If required by the SWRCB, the Contractor shall develop and provide to SWRCB with their SWPPP, via the SMARTS Program, a Monitoring Program for sedimentation, siltation, and non-visually detected pollutants.

   b. If required by SWRCB or the Engineer, the Contractor shall develop and provide to SWRCB and/or the Engineer, a measuring program for peak flow velocities and total flow quantities for storm events.

   c. As part of the Contractor's SWPPP or WPCP, develop and provide a site inspection program. The program shall include the following aspects:

      i. Proper installation and maintenance of BMPs (pre-storm or weekly inspections).

      ii. Adequately functioning BMPs (inspect post-storm and during extended storm events).

   d. The Contractor shall develop and submit a sample form to document site inspections of BMPs. The form must have, but not is not limited to, the following information: inspection date/time, "pump watch" hours before, during and after each storm event, the storm's duration and magnitude, location and type of BMPs inspected, their condition (good, fair, poor or failed), Contractor's inspector(s) accompanying Engineer's observations, and certification statement and signature line.

4. For firms and persons specified in General Requirements Specification Section 01250 Quality Control and Assurance to demonstrate their capabilities and experience, specifically including the EPS. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

B. Construction Phase

The Contractor shall submit the following records to the Engineer:

1. Records

   a. BMP Site Inspection Records – On a weekly basis or every storm event (before, during and after), the results of BMP Site Inspections.

b. Water Flows – If required by the Project's SWPPP, the SWRCB, the RWQCB and/or the Engineer, measurements of peak stormwater flow (GPM) and total flow (MGal) for each storm event at key locations.

c. SWRCB Monitoring Data – If required by the Projects SWPPP, the SWRCB, the RWQCB and/or the Engineer, results of sampling, testing and analysis of water quality at key locations.

2. Temporarily constructed check dams added during construction and that are over four (4) feet high – the Contractor shall submit designs for the Engineer's "review-and-acceptance."

3. Revisions and As-Built documents – The Contractor shall prepare and submit revisions to previous submittals and reports of as-built conditions as required or as requested by the Engineer.

C. Close-Out Phase – The Contractor shall submit to the SWRCB via the SMARTS program a Notice-of-Termination upon completion of final stabilization for certification by the Owner.

1.10 SPECIAL CONDITIONS AND REQUIREMENTS

A. Special conditions and requirements for Stormwater Facilities and Maintenance are included in Contract Document Section 00100 Project Description.

B. The Owner suspends discharging irrigation water into the canal by November 1 annually. An approximate average depth of one (1) foot or less of water ponds in portions of the canal during the "Dry Canal" season. The Contractor shall drain residual water as needed before proceeding with the Work. The Contractor shall maintain the canal work areas in reasonable "dry" condition of residual, storm, surface, ground and construction water during Work construction. All work shall be in compliance with requirements of all permits obtained by the Owner from state and federal agencies.

C. Clean stormwater collecting in the canal may be conveyed through the Project right-of-way limits. Where necessary and "reviewed-and-accepted" by the Engineer, residual and stormwater may also be released into natural drainage courses consistent with the conditions and requirements listed in this Specification Section.

D. Unusual storm events (i.e., greater than 10-year recurrence interval) stormwater flows may exceed temporary diversion capacity. During such an occurrence, stormwater will flow through the canal work areas.

E. The Contractor shall keep close attention to short- and long term weather forecasting and shall schedule the Work accordingly. The weather will be an essential element for the Contractor to use in planning construction activities.

F. The Contractor may have to curtail construction activities during major storm events.

G. For large stormwater inflows, the release and pump capacities required may be excessive. Therefore, the check dam arrangements shall be able to withstand overtopping.

H. All releasing and pumping water out of the canal shall follow the requirements stipulated in Article 1.09 of this Specification Section.

PART 2 - PRODUCTS

2.01 TEMPORARY MATERIALS AND EQUIPMENT

A. Furnish and maintain all materials, tools, equipment, facilities and services as required for stormwater management: drainage control, dewatering measures, erosion and sediment control, and pollutant release prevention.

B. If required by the General Permit, provide equipment for monitoring water discharge amounts and sedimentation, siltation, non-visually detected pollutants (turbidity, pH, etc.) levels and other instruments and measuring devices, as required, in downstream drainage courses and within and outside of the canal.

2.02 PERMANENT MATERIALS

A. Refer to Specification Section 02280 Erosion, Sediment and Pollution Control.

PART 3 - EXECUTION

3.01 PREPARATION

A. Prepare and submit a SWPPP.

B. Select and submit the qualifications of the EPS.

C. Design and submit the required design of check dams and barriers over four (4) feet high.

D. Educate and train supervisors, employees, Subcontractors, and suppliers on BMPs and procedures for stormwater management, drainage and dewatering, erosion, sediment and pollutants control, and concrete and spoil waste management.

E. Hold pre-work joint meeting with the Contractor's, Engineer's and Owner's key staff members. Discuss aspects of stormwater management, e.g., drainage; dewatering; and erosion, sediment and pollution controls and monitoring.

3.02 GENERAL

A. Prevent any water discharge that creates or threatens to create a condition of nuisance as defined by the California Water Code Section 13050.

B. Prohibit any water discharge that degrades the quality of waters of the State of California and creates or threatens to create a condition of pollution or contamination as defined by the California Water Code Section 13050.

C. Prohibit discharge of waste and/or pollutant materials from entering surface waters or tributaries of surface waters.

D. Prohibit water discharge containing waste constituents in hazardous concentrations, as defined by the Title 22, Division 4.5, Article 11 California Code of Regulations.

E. Contain water that does not meet the requirements of the California Water Code or the California Code of Regulations within the canal until it meets such criteria or remove water from the Project Site and dispose of water according to all applicable laws and regulations.

3.03 STORMWATER MANAGEMENT

A. Dams, Ponds and Basins

1. Design, submit, install and remove any temporary check dams and temporary sediment control or storage ponds and basins.

2. The Contractor shall take complete responsibility of the design, construction, and maintenance of all temporary check dams.

B. Outlet Release Valves and Gates – Provide supervision, equipment and materials to operate and maintain any outlet release valves and gates. Liaison with the Owner on operation and maintenance techniques and peculiarities, and access and exact locations of the valves and gates. Take responsibility from the Owner on the status and operation of the outlet release valves and other discharge/spill facilities. In conjunction with Owner, Contractor will educate and train their personnel on the operation and maintenance of the valves and gates.

C. Goodwin Dam Gate Valves and Lock-Outs – Coordinate with the Owner and the Engineer to lock-out the South Main Canal headgates located at Goodwin Dam preventing irrigation water from entering the Canal. Place Contractor's lock(s) in conjunction with Owner's and Engineer's locks on the gate valves before performing any Work inside the Canal. Removal of the locks will be coordinated by the Owner after Substantial Completion when all the Work inside the canal is completed.

D. Other stormwater BMPs methods and means as per the SWPPP.

3.04 DRAINAGE, DEWATERING AND SEDIMENT/EROSION CONTROL

A. Perform dewatering in accordance with the Plan and Working Sketches "reviewed-and-accepted" by the Owner and Engineer. Keep the Engineer advised of any changes made to accommodate field conditions. On completion of the dewatering system installation, revise and resubmit Plan and Working Sketches as necessary to indicate the installed configuration(s).

B. Organize dewatering operations to lower the water levels in excavations as required for prosecution of the Work, and provide a stable, dry subgrade for the prosecution of construction operations.

C. Maintain water level at lower elevations, so that no danger to structures can occur because of buildup of excessive hydrostatic pressure, and provide for maintaining the water level a minimum of two (2) feet below the subgrade, unless otherwise permitted by the Engineer.

D. Maintain groundwater level a minimum of five (5) feet below the prevailing level of backfill being placed.

E. Dispose of water in such a manner as to cause no injury or nuisance to general public or private property, or be a menace to the public health or natural resources.

F. Design dewatering operations to maintain the excavated areas free from water during construction, while concrete is setting and achieves full strength, and until backfill has been placed to a sufficient height to anchor the work against possible flotation.

G. Prepare the Work for possible, unavoidable stormwater flows before, during and after major and minor storm events and plan the Work accordingly.

H. Divert or otherwise prevent surface water from entering excavated and concreted areas to the greatest extent practicable.

I. Control groundwater seepage into excavations from all water sources above the final subgrade level such that the seepage waters do not cause disturbance to subgrade soils and do not adversely affect construction of the Work as specified.

J. Install filtration materials and/or devices, i.e., to prevent fines/silts removal, ground loss, excavation piping where groundwater is exiting from the underground and/or surface excavation. Design/engineer and install filtration media properly according to manufacturer and industry standards.

3.05 EROSION, SEDIMENT AND POLLUTION CONTROL

A. Prevent sediments deposition from disturbed soils on adjacent land or into waterways by employing BMPs, including sediment settling/desilting basins, and erosion and sediment control devices as described in this Specification Section and Specification Section 02280 Erosion, Sediment and Pollution Control.

B. Prevent excavations from intercepting or obstructing the natural flow of a watercourse or drainage.

C. Provide filtration materials and devices to prevent fines/silts removal and losses, ground/sediment lost and soil piping where polluted water could exit from sediment control and desiltation basins.

D. Dispose of construction and polluted water on or off the Project Site according to applicable local, Stanislaus County, State of California, and federal laws and regulations.

3.06 CONCRETE AND SPOIL MANAGEMENT

A. Prevent water containing lime, mud, silt or other pollutants from concrete, shotcrete and grouting operations, aggregate washing or other construction activities from entering a watercourse or being placed in locations that may be subjected to being washed away.

B. Prohibit placing concrete, applying shotcrete or grouting during times of extreme stormwater events, such that the material constituents could possibly be washed downhill into watercourses or drainages.

C. Dispose of hardened concrete, shotcrete and grout waste at the Owner’s stockpile area or off-site according as per Specification Section 02210 Site Preservation and Materials Disposal.

D. Dispose of residues, slurry and liquid wastes from concrete, shotcrete and grout operations off-site, not in the Owner’s stockpile area, according to Specification Section 02210 Site Preservation and Materials Disposal, at a facility that includes recycling of appropriate materials.

E. Designate and sign locations for temporary concrete washout facilities. Inform concrete equipment and transit-mixer operators to utilize the temporary concrete washout facilities.

F. Construct temporary concrete wash-out facilities according to the diagrams shown in the Contract Drawings, or SWPPP BMPs.

G. Inspect routinely temporary concrete washout facilities for damage and maintenance, i.e., tears in polyethylene, missing sandbags, damaged straw bales, etc., maintain and repair facilities routinely and immediately.

3.07 FIELD QUALITY CONTROL

A. Inspect, and repair or replace stormwater BMPs, components and systems before, during and after each storm event or weekly, whichever is most frequent.

B. Provide water quality monitoring as required by the California Regional Water Quality Control Board review record requirement.

C. Submit data from observed water flows and water quality monitoring on a weekly basis to the Engineer for "review-and-acknowledgement."

3.08 FINAL STABILIZATION, TEMPORARY FACILITIES REMOVAL AND CLEAN-UP

A. Cover distributed areas not covered by pavement or permanent structural covering (e.g., shotcrete, concrete, asphalt, timber, etc.) with a uniform perennial vegetative cover.

B. Install riprap, gabions, geotextiles, etc. at the locations shown on the Contract Drawings and as needed to provide a sustainable, stabilized surface.

C. Remove and dispose of properly and legally all temporary structures and facilities, i.e., check dams and pumps and divergent piping stormwater flow measurement and water quality monitoring stations, concrete washout facilities, and other facilities.

D. Leave erosion and sediment control devices in place and repair or replace them as directed by the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Stormwater Management (SWPPP, EPS, etc.) related items shall be measured as a percentage complete and accepted by the Engineer.

B. Design, construction, and maintenance of any temporary check dams and other stormwater management facilities, including but not limited to either check dams over or under four (4) feet high, shall not be measured.

C. Water Flow Measurement Stations – If required, the design, development, equipment procurement and maintenance, installation, measuring operations and station removal shall be considered incidental and shall not be measured.

D. Water Quality Monitoring Stations – If required, the design, development, equipment procurements, maintenance, monitoring (i.e., sampling, testing and analysis operations), and station removal shall be considered incidental and shall not be measured.

4.02 BASIS OF PAYMENT

A. Stormwater Management (SWPPP, EPS, etc.) related items shall be paid as a percentage complete of the Contract lump sum (LS) price.

B. Temporary stormwater facilities shall be paid as a percentage complete of the Contract lump sum (LS) price.

C. All other Work outlined in this Specification Section is considered incidental; therefore, not subject for payment, or is paid from under another Specification Section.

- END OF SECTION 02290 -

SECTION 02320

EARTHWORK

PART 1 – GENERAL

1.01 SCOPE

A. Work Specified – This Specification Section outlines and specifies the requirements for earthwork, including stripping (following Clearing and Grubbing as per Specification Section 02230), subgrade preparation for improvements and proposed fill (excavation, overexcavation, and subgrade compaction), fill placement and compaction, aggregate base placement and compaction, and related work necessary to complete the grading of the improved areas to conform with the lines, grades, and slopes as shown on the Contract Drawings.

B. Work Inclusions – The Work shall include all labor, materials, equipment, and incidentals to perform the Work outlined and/or specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. The Contractor should review site condition information before bidding.

B. Site Conditions – The Contractor shall review the available site information before bidding. Refer to *South Main Canal, Long-Term Improvements Project, Segment 4 Long-Term Repairs Assessment Report,* prepared by Condor Earth and dated January 20, 2017.

C. Existing Utilities

1. Locate existing underground utilities before excavation.

2. If utilities will remain in-place, provide protection from damage during construction.

3. Should uncharted or incorrectly located utilities be encountered during excavation, consult Engineer immediately for direction prior to proceeding with additional Work near the utilities. Cooperate with Owner and utility companies to keep services and facilities operating. Repair damaged utilities to satisfaction of utility owner.

1.03 DEFINITIONS

A. Backfill – Engineered fill placed and compacted in an excavation.

B. Clearing – Clearing of grass, brush, trees, stumps, tree roots, debris and otherwise unsuitable material from the ground surface at areas to receive excavation, fill, or improvements.

C. Engineered Fill – Fill that is placed and compacted according to the requirements in this specification, and under the observation and testing of Engineer's Materials Testing Laboratory.

D. Grubbing – Removal of vegetative material greater than one (1) inch in diameter to a depth of twelve (12) inches below the existing ground surface.

E. Moisture Content - The weight of moisture in fill as a percentage of the dry weight of solids of the same unit volume of fill.

F. Natural soil – Soil that is not fill and that has not been disturbed by previous grading.

G. Optimum Moisture Content – The moisture content of fill that corresponds to the maximum dry unit weight of the same fill material as determined by ASTM D1557.

H. Organic Material – Soil or other material with more than two percent (2%) by dry weight of organics and deleterious material.

I. Percent Compaction – The dry density of fill in-place expressed as a percentage of the maximum dry density of the same fill material determined by ASTM D1557.

J. Stripping – Removal of topsoil, vegetation, roots and organic material from areas to receive excavations, fill, or improvements.

K. Subgrade – Top of fill beneath slabs-on-grade, pavement, and aggregate layers beneath pavement, or the excavated ground surface beneath engineered fill and such improvements.

L. Suitable Material – Subgrade material and fill that meets the product requirements for Engineered Fill in this Specification Section.

M. Topsoil – Organic material near the existing ground surface.

N. Unsuitable material – Subgrade material and fill that does not meet the product requirements for Engineered Fill in this Specification Section.

O. Uncompacted fill – Fill that has not been compacted to the minimum specified percent compaction.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or stated differently in this Specification Section or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports (latest published editions):

1. California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders

2. American Association of State Highway and Transportation Officials (AASHTO)

3. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition

4. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

5. American Society for Materials and Testing (ASTM) D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (Modified Proctor)

6. OID Standard Specifications and Drawings

1.05 RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02210	Site Preservation and Materials Disposal
02230	Clearing and Grubbing
02280	Erosion, Sediment and Pollution Control
02290	Stormwater Management
02775	Backdrains and Underdrains

1.06 DESIGN PARAMETERS – (NOT USED)

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. General – Refer to General Requirements Specification Section 01250 Quality Control and Assurance.

B. Operator Qualifications – Engaged experienced personnel who have completed earthwork similar to that required for this Project.

C. The Engineer and Engineer's Materials Testing Laboratory shall provide oversight, observation, and testing for all earthworks.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. Work Compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA)

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 -1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6184) are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work (e.g., observations, inspections, quality assurance testing, etc.) under the Contractor's Safety and Health Policies and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS

A. Refer to Specification Sections 02280 Erosion, Sediment and Pollution Control and Section 02290 Stormwater Management.

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase – The Contractor shall submit to the Engineer for "review-and-acceptance" the following before the Work outlined in this Specification Section can begin:

1. Product Data: For each type of product or material specified or used. Include filter fabric and imported fill material.

2. For firms and persons specified in Specification Section 01250 Quality Control and Assurance to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

3. Grading Permit, if required, shall be submitted to the Engineer for "review-and-information."

B. Closeout Phase – Submit the following to the Engineer for "review-and-information."

1. Grading permit sign-off by counties, if required.

1.11 SPECIAL CONDITIONS AND REQUIREMENTS

A. The Contractor is responsible for conclusions Contractor may draw from the available subsurface information; should Contractor prefer not to assume such risk, Contractor should employ their own experts to analyze available information and/or to make additional test pits or other explorations upon which to base their conclusions, at no cost to the Owner.

B. The Engineer is not responsible for determining line and grade, elevations or slope gradients during earthwork operations.

PART 2 – PRODUCTS

2.01 ENGINEERED FILL

A. Fill shall be material from on-site excavation or imported material that contains no organic material or debris, has a maximum particle size of four (4) inches, has at least seventy percent (70%) passing the ¾-inch-square sieve by dry weight, at least sixty percent (60%) passing the U.S. No. 4 sieve by dry weight, has a plasticity index of 15 or less, and has a liquid limit of 40 or less. Material may be processed by crushing and/or screening to meet the maximum particle size requirement. Material to be used as engineered fill must be sampled and tested by the Engineer's Materials Testing Laboratory. The Contractor shall furnish a sample of proposed import material(s) at least ten (10) working days prior to using the imported material to enable the Engineer's Materials Testing Laboratory to test and the Engineer to evaluate the material.

PART 3 – EXECUTION

3.01 SITE PREPARATION, SUBGRADE PREPARATION, AND ENGINEERED FILL

A. The Contractor shall notify the Engineer and Engineer's Materials Testing Laboratory at least two (2) working days before earthwork begins to schedule and coordinate observation and testing with the Contractor.

B. The Engineer shall provide oversight of earthwork, and observation and testing by the Engineer's Materials Testing Laboratory shall be performed. Earthwork performed without Engineering oversight, observation, and testing will not comply with the Specifications.

C. Grading and site work shall be performed in accordance with Contract Drawings, the latest edition California Building Code (CBC), Appendix Chapter J (Grading)

and Chapter 18 (Soils and Foundations), and directions from the Engineer during construction. Where these requirements conflict, the Engineer shall provide clarification. The requirements shown on the Contract Drawings and in the Specifications shall not be waived without written "review-and-acceptance" by the Engineer.

D. Excavation shall be carried to lines, grades, and dimensions shown on the Contract Drawings or established by the Engineer. During progress of the Work, the Contractor may choose to vary the slopes and dimensions of excavations required in the Contract Documents. The Contractor does so at its own risk. Final slopes and dimensions shall not be varied without written consent from the Engineer.

E. Permanent, unsupported cutslopes shall be no steeper than shown on the Drawings.

F. The existing ground surface shall be prepared in all areas to receive excavations, fill, or improvements. Site preparation, following clearing and grubbing (as per Specification Section 02230), includes demolition/removal of existing surface and subsurface improvements, removal of any debris or unsuitable material, and stripping. Site preparation shall extend at least three (3) feet beyond limits of excavation, fill, and new improvements. The Engineer shall observe and approve prepared surfaces prior to excavation, subgrade preparation, and covering with fill or improvements.

G. At the direction of the Engineer, any unsuitable material exposed after stripping should be removed and wasted. Any soft, loose, or yielding material should be removed and replaced with compacted engineered fill.

H. Subgrade preparation shall be performed prior to covering exposed ground with fill or improvements. Subgrade preparation shall extend at least three (3) feet beyond the limits of excavation, fill, and new improvements. Subgrades consisting of soil (as opposed to hard rock) shall be scarified, moisture conditioned to near the optimum moisture content, as required to facilitate compaction, and compacted to at least 90 percent compaction. The Engineer shall check and approve subgrades prior to covering them. Subgrades that become disturbed, as indicated by the Engineer, shall be prepared again according to the requirements of this Article before they are covered.

I. Fill and backfill meeting the property specifications shall be placed over surfaces prepared in accordance with the previous Article. Fill shall be placed in lifts up to eight (8) inches in loose thickness. Each lift shall be compacted to 90 percent compaction and tested by the Engineer's Materials Testing Laboratory prior to placing subsequent lifts.

3.02 PROTECTION

A. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the Project Site, including safety of persons and protection of property during performance of the Work. This requirement shall apply continuously and shall not be limited to working hours.

B. Adequate protection measures shall be provided to protect workers and passers-by. Roadways and adjacent property shall be fully protected throughout the operations.

C. Precautions shall be taken during earthwork and site grading to protect the work area from flooding or ponding resulting from improper surface drainage, and temporary provisions should be made during the rainy season to direct surface drainage away from the work area. Rain-related damage may include, but is not limited to, erosion, silting, saturation, swelling, slope instability and other adverse conditions. Adversely affected soils classified as unsuitable are subject to overexcavation and replacement with compacted fill or other remedial grading as directed by the Engineer.

3.03 SPILLAGE, DUST AND EROSION CONTROL

A. Spillage – The Contractor shall prevent spillage when hauling on or adjacent to private roadways that are not a part of this Project, or any public street or highway. In the event that such occurs, the Contractor shall remove spillage and sweep, wash or otherwise clean such roadways, streets or highways as required by local city and county authorities, the State of California and/or the Engineer.

B. Fugitive Dust and Erosion Control – The Contractor shall take precautions as needed to prevent a dust nuisance to adjacent public or private properties and to prevent erosion and transportation of soil to downstream or adjacent properties due to Contractor's Work on this Project. Any damage so caused shall be corrected or repaired by the Contractor, Subcontractor or Supplier at no additional cost to the Owner. Related provisions of Specification Sections 02210 Site Preservation and Materials Disposal, 02280 Erosion, Sediment and Pollution Control and 02290 Stormwater Management shall also be referenced for additional requirements related to erosion control, fugitive dust, and environmental compliance.

C. Engineer/Owner's Prerogative – In the event the Contractor fails to take such precautions or make such corrections or repairs promptly, the Engineer, as the Owner's representative, may take such steps as Engineer may deem necessary and deduct the cost of the same from the monies due to the Contractor. Such action or lack of action on the part of the Engineer in no way alters or relieves the Contractor for the proper protection of the Work.

3.04 SEASONAL LIMITS

A. Fill material shall not be placed, spread or rolled during unfavorable weather conditions. When heavy rains interrupt the Work, fill operations shall not be resumed until field tests indicate that the moisture contents of the subgrade and fill materials are satisfactory.

3.05 FIELD QUALITY CONTROL

A. The Work covered by this Specifications Section shall be performed under the observation of the Engineer.

B. The Engineer and the Engineer's Materials Testing Laboratory will be present at the Site intermittently to observe the Work and to perform field and laboratory tests to evaluate material quality and compaction. The Contractor shall cooperate with the Engineer and the Engineer's Materials Testing Laboratory in performing the observations and tests. At the completion of their work, the Engineer and Engineer's Materials Testing Laboratory shall submit reports, including a tabulation of items observed and tests performed. The Engineer's and the Engineer's Materials Testing Laboratory's costs for observing and testing the repair of unsatisfactory Work performed shall be back-charged to the Contractor.

C. If the Contractor should fail to meet the technical or design requirements embodied these Specifications and the applicable Contract Drawings, Contractor shall make the necessary readjustments until Work is deemed satisfactory, as determined by the Engineer. No deviation from the Specifications shall be made except by "review-and-written acceptance" from the Engineer.

3.06 DISPOSAL OF SPOIL

A. Refer to Specification Section 02210 Site Preservation and Materials Disposal.

PART 4 – MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Refer to Specification Section 02210 Site Preservation and Materials Disposal.

4.02 BASIS OF PAYMENT

A. Refer to Specification Section 02210 Site Preservation and Materials Disposal.

B. All other Work outlined in this Specification Section is considered incidental, therefore, not subject for payment, or is paid for under another Specification Section.

- END OF SECTION 02320 –

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SECTION 02460

CEMENT-GROUTED ROCK DOWELS AND SOIL NAILS

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements for furnishing, installing and testing soil nails and cement-grouted rock dowels, and invert cement-grouted rock dowels at the locations shown on the Contract Drawings, and for the applications described on the Contract Drawings.

B. Work Inclusions – The Work shall include all labor, materials, equipment and incidentals to perform the Work outlined and specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. Site Conditions – The Contractor shall review the available site information before bidding. Refer to *South Main Canal, Long-Term Improvements Project, Segment 4 Long-Term Repairs Assessment Report*, prepared by Condor Earth and dated January 20, 2017.

B. The Contractor shall review site information before bidding, including the digital videos, to assess the site geometry and equipment access conditions.

C. Existing Utilities

1. Locate existing underground utilities before drilling.

2. If utilities will remain in place, provide protection from damage during construction.

3. Should uncharted or incorrectly located utilities be encountered during drilling, consult Engineer immediately for direction prior to proceeding with additional work near the utilities. Cooperate with Owner and utility companies to keep services and facilities operating. Repair damaged utilities to satisfaction of utility owner.

1.03 DEFINITIONS

A. Cement-Grouted Rock Dowel – A steel bar placed in a drill hole in rock, fully encapsulated with cement grout in the annulus between the bar and the rock. A

cement-grouted rock dowel is not tensioned and includes a bearing plate assembly at the collar of the hole.

B. Soil Nail – Same as a cement-grouted rock dowel except the drill hole and bar extend through soil instead of rock.

C. Pattern Anchor or Reinforcement – A systematic layout of cement-grouted rock dowels or soil nails.

D. Spot Anchor or Reinforcement – Placing a cement-grouted rock dowel, soil nail, or rock bolt at a specific location, by the Contractor for safety protection, as shown on the Contract Drawings (to be verified by Engineer), or as directed by the Engineer.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports (latest published editions):

1. American Society of Testing and Materials (ASTM)

A36	Standard Specification for Carbon Structural Steel
A108	Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
A185	Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
A521	Standard Specification for Steel, Closed-Impression Die Forgings for General Industrial Use
A615	Standard Specification for Deformed and Plain Billet – Steel Bars for Concrete Reinforcement
A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
C94	Standard Specification for Ready-Mixed Concrete
C144	Standard Specification for Aggregate for Masonry Mortar
C150	Standard Specification for Portland Cement
C494	Standard Specification for Chemical Admixtures for Concrete
C579	Standard Test Methods for Compressive Strength of Chemical Resistant Mortars, Grouts, Monolithic Surfacings and Polymer Concretes
C618	Standard Specification for Cal Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Concrete
F432	Standard Specification for Roof and Rock Bolt and Accessories
F436	Standard Specification for Hardened Steel Washers

2. Post-Tension Institute (PTI) Recommendations for Prestressed Rock and Soil Anchors

3. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

4. OID Standard Specifications and Drawings

1.05 RELATED SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02210	Site Preservation and Materials Disposal
02280	Erosion, Sediment and Pollution Control
02290	Stormwater Management
03070	Concrete Reinforcement

1.06 DESIGN PARAMETERS

A. Load (Pullout) Tests (if called for on the Contract Drawings):

1. Pullout tests shall be performed on sacrificial soil nails, based on percentage of the total production nails placed. Test nails shall be tensioned against a temporary bearing yoke or frame, which bears directly on the ground or shotcrete surface. Test loads transmitted through the temporary bearing yoke shall not fracture or cause displacement or sloughing of the soil, rock or shotcrete surrounding the drilled hole. No part of the yoke shall bear within six (6) inches of the edge of drill hole. Unless otherwise indicated on the Contract Drawings, number of test nails shall equal five percent (5%) minimum of the production nails. A minimum of one test nail shall be installed and tested at the start of earth anchor installation.

2. Pullout test bars shall be cut off flush with the ground or first stage shotcrete surface after testing has been completed. The remaining void in the drilled hole shall be grouted and dry packed.

3. The pullout test consists of incrementally loading the test nail to the maximum test load shown on the Contract Drawings or to failure point, whichever occurs first. Failure point shall be the point where the movement of the bar continues without an increase in the load or when the bar displaced two (2) inches. The failure load corresponding to the failure point shall be recorded as part of the test data. The Contractor shall monitor and record displacement of the bar relative to the ground during application of the test load.

4. Applied test loads shall be determined with a calibrated jack test unit. Movements of the end of the bar relative to an independent fixed reference point shall be measured and recorded to the nearest 0.001-inch at each increment of load, including the ending alignment load, during the load tests.

5. The pressure gauge on the hydraulic jack shall have an accurate reading dial at least six (6) inches in diameter. Each jack and its gauge shall be calibrated as a unit with the cylinder extension in the approximate position that it will be at final jacking force. A certified calibration chart shall be supplied with the equipment set. The load cell shall be calibrated and shall be provided with an indicator by means of which the test load on the bar may be determined. The range of the load cell shall be such that the lower ten percent (10%) of the manufacturer's rated capacity will not be used in determining the jacking force.

6. Provide additional length of bar as required to attach test jack and other equipment.

7. The Contractor shall provide sufficient labor, equipment, and material to install and support the testing equipment and to remove the testing equipment after the testing is complete.

8. The nail pullout test shall be conducted by measuring the test load applied to the bar and the bar end movement at each load listed on the Drawings.

9. Each increment of load shall be applied in less than one minute. Each load, except the Creep Test Load (1.5TL) and the Maximum Test Load (2.0TL), shall be held long enough to obtain a stable movement reading. Depending on performance, either a 10 minute or 60-minute creep test shall be performed at the Creep Test Load (1.5TL). The creep period shall start as soon as the Creep Test Load is applied, and the bar end movement shall be measured at 1, 2, 3, 5, 6, and 10 minutes. If the movement measured between 1 minute and 10 minutes is larger than 0.04-inch, the Creep Test Load shall be maintained for an additional 50 minutes and movements shall be recorded at 15, 20, 25, 30, 45, and 60 minutes.

10. The Maximum Test Load (2.0TL) shall be held for 10 minutes. The hold period shall start as soon as the Maximum Test Load is applied, and the bar end movement shall be recorded at 1, 2, 3, 5, 6, and 10 minutes.

11. The acceptance criteria are shown on the Contract Drawings or as prescribed by the Engineer.

12. The bar shall be unloaded only after completion of the test.

13. The Contractor shall furnish to the Engineer complete test results for each nail tested. Data for each test shall list key personnel, test loading equipment, test nail location, hole diameter and depth, bonded length, type of soil, and amount of ground water encountered within the bond length. Test data shall also include the dates and times of drilling, test nail installation, grouting, and testing. The test load and amount of displacement shall be included in the test data when any displacement of the test bar relative to the grout occurs during application of the test load.

B. The Contractor shall provide sufficient labor, equipment, and material to install and support the testing equipment and to remove the testing equipment after the testing is complete.

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Installer Qualifications – The Contractor shall use experienced installer(s) specialized in installing cement-grouted rock dowels/soil nails similar to those required for this Project. The person(s) shall have at least two (2) years' experience installing ground anchors on slopes where shotcrete walls are also used.

B. Survey Work – For pattern reinforcement, the Contractor shall lay out each reinforcement device to the location and orientation required before drilling the holes for "review-and-acceptance" by the Engineer. Record actual measurements of each drilled anchor's location and orientation, hole diameter, drilled and anchor length, type of anchor installed, deviations from specified tolerances, and other specified data.

C. Spot Locations – The Contractor shall "spot" locate with the Engineer's agreement before drilling hole(s). Record actual measurements of each location and orientation, hole diameter, drilled hole and anchor length, deviations from specified tolerances, and other specified data.

1.08 SAFETY REQUIREMENTS

A. Work Compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 - 1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6184) are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work, e.g., observations, inspections, quality assurance testing, etc., under the Contractor's Safety and Health Policies and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Refer to Specification Sections 02280 Erosion, Sediment and Pollution Control and Section 02290 Stormwater Management.

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction: The Contractor shall submit to the Engineer for "review-and-acceptance" the following before the Work outlined in this Specification Section can begin:

1. Company Resume – Provide for "review-and-information" background information of the Contractor and/or its Subcontractor, specified in Article 1.07 Quality Control and Assurance Requirements, that demonstrates their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and additional information as specified.

2. Product Data – For each type of product or material specified or used, provide "catalog cuts," product information and/or specification literature. Include for bars, collar hardware, and cement grout (with admixtures) encapsulating material.

3. Work Plan – Prior to installation of cement-grouted rock dowels/soil nails, provide a Work Plan with Working Sketch(es) detailing materials and equipment to be utilized and the method, sequence and timing of installation, and pullout testing.

4. Working Sketches – Provide the detailing on bars, centralizers, grout tubes, end plates, washers, and nuts, extension shells and notes on assembly and placement.

5. Cement grout mix design – Provide mix and test results for cement grout for anchor encapsulation.

6. Pull test jack and pressure gauge/load cell – Provide product information and/or specification literature, and certified calibration chart(s).

B. Construction: The Contractor shall submit to the Engineer for "review-and-information" the following on a timely, routine basis:

1. Certified mill report(s) for each bundle of bars.

2. Manufacturer's certification for other hardware, and materials used for ground reinforcement certifying that they meet the requirements specified.

3. Pullout Test Results – Submit copies of completed test results for soil nail pullout tests within twenty-four (24) hours of completion of the field testing.

C. Closeout Phase: The Contractor shall submit to the Engineer for "review-and-acceptance" the following before final payment:

1. As-Builts – Provide a red line mark-up of the Contract Drawing(s) showing the actual locations, diameter size and anchor length of the performance test and production cement-grouted rock dowels/soil nails. Assist the Engineer on finalizing the as-built of the Contract Drawing(s).

1.11 SPECIAL CONDITIONS AND REQUIREMENTS (NOT USED)

PART 2 - PRODUCTS

2.01 PERMANENT MATERIALS

A. Bar

1. Bar – The anchor bar shall conform to ASTM A615, Grade 75; continuous threaded bar.

2. Epoxy Coating – The anchor bar shall be fully epoxy-coated according to ASTM A934, using 3M Scotch 426 or equal fusion bond. The epoxy coating around the bar shall be 7 to 9 mil in thickness.

3. The Contractor may not substitute fiberglass or other tension capable materials for the steel anchor bar material.

4. The steel bars shall be furnished complete with necessary accessories as follows:

Flat Bearing Plates	yes
Flat Washers	yes
Beveled Washers	yes
Domed Plates	optional
Hemispherical Washers	optional
Hexagonal Nuts	yes
Centralizers	yes
Couplers	if needed

5. The surface of the steel bars shall be clean of scale, rust, dirt and other foreign matter before epoxy coating and before installation.

B. Accessories

1. Steel bearing plates shall be a minimum ⅜-inch thick 6 by 6 inches square conforming to ASTM A36 with appropriately sized holes for injection of cement grout, for effective air release and for the anchor bar encapsulation. The hole in the steel bearing plate shall be centered and of sufficient size to eliminate binding of the anchor bar in a non-particular placement. The center hole shall be at least ⅛-inch larger than the anchor bar overall diameter selected. The plates shall be fully epoxy coated as per ASTM A934. Epoxy coating shall be between 7 to 9 mil thickness.

2. Steel washers shall be quenched and tempered. Hard steel washers shall be at least 2 inches diameter. An appropriate number of ⅛-inch thick flat, ⅛-inch to ⅜-inch thick beveled and hemispherical washers shall be on hand and used. All washers shall be fully epoxy coated as per ASTM A934. Epoxy coating shall be 7 to 9 mil in thickness.

3. Nuts shall be hexagonal. All nuts shall be fully epoxy coated as per ASTM A934. Epoxy coating shall be 7 to 9 mil in thickness.

4. Lubricant for bar and nut threads, and washers shall be molybdenum disulfide base, Molykote G, Alpha Molykote Corporation, or equal.

5. Centralizers shall be used for nails and cement-grouted rock dowels. They shall be spaced every 8 feet, or fraction thereof. The maximum distance from the end of the bar or the collar of the hole to a centralizer shall be 18 inches. Centralizers shall be installed along the length of bars to insure that the bar will be centered in the drill hole and that minimum grout cover encapsulates the bar. Centralizers shall be manufactured from polyvinyl chloride (PVC). Minimum grout cover between the ground and bar shall be 1 inch.

6. Couplers shall be fully epoxy coated as per ASTM A934. Epoxy coating shall be 7 to 9 mil in thickness.

C. Cement Grout Materials and Mix

1. Portland cement shall be ASTM C150, Type I or II.

2. Water shall be potable, complying with ASTM C94 requirements.

3. Admixtures – The Contractor shall provide admixtures certified by the manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent chloride ions by weight of Portland cement or total cementitious materials.

   a. Water-reducing admixture: ASTM C494, Type A

b. High-Ranges, Water-reducing admixture: ASTM C494, Type F

c. Water-Reducing and Accelerating Admixture: ASTM C494, Type E

d. Water-Reducing and Retarding admixture: ASTM C494, Type D

4. Grout shall have a minimum compressive strength of 4,000 psi at 28 days.

5. Grout mix shall not exceed 4.75 gallons of water per sack of cement (94 lbs). If a stiffer mix can be pumped, 4.5 gallons of water or less shall be used. Admixtures may be used to reduce water content and aid pumping.

6. Quickset or dry pack of sand/cement shall be used to seal the drill hole collar and create a base for the plate following grouting. Polyurethane foam or other non-cementitious materials shall not be used.

D. Cement Grout Tubing

1. Tubing shall be PVC or HDPE.

2. Tubing shall be nominal ½-inch or larger in diameter.

2.02 CONSTRUCTION TESTING EQUIPMENT AND INSTRUMENTS

A. Calibrated Jack Test Units

1. The Contractor shall provide equipment consisting of suitably sized (30 ton) hollow ram jacks, adjustable bearing truss frame or yoke for aligning direction of pull with centerline of the bar, extension bar for attaching the jack to the bar, hydraulic pump with 6-inch face pressure gauge calibrated to read directly in pounds of ram jack(s) being used, gauge which reads in increments of 0.001 inch over a range of at least two inches, magnetic or independent dial indicator-strain gauge mounting and other necessary accessories.

2. Calibrate pump gauge while connected to jack by testing machine before performing pull tests and at subsequent times as directed during construction period.

3. Maintain ready access to spare parts for testing equipment especially gauges and pump seals so that work will not be delayed.

4. Maintain pull test equipment in good working condition.

5. Ensure that equipment is used exclusively for pull tests. Store as directed by Engineer.

PART 3 - EXECUTION

3.01 PREPARATIONS

The Contractor shall execute the following:

A. Commencement – May begin when:

1. The pre-construction submittals are "reviewed-and-accepted" by the Engineer.

2. The initial cement-grouted rock dowel or soil nail pullout test is successfully completed.

B. Pre-installation Conference: The Contractor and the Engineer shall jointly conduct conference at the Project Site, if applicable, and comply with the requirements in Section 01200 Project Management, Administration and Facilities Operation.

C. Facilities and Structures Protection: Protect structures and other facilities from damage caused by settlement, lateral movement, vibration, and other hazards created by ground reinforcement operations.

3.02 TRANSPORTATION AND HANDLING PROCEDURES FOR BARS

The Contractor shall execute the following:

A. Use multiple pickup points (a spreader beam is recommended for this purpose) to decrease the possibility of cantilever deflections and sagging between pickup points during transportation loading/unloading operations, movements to installation sites and insertion into prepared holes. Do not drop, drag, or pull off a transportation vehicle bars that are shipped in bundles or as individual bars.

B. If field cutting is required, cut the exposed threaded section of the bars with a portable band saw or an abrasive cutoff wheel that will not generate overheating of the area of the bars where internal threaded tension components are intended for use. Do not torch-cut bars.

C. Repair with an epoxy patch kit from the manufacturer the exposed end of the bar that has been field cut.

D. Do not weld the bars or internal threaded components to the bars, unless shown on the Contract Drawings or "reviewed-and-accepted" by the Engineer. Do not use the bars as grounding for electric welding apparatus.

E. Inspect to determine if its strength capacities are diminished bars that have been severely bent, nicked, cut, compressed (flattened in the thread section down to the minor diameter) or bars that are worn out due to other uses, misuse, or have external threads corroded with permanent pitting. Also, if the bars have been previously tensioned beyond their rated yield strength, discard them.

3.03 INSTALLATION FOR CEMENT-GROUTED ROCK DOWELS/SOIL NAILS

The Contractor shall execute the following:

A. Use drilling equipment capable of drilling holes at any orientation including vertical, downward and upward inclines. The equipment shall be able to operate in small working areas with less than 6 feet of vertical clearance, and as tight as 6-feet in width. The rig(s) shall be capable of drilling the lengths and diameter of drill holes at the collar locations as shown on the Contract Drawings.

B. Drill holes shall be at the locations shown on the Contract Drawings (to be verified by the Engineer) or as directed by the Engineer, and to the depths required for the cement-grouted rock dowel/nail length shown on the Contract Drawings (to be verified by the Engineer) or as directed by the Engineer. The length of bar from the ground surface to the end of the bar shall equal the soil nail or cement-grouted rock dowel length designated on the Contract Drawings (to be verified by the Engineer) or the length designated by the Engineer. Therefore, the bar lengths shall be slightly longer, as necessary, to accommodate the top portion of the bar that must extend through any shotcrete, the bearing plate, and hardware. Location and angle tolerance shall be within six (6) inches and three (3) degrees of locations and values shown on the Contract Drawings or "spotted", unless otherwise "reviewed-and-accepted" by the Engineer. Holes shall be overdrilled in length by twelve (12) inches. After completion of the drill hole, use pressurized air to clean the hole of cuttings.

C. Clean each hole of drill cuttings, sludge and debris before the bar is inserted. Threads of anchor bars shall be free from foreign matter.

D. Remove any protective grease from threads and nuts.

E. Place centralizers on the bar. They shall be spaced every eight (8) feet, or fraction thereof. The maximum distance from the end of the bar or the collar of the hole to a centralizer shall be eighteen (18) inches. Centralizers shall be installed along the length of bars to ensure that the bar will be centered in the drill hole and that minimum grout cover encapsulates the bar. Centralizers. Minimum grout cover between the ground and bar shall be one (1) inch.

F. Place the bar with the centralizers and any grout tubes in the drill hole.

G. Supply all equipment needed for grouting anchor bars with cement (air driven mixer, pump with 100 psi minimum pressure, connections, pressure regulator and pressure gauge).

H. Where holes cave in prior to grouting, such that the minimum required grout cover is not achieved, remove the bar and implement a construction technique that allows for the holes to remain open and stable until they are grouted.

I. Pump the grout into the drill hole until thick grout with the same consistency as the injected mix returns from the collar. If there are any leaks of grout from the hole, the hole shall be topped off as needed for full grout encapsulation.

J. Place bearing plates on a uniform surface; fill irregularities under the plates as needed with mortar or place and seat against wet shotcrete.

K. Apply lubricant to threads and between washers and nuts.

L. Use and place bevel washers, where needed, between the bearing plate and the nut to insure uniform bearing on the bearing plate. A machine flat washer shall be placed between the nut and the bevel washer(s).

M. After grout has fully set, tighten nuts to 100-ft-lbs torque.

3.04 PULLOUT TESTS ON INSTALLED SOIL NAILS

If testing is called for on the Contract Drawings, then the Contractor shall execute the following with assistance from the Engineer:

A. Inspection: Inspect each soil nail.

1. Notify Engineer at least forty-eight (48) hours before nails are ready for tests and inspection.

2. Coordinate and cooperate with the Engineer’s testing and inspection personnel to expedite the Work.

B. Testing

1. Conduct in association with the Engineer pullout tests on installed soil nails: as specified by this Specification Section, Article 1.06; and as shown the Contract Drawings; and as directed by the Engineer.

2. Perform testing to:

   a. Measure collar assembly movement.

   b. Verify that specified tension can be sustained by the soil nail without yield of steel and/or rock, or slip of bonding.

   c. Check cement grouting procedure and prove cement grout strength.

3.05 SOIL NAIL FAILURES

The Contractor shall execute the following with the Engineer present:

A. Consider, for pull test purposes, that a soil nail has failed if the outward movement of the anchor bar moves in excess of two (2.0) inch and/or continues to move at or below the tension load specified.

3.06 FIELD QUALITY CONTROL

A. The Work covered by this Specifications Section shall be performed under the observation of the Engineer.

B. The Engineer and the Engineer's Materials Testing Laboratory will be present at the site intermittently to observe the Work and to perform field and laboratory tests to evaluate material quality. The Contractor shall cooperate with the Engineer and the Engineer's Materials Testing Laboratory in performing the observations and tests. At the completion of their work, the Engineer and Engineer's Materials Testing Laboratory shall submit reports, including a tabulation of items observed and tests performed. The Engineer's and the Engineer's Materials Testing Laboratory's costs for observing and testing the repair of unsatisfactory work performed shall be back-charged to the Contractor.

C. If the Contractor should fail to meet the technical or design requirements embodied in this Specification Section or the applicable Contract Drawings, Contractor shall make the necessary readjustments until Work is deemed satisfactory as determined by the Engineer. No deviation from the Specifications shall be made except by "review-and-written acceptance" from the Engineer.

D. The Engineer shall periodically observe drilling of the cement-grouted rock dowel/soil nail holes.

E. The Engineer shall continuously observe installation of the cement-grouted rock dowels/soil nails, including materials, placement into the holes, and grouting.

F. The Engineer shall take samples of the grout, 2-inch by 4-inch cylinders, at least once during each shift when grouting is taking place, or more frequently if the grout

mix is changed during the shift. One (1) cylinder shall be tested for compressive strength at an age of seven (7) days and two (2) cylinders shall be tested for compressive strength at an age of twenty-eight (28) days.

G. The Engineer shall continuously observe testing of cement-grouted rock dowels/soil nails as described in this Specification Section.

3.07 DISPOSAL OF MATERIALS

A. Remove surplus materials and wastes, and legally dispose of them off the Owner's property and/or right-of-way.

B. Refer to Specifications Section 02210 Site Preservation and Materials Disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Cement-grouted rock dowels approved by the Engineer as shown on the Contract Drawings, shall be measured by the number of each (EA) installed as shown on the Contract Drawings.

B. Soil nails approved by the Engineer, as shown on the Contract Drawings, shall be measured by the number of each installed for each of the various different lengths shown on the Contract Drawings.

C. Test anchors shall not be paid and shall be considered incidental to the Work, unless otherwise as allowed by the Engineer.

4.02 BASIS OF PAYMENT

A. Cement-grouted rock dowels shall be paid at the Contract unit price per each (EA).

B. Soil nails and cement-grouted rock dowels shall be paid at the Contract unit price per each (EA) for the corresponding soil nail length.

C. All other Work outlined in this Specification Section is considered incidental; therefore, not subject for payment, or is paid for under another Specification Section.

- END OF SECTION 02460 -

SECTION 02775

BACKDRAINS AND UNDERDRAINS

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – Outlined in this Specification Section are the requirements for providing backdrains, strip-drains and other underdrains or subdrains in and behind shotcrete and concrete linings and retaining walls for surface and underground construction.

B. Work Inclusions – The Work shall include all labor, materials, equipment, and incidentals to perform the Work outlined and/or specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS (NOT USED)

1.03 DEFINITIONS

A. Backdrain – Drain behind shotcrete facing.

B. Subdrain – Any subsurface drain.

C. Underdrain – Drain below a slab or floor.

D. Strip-drain or Drain-strip – Prefabricated drainage material.

E. Drain Pipe – Slotted PVC pipe used with or without filter sock in a drilled hole.

F. Weep hole – PVC pipe installed through shotcrete or concrete, or hole drilled through shotcrete or concrete to allow for release of water from a subdrain or natural ground formation.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or differently stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports (latest published editions):

1. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition

2. OID Standard Specifications and Drawings

3. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

1.05 RELATED WORK SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
03300	Concrete Cast-in-Place
03470	Shotcrete

1.06 DESIGN PARAMETERS – NOT USED

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. General – Refer to General Requirements Specification Section 01250 Quality Control and Assurance.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. Work Compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 -1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6184) are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work (e.g., observations, inspections, quality assurance testing, etc.) under the Contractor's Safety and Health Policies and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS – NOT USED

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase – The Contractor shall submit to the Engineer for "review-and-acceptance" the following before the Work outlined in this Specification Section can begin:

1. Permanent Materials – Provide product Manufacturer's data sheets and/or literature on pipes and strips to be used.

2. Work Plan and Sketch(es) – Provide a Work Plan with Working Sketches on methods and means, and procedures to install drain strips and pipes in tunnel and at portal.

1.11 SPECIAL CONDITIONS AND REQUIREMENTS – NOT USED

PART 2 - MATERIALS

2.01 PIPE

A. Outlet Drains Embedded in Shotcrete or Concrete or Rock

1. For pipe embedded in shotcrete or concrete or rock to drain groundwater use PVC Schedule 40 pipe.

2. Use plastic pipe nominal diameters as shown on the Contract Drawings, but no smaller than two (2) inches.

2.02 STRIP-DRAINS EMBEDDED IN SHOTCRETE OR CONCRETE

A. For drain strips between ground and shotcrete or concrete to collect groundwater, use Ecodrain DS or equal.

2.03 PREFABRICATED SYNTHETIC DRAINAGE STRUCTURE

A. The prefabricated synthetic drainage structure shall be Ecodrain DS or equal.

PART 3 - EXECUTION

3.01 RETAINING WALL INSTALLATIONS

The Contractor shall execute the following:

A. Weep holes shall be installed as shown on the Contract Drawings.

3.02 STRIP-DRAIN INSTALLATIONS

The Contractor shall execute the following:

A. Install strip-drains outside on the canal walls as shown on the Contract Drawings.

B. Install strip-drains in areas of groundwater seepage, shown on the Contract Drawings and/or as directed by the Engineer.

C. Install outlet PVC pipes as on the Contract Drawings as follows (or provide alternate method, as approved by the Engineer):

1. Cut hole into drainstrip, leaving filter fabric intact.

2. Extend drain pipe through hole to rest against filter fabric.

3. Secure pipe to strip with duct tape.

4. Apply next and final layers of shotcrete.

5. Cut pipe flush with final surface.

3.03 DRAIN PIPES

The Contractor shall execute the following:

A. Drill holes and install outlet PVC pipes as shown on the Contract Drawings (or provide alternate method, as approved by the Engineer)

3.04 WEEP HOLES

The Contractor shall execute the following:

A. Install weep holes as shown on the Contract Drawings (or provide alternate method, as approved by the Engineer)

3.05 FIELD QUALITY CONTROL

The Contractor shall execute the following:

A. Inform the Engineer of Contractor intent to drill and install drain pipes. The Engineer will observe drilling and installation of the drains.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD FOR MEASUREMENT

A. Drain strips and weep holes shall be considered incidental and not measured.

B. Drain pipes installed in drill holes will be measure per each.

4.02 BASIS OF PAYMENT

A. Drain Pipes shall be paid per each.

B. All other Work outlined in this Specification Section is considered incidental, therefore, not subject for payment, or is paid for under another Specification Section.

– END OF SECTION 02275–

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SECTION 03070

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements for furnishing and installing concrete and shotcrete reinforcement (i.e., reinforcing steel and welded wire fabric) and appurtenant items. Requirements for fiber-reinforcement for concrete and shotcrete are specified in Specification Sections 03300 Concrete Cast-In-Place and 03470 Shotcrete, respectively.

B. Work Inclusions – The Work shall include all labor, materials, equipment and incidentals to perform the Work outlined and, or specified in this Specification Section.

1.02 BACKGROUND AND SITE CONDITIONS (NOT USED)

1.03 DEFINITIONS

A. Rebar – Reinforcing steel bars.

B. Reinforcing Steel – Rebar or Resteel.

C. Resteel – Reinforcing steel bars.

D. Welded Wire Fabric (WWF) – Reinforcing steel mesh consisting of wire arranged in a grid pattern and welded together at intersections to form a wire mesh mat.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and, or stated in this Specification Section or Related Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. American Concrete Institute (ACI):

ACI 301 Standard Specification for Structural Concrete

ACI 315 Details and Detailing of Concrete Reinforcement

ACI 318 Buildings Code Requirements for Structural Concrete and Commentary

ACI SP 66 ACI Detailing Manual

2. American Society of Testing and Materials (ASTM):

A185 Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete

A497 Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement

A615 Standard Specification for Deformed and Plain Billet – Steel Bars for Concrete Reinforcement

A706 Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement

3. American Welding Society (AWS):

AWS DT.4 Structural Welding Code Reinforcing Steel

4. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition

5. Concrete Reinforcing Steel Institute (CRSI)

a. Manual of Standard Practice, latest edition

b. Placing Reinforcing Bars, latest edition

6. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

7. OID Standard Specifications and Drawings

1.05 RELATED SPECIFICATION SECTIONS

01200 Project Management, Administration and Facilities Operation
01250 Quality Control and Assurance
01320 Progress and Schedules
01330 Submittals
02210 Site Preservation and Materials Disposal
03300 Concrete Cast-in-Place
03470 Shotcrete

1.06 DESIGN PARAMETERS

A. Tolerances – The Contractor shall place resteel in accordance with CRSI "Manual of Standard Practice," except at specific locations shown on the Contract Drawings requiring closer or wider placing tolerances.

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. General – Refer to Contract Specification Section 01250 Quality Control and Assurance.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. Work Compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 - 1938), Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6184), are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work, e.g., observations, inspections, quality assurance testing, etc., under the Contractor's Safety and Health Policies and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS – (NOT USED)

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase – The Contractor shall submit to the Engineer for "review and acceptance" the following before the Work outlined in this Specification Section can begin.

1. Product Data – Provide descriptive literature, data, catalog cuts, etc. on reinforcing steel and welded wire fabric.

    a. Coordinate with Contract Drawings.

    b. Include information necessary for complete fabrication and placing reinforcing steel, welded wire fabric, bar supports, slices, dowels, ties, and temporary support steel.

2. Work Plan with Working Sketches – Provide narrative and sketches for the following.

a. Methods and means for erecting and handling reinforcing in place.

B. Construction Phase – The Contractor shall submit to the Engineer for "review-and-information" the following on a routine basis:

1. Certifications – Provide the following certifications:

a. Mill test certificates identifying chemical and physical analyses of each load of reinforcing steel delivered.

b. If mill test reports are unavailable, arrange for a laboratory acceptable to the Owner to assure conformance with specified standards, as directed.

c. Submit certification from manufacturer indicating synthetic fiber meets the requirements of ASTM C 1116, Paragraph 4.1.3, Type III.

C. Close-Out Phase – The Contractor shall submit to the Engineer for "review and acceptance" the following before final payment:

1. As-Builts – Incorporate Contractor's Shop Working Sketches for concrete reinforcement into the Contract Drawings with assistance from the Engineer. Submit these "incorporated" drawings to the Engineer for "review and edit."

PART 2 - PRODUCTS

2.01 PERMANENT MATERIALS

A. Reinforcing Steel

1. Reinforcing Steel – Conform to ASTM A615, Grade 60 deformed rebar, except where otherwise specified or indicated on the Contract Drawings.

2. Shipment – Deliver reinforcing steel to the site bundled and tagged with identifying tags and list(s).

B. Welded Wire Fabric

1. Welded Wire Fabric – Conform to ASTM A185 for plain fabric and ASTM A497 for deformed fabric.

C. Tie Wire

1. Tie Wire – Use 16- or 18-gauge, black, soft annealed.

D. Supports

1. Supports – Use Class I – Plastic Protected, and Class 2 – Stainless Steel Protected, which conform to CRSI "Manual of Standard Practice" and ASTM A497, or concrete dobies. Concrete dobies shall have the same compressive strength as the surrounding design concrete. Rocks and wood shall not be used.

2.02 REINFORCEMENT STEEL FABRICATION

The fabrication shall:

A. Fabricate to the sizes and dimensions shown on the Contract Drawings and the Engineer "reviewed-and-accepted" approved Shop Working Sketches.

B. Bend Reinforcing Steel:

1. Cold unless preheating is reviewed and accepted by the Engineer.

2. Using ACI recommended pin sizes.

C. Fabricate as required to provide the minimum cover indicated or specified on the Contract Drawings.

D. Do not perform welding or utilize mechanical connections as an aid to fabrication except where specifically "reviewed-and-accepted" by the Engineer.

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

The Fabricator and the Contractor shall execute the following:

A. Ship and store bars of the same size and shape fastened in bundles with durable tags, marked in a legible manner with waterproof markings showing the same "mark" designations as those shown on approved working drawings.

B. Clearly identify bars with special coatings or of special steel or special yield strength, and bundle and store separately.

C. Clean reinforcement of dirt, loose mill scale, excessive rust, and other substances that might reduce the bond to concrete. Either wire brush or sand blast to clean rebar.

D. Store reinforcement off the ground, protected from moisture and kept free from dirt, oil or other deleterious contaminants.

3.02 GENERAL

The Contractor shall execute the following:

A. Place reinforcing steel in accordance with the recommended practices of ACI 315 and 318, and CRSI's "Manual of Standard" and "Placing Reinforcing Bars."

B. Do not bend or otherwise disturb reinforcement projecting from concrete.

C. Secure reinforcing dowels in place prior to placing concrete. Do not press dowels into the concrete after the concrete has been placed.

D. Unless shown on the Contract Drawings, spacing limits, cover, and tolerance of reinforcement steel shall be governed by ACI 318.

3.03 INSTALLATION

The Contractor shall execute the following:

A. Clean reinforcing steel by sandblasting or wire brushing just prior to placement to remove loose mill, rust scale, mortar, concrete splatter, shotcrete rebound, oil, dirt, ice, and any other coatings that may destroy or reduce the bond.

B. Place reinforcing steel accurately in the positions and spacing shown on the Contract Drawings and Working Sketches, and within the stricter of tolerances referenced, specified, or indicated in this Specification Section and, or shown on the Contract Drawings. Furnish and install all wire, supports, clips, and other appurtenances necessary to fulfill contractual requirements at no additional cost to the Owner.

1. Do not straighten or re-bend reinforcing steel in the field without "review-and-acceptance" by the Engineer. Do not use reinforcing steel with bends not shown in the Contract Drawings.

2. Reinforcement indicated on the Contract Drawings is continuous through the structure to the farthest extent possible. Stop reinforcing two (2) inches short from faces of concrete.

3. Place reinforcement a minimum of two (2) inches clear of any metal pipe or fittings.

4. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least two (2) full mesh and splice with wire ties. Offset laps of adjoining widths to prevent continuous laps in either direction.

C. Securely fasten reinforcement in position to prevent displacement during placing forms, concrete, or shotcrete:

1. Do not perform welding or utilize mechanical connections as an aid to installation except where specifically "reviewed-and-accepted" by the Engineer.

2. Securely embed reinforcing anchors into existing substrates, as required. Locate and support reinforcement by metal chairs, runners, bolsters, spacers, and hangers, as required. Secure by using annealed wire ties or clips at intersections and support by concrete or metal supports, spacers, or metal hangers. Avoid placing metal clips or supports in contact with the forms. Show contact points on the shop concrete placement Working Sketches. Bend tie wires away from the forms and exposed shotcrete surfaces to provide the specified concrete coverage. Optionally furnish and install additional bars, which may be found necessary or desirable by the Contractor for securing reinforcement in position, to those shown on the Contract Drawings while maintaining the minimum required clearance between reinforcement at no additional cost to the Owner. Show additional reinforcement on concrete placement Working Sketches.

3. Bend tie wire ends to maintain a minimum clearance of one and one-half (1.5) inches from the surface of the concrete.

D. Clean reinforcing steel prior to placing concrete, as necessary, and as described in Article 3.03.A of this Specification Section.

E. Drill, set, and epoxy dowels into existing concrete and masonry in a procedure that is in conformance with the epoxy Manufacturers' specifications.

3.04 FIELD QUALITY CONTROL

A. The Work covered by this Specification Section shall be performed under the observation of the Engineer.

B. The Engineer and the Engineer's Materials Testing Laboratory will be present at the site intermittently to observe the Work. The Contractor shall cooperate with the Engineer and the Engineer's Materials Testing Laboratory in performing the observations. At the completion of their work, the Engineer and Engineer's

Materials Testing Laboratory shall submit reports, including a tabulation of items observed and tests performed. The Engineer's and the Engineer's Materials Testing Laboratory's costs for observing the repair of unsatisfactory Work performed shall be back-charged to the Contractor.

C. If the Contractor should fail to meet the technical or design requirements included in this Specifications Section or the applicable Contract Drawings, the Contractor shall make the necessary readjustments until Work is deemed satisfactory, as determined by the Engineer. No deviation from the Specifications shall be made except by "review-and-written acceptance" from the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. There shall be no measurement for concrete reinforcement.

4.02 BASIS OF PAYMENT

A. Concrete reinforcement used for items shown on the Contract Drawings is not subject for payment and should be included in shotcrete and concrete prices.

B. All other Work outlined in this Specification Section is considered incidental; therefore, not subject for payment, or is paid for under another Specification Section.

- END OF SECTION 03070 -

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SECTION 03300

CONCRETE CAST-IN-PLACE

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements, as shown on the Contract Drawings, for supply and placement of cast-in-place concrete, including batching and mixing fiber reinforcement.

B. Work Inclusions – The Work shall include all labor, materials, equipment, and incidentals to perform the Work outlined and specified in this Section.

1.02 BACKGROUND AND SITE CONDITIONS (NOT USED)

1.03 DEFINITIONS

A. Concrete Placement Shop Drawings – Shop drawings prepared by the Contractor that show all reinforcement and embeds (piping, conduits, drains, water stops, anchor bolts, etc. that are embedded in the concrete) and their as-built locations in the concrete placement. The forming, shoring and false work may or may not be shown on the Shop Drawings. After revisions and verification, the Concrete Placement Shop Drawings are submitted by the Contractor and incorporated into the as-built drawings.

B. Canal Water – Water routed into the South Main Canal from the Stanislaus River at Goodwin Dam.

C. Engineer's Materials Testing Laboratory – Engineer's Materials Testing Laboratory that performs the Field Quality Control Testing.

D. Independent Materials Testing Laboratory – Materials testing laboratory that is not owned and/or operated by the Contractor or Subcontractors performing concrete or shotcrete work. The laboratory must be certified in accordance with ASTM C1077 and E329. Cost of testing performed in the field and the laboratory for the Contractor's purposes is billed directly to the Contractor. Cost of testing design mixes for the Contractor and/or Contractor's subcontractor(s) is billed to the Contractor.

E. Synthetic Fiber – Synthetic structural fiber reinforcement for concrete.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise altered, modified, and/or stated in this Specification Section or Related Specification Sections, the Contractor shall comply with the following Specifications, Codes, Standards and Reports and their latest published edition:

1. American Concrete Institute (ACI) – Manual of Concrete Practice

No.	Title
212	Chemical Admixtures for Concrete
304	Guide for Measuring, Mixing, Transporting and Placing Concrete
304.2R	Placing Concrete by Pumping Methods
305	Hot Weather Concreting
306	Cold Weather Concreting
308	Standard Practice for Curing Concrete
318	Building Code Requirements for Reinforced Concrete
347	Guide to Formwork for Concrete

2. American Society for Materials and Testing (ASTM)

No.	Title
A185	Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
A497	Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement
A615	Standard Specification for Deformed and Plain Billet – Steel Bars for Concrete Reinforcement
A820	Standard Specification for Steel Fibers for Fiber-Reinforced Cement
C31	Practice for Making and Coring Concrete Test Specimens in the Field
C33	Specification for Concrete Aggregates
C39	Test Method for Compressive Strength of Cylindrical Concrete Specimens
C42	Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
C94	Standard Specification for Ready-Mixed Concrete
C143	Test Method for Slump of Hydraulic Cement Concrete
C150	Standard Specification for Portland Cement
C171	Specification for Sheet Materials for Curing Concrete
C231	Test method for Air Content of Freshly Mixed Concrete by the Pressure Method
C260	Specification for Air-Entraining Admixtures for Concrete

C309	Specification for Liquid-Membrane Forming Compounds for Curing Concrete
C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for use as a Mineral Admixture in Portland Cement Concrete
C494	Specification for Chemical Admixtures for Concrete
C618	Standard Specification for Cal Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Concrete
C1116	Standard Specification for Fiber-Reinforced Concrete and Shotcrete
D412	Test Methods for Rubber Properties in Tension
D624	Test Method for Rubber Property-Tear Resistance
D1751	Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction
D1752	Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

3. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice

4. State of California, Department of Transportation (Caltrans), Manual of Test Methods, Volumes 1, 2 and 3 Standard Test Methods

Test	Title
417	Testing of Soils and Waters for Sulfate Content
422	Testing of Soils and Waters for Chloride Content

5. Army Corps of Engineers (Corps)

Test No.	Title
CRD-C572	Polyvinyl Chloride Waterstops
CRD-C588	Nonshrink Grout

6. American Association of State Highway and Transportation Officials (AASHTO)

Test No.	Title
M182	Burlap Cloth made from Jute or Kenaf

7. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, latest edition

8. State of California, Department of Transportation (Caltrans) Standard Specifications, latest edition

9. OID Standard Specifications and Drawings

1.05 RELATED SPECIFICATION SECTIONS

01200	Project Management, Administration and Facilities Operation
01250	Quality Control and Assurance
01320	Progress and Schedules
01330	Submittals
02210	Site Preservation and Materials Disposal
02280	Erosion, Sediment and Pollution Control
02290	Stormwater Management
03070	Concrete Reinforcement

1.06 DESIGN PARAMETERS

A. Concrete Mix Designs

1. Concrete Mix Designs shall be prepared for each type and strength of concrete shown on the Contract Drawings and listed in Article 2.22.C of this Specification Section.

2. Production Design Mix(es): Concrete mix designs, after being tested and finalized, shall meet the compressive strengths shown on the Contract Drawing and listed in this Specification Section.

3. Design-Mix Adjustments: Subject to compliance requirements, concrete design-mix adjustments may be proposed when the characteristics of materials, Project conditions, weather, test results, or other circumstances warrant, and after "review-and-acceptance" by the Engineer.

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. General – Refer to General Requirements Specification Section 01250 Quality Control and Assurance.

B. Concrete Mix Testing – Concrete mix design quality control testing will be performed on the concrete by the Supplier, Contractor, and/or an Independent Materials Testing Laboratory hired by the Supplier or Contractor, as needed to verify the design strength of the mix. These data shall be submitted to the Engineer for "review-and-acceptance" prior to starting of the Work.

1. Strength Testing – Test cylinders shall be in accordance with ASTM C39.

2. Slump – Determine concrete slump by ASTM C143.

3. Air Entrainment – Determine air content of the concrete using ASTM C231.

4. Concrete Strength – The average concrete strength value shall meet the strength test requirements of ASTM C94.

C. Testing at Concrete Batch Plant – By the Supplier, Contractor, and/or an Independent Materials Testing Laboratory hired by the Supplier or Contractor.

1. Test and document aggregate soundness, aggregate gradation and concrete yield.

2. Certify cement.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. Work compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 - 1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 - 6184)are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work (e.g., observations, inspections, quality assurance testing, etc.) under the Contractor's Safety and Health Policies and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS

A. Permits – The Engineer is unaware of any special permit requirements.

B. Construction and Groundwater – The placement of concrete will cause wasted construction water and infiltrated groundwater to become high in pH. The Contractor may have to treat the construction and groundwater seepage in the canal to lower water's pH before releasing it further downstream.

C. Other Requirements – Refer to Specification Sections 02280 Erosion, Sediment and Pollution Control and 02290 Stormwater Management.

D. Concrete Waste Management – Contractor shall provide concrete waste disposal facilities and post signs as required by the SWPPP. The concrete supplier shall use these facilities to waste concrete and clean-out transit-mixers.

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase – The Contractor shall submit to the Engineer for "review-and-approval" the following before the Work outlined in this Specification Section can begin:

1. Company Qualifications – Résumés and copies of certifications of Contractor's selected 1) concrete supplier, and 2) Independent Materials Testing Laboratory.

2. Materials – Manufacturer's catalog cuts, data sheets, and descriptive literature for form ties, spreaders, corner formers, form coatings, curing methods, curing materials, curing compound, bond breakers, joint sealant, backing rod, joint filler, epoxy bonding compound, color additive and other admixtures. Compounds that will come in contact with potable water shall be certified by the National Sanitation Foundation (NSF). The Engineer may request other specific material data sheets.

3. Concrete Mix Designs – Provide from the concrete supplier concrete mix designs, which conform to the specified concrete design mix(es) stated in the Contract Drawings and in this Specification Section.

4. Concrete Admixtures – Provide product information sheets and certifications for all concrete admixtures whether or not pre-accepted or in this Specification Section.

5. Aggregate Gradation – Before the initial placement and every five hundred (500) cubic yards (CY) of concrete placements, a report from the Engineer's Independent Materials Testing Laboratory for "review-and-acceptance" verifying that aggregate material conforms to the specified gradations.

6. Concrete mix testing data as listed in Article 1.07.B of this Specification Section.

7. Specified Products – Provide "catalog cuts" data sheets or product literature of all products to be used and outlined under Part 2 "Products," which require "equals" and/or that are not specified.

8. Concrete Pour Cards – Provide a concrete placement notification and sign off format to be used as the "Concrete Pour Card" for each concrete placement. Upon acceptance of the format by the Engineer, the Contractor shall print the format on card paper.

B. Construction Phase – The Contractor shall submit to the Engineer for "review-and-information" the following on a timely, routine basis:

1. Concrete Batch Plant Sampling Reports – Provide materials testing laboratory reports for gradations and soundness of fine and course aggregates, and concrete yield.

2. Batch and Delivery Ticket – Furnish delivery ticket for each load of concrete batched and delivered to the Project Site. The delivery ticket shall provide all information in accordance with ASTM C94, Section 16, Batch Ticket Information. Note concrete slump and temperature and "add water" on the ticket before discharge.

3. Upon completion of each concrete placement, submit to the Engineer two (2) copies of the filled out "Concrete Pour Card" within forty-eight (48) hours of the placement.

C. Close-Out Phase – The Contractor shall submit to the Engineer for "review-and-acceptance" the following before final payment:

1. Specification deviations, variance and changes.

2. Mix design changes by locations.

3. Concrete compression strength by locations. The Engineer will assist the Contractor in preparing the information to be placed on the Contract Drawings.

1.11 SPECIAL CONDITIONS AND REQUIREMENTS

A. Canal Water – Canal water will not be available for use with concrete.

PART 2 - PRODUCTS

2.01 REINFORCING STEEL

A. Reinforcing steel should conform to the product requirements in Specification Section 03070 Concrete Reinforcement.

2.02 CEMENT

A. Cement shall conform to ASTM C150, Type I or II, with a maximum tricalcium aluminate not to exceed 8 percent (8%). The maximum percent alkalis shall not exceed 0.6 percent (0.6%) to prevent or at least to reduce calcium leaching from concrete.

B. Pozzolanic material shall conform to the requirements of ASTM C618, Class N, with the following exceptions:

Sulfur Trioxide (SO_3), maximum percent	4
Pozzolanic activity index –	
With Portland cement, at 28 days, minimum percentage of control	85
With lime, at 7 days, minimum psi	950
Water requirement, maximum, percentage of control	110
Reactivity with cement alkalis –	
Reduction of mortar expansion at 14 days, minimum percent	85

2.03 FLY ASH

A. Fly ash shall be Class C or F conforming to ASTM C618.

2.04 AGGREGATES

A. Aggregates shall comply with ASTM C33 and shall contain less than 1 percent (1%) asbestos by weight or volume and be free from any substances that will react with the cement alkalis. Maximum chloride content for sand shall not exceed 200 mg/l per Caltrans Test Method 422. Obtain aggregate from accepted sources. Submit location(s) of aggregate sourced for acceptance.

2.05 WATER

A. Water shall be free of organic materials and other impurities which might reduce the strength, durability or other quality of the cement mortar. Water shall have pH of 7.0 to 9.0, a maximum chloride concentration of 500 mg/l (per Caltrans Test Method 422), and a maximum sulfate concentration of 500 mg/l (per Caltrans Test Method 417).

2.06 CONCRETE ADMIXTURES

A. Air-entraining admixtures shall conform to ASTM C260, and shall be nontoxic after 30 days and shall contain no chlorides. Admixtures shall be Master Builders MB-AE 10, Sika AER (Sikamix 104), or equal.

B. Water-reducing admixtures shall conform to ASTM C494, Type A or D, shall contain no chlorides, shall be nontoxic after thirty (30) days, and shall be compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations. Admixtures shall be Master Builders Pozzolith polymer-type normal setting, Plastocrete (Sikamix 160) Normal Set, Sika Chemical Corporation, or equal.

C. Super-plasticizer admixture shall conform to ACI 212.

D. Batch time extending or set retarding admixture shall conform to ACI 212.

E. Do not use any admixture that contains chlorides or other corrosive elements.

2.07 SYNTHETIC FIBER

A. Fibers shall be intended for use in concrete and conform to ASTM C1116, Type III. Fibers shall have a length of 1.55 inches and an aspect ratio (length divided by the equivalent diameter of the fiber) of 90, such as Strux 90/40 or equal.

2.08 CONCRETE MIX DESIGN

A. Conform to ASTM C94 ready-mixed concrete, except as modified by these specifications.

B. For surface exposed concrete structures, an air-entraining agent shall be used in the concrete mix. For outside concrete structures to contain canal water, an air entraining agent shall be used in the concrete mix. Air content as determined by ASTM C231 shall be three to six percent (3 to 6%).

C. Use classes of concrete as described in the following table:

Class	Type of Work	28-Day Compressive Strength psi	Minimum Content* lb/CY
A	Canal invert	3,000	470 (5 sack)
B	Structures, footings, cradles, supports across pipe trenches, pipe encasements, and concrete not otherwise listed on this table or shown on the Contract Drawings.	3,000	470 (5 sack)
C	Pavement and concrete flatwork (i.e., access roads, sidewalks, curb, etc.)	3,000	470 (5 sack)
F	Lean Mix Concrete (backfill)	1,500	282 (2 sack)

* Minimum content is for cement only by total weight.

D. The nominal maximum aggregate size shall not exceed fifty percent (50%) of the specified concrete cover on reinforcement, nor exceed seventy-five percent (75%) of the clear lateral space between adjacent reinforcement (disregarding laps).

E. Measure slump in accordance with ASTM C143. Slump shall be as indicated below. A tolerance of up to one (1) inch above the indicated maximum will be allowed for individual batches provided the average for all batches or the most recent ten (10) batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated.

F. Add Water – Avoid adding additional water to the mix in the field. Add only the amount of water to maintain a proper slump range to allow the concrete pump or other equipment to deliver the mix to the placement area efficiently and consistently. Do not add more than five (5) gallons per cubic yard of batched concrete mix. Thoroughly mix "add water" into the mix before discharging from the mixer. Recheck mix for slump and document slump, before and after adding "add water" and the amount of "add water."

G. Mixing Time Limit – After adding batch water, each batch load must be placed within ninety (90) minutes, whether additional water is added or not. The Contractor may use admixture(s) to extend the life of the mixed concrete. The admixture must be "reviewed and accepted" by the Engineer prior to use. If an accepted admixture is used and mixing load remains plastic, the mixing time limit shall extend to the time recommended by admixture manufacture, but no longer than one hundred twenty (120) minutes, unless specifically approved otherwise by the Engineer.

Type of Work	Slump (in.) (without super plasticizer)	Variance (in.) (without super plasticizer)	Slump (in.) (with super plasticizer)	Variance (in.) (with super plasticizer)
Canal Invert (non-structural)	3	plus ½, minus 1	6	plus ½, minus 1
Slab on grade or heavy sections wider (in plan view) than 3 feet	2½	plus ½, minus 1	6	plus ½, minus 1½
Canal sidewalls	4	plus 1, minus 1	7	plus ½, minus 1
Footings	3	plus 1, minus 1	5	plus ½, minus 1
Concrete flatwork	2	plus 1, minus 1	4	plus ½, minus ½
Backfill	5	plus 1, minus 1	8	plus ½, minus 1½

2.09 CURING COMPOUND

A. Curing compound shall conform to ASTM C309, Type 1, Class B.

B. Curing compound shall be compatible with required finishes and coatings.

2.10 MATS, PAPER AND SHEETING FOR CURING

A. Burlap mats shall conform to AASHTO M182.

B. Waterproof curing paper and polyethylene sheets shall conform to ASTM C171.

PART 3 - EXECUTION

3.01 PRE-POUR MEETINGS

The Contractor shall execute the following:

A. Arrange to have pre-pour meeting(s) between the Contractor and Engineer before any unique, major, first-time concrete placements. Prior to the meeting, the Contractor shall draft a meeting agenda for the Engineer to "review-and-edit."

3.02 DELIVERY, STORAGE, AND HANDLING

A. Fiber reinforcement shall be supplied in "concrete ready bags," wrapped in moisture-proof packaging and stored in a dry location to prevent exposure to moisture before introduced to concrete mix.

3.03 EMBEDDED ITEMS

The Contractor shall execute the following:

A. Set anchor bolts and other embedded items accurately and hold securely in position until the concrete is placed and set. Check all special castings, channels, or other metal parts that are to be embedded in the concrete prior to and again after concreting. Check all nailing blocks, plugs, and strips necessary for the attachment of trim, finish, and similar work prior to concreting.

3.04 BEVELED EDGES (CHAMFERS)

The Contractor shall execute the following:

A. Form ¾-inch beveled edges on exposed concrete edges and corners, beam soffit corners, and where indicated on the Contract Drawings, or directed by the Engineer. Reentrant corners in concrete members shall not have fillets, unless otherwise shown in the Contract Drawings. The top edges of slabs, walkways, beams, and walls may be beveled with an edging trowel in lieu of using chamfer strips.

3.05 CONSTRUCTION JOINTS

The Contractor shall execute the following:

A. Provide layout of construction joints as shown on the Contract Drawings and the Engineer "reviewed-and-accepted" shop Concrete placement Shop Drawings.

B. For slabs-on-grade and inverts, use formed construction joints unless otherwise shown on the Contract Drawings or "reviewed-and-accepted" by the Engineer. Allow twelve (12) hours between pours of adjacent slabs. Provide joints as specified or shown.

3.06 REINFORCEMENT

A. Refer to Specification Section 03070 Concrete Reinforcement.

B. Synthetic fibers shall be placed at the application rates shown on the Contract Drawings and in-accordance with the Manufacturer's specifications.

3.07 PLACING CONCRETE

The Contractor shall execute the following:

A. Use a concrete "pour card" for "notification of-and-acceptance" by the Engineer. All reinforcement and formwork must be inspected and accepted by the Engineer prior to releasing concrete at the batch plant in advance of placing concrete. Conform to ACI 304R, unless otherwise directed by the Engineer. Unless otherwise agreed upon, the Engineer will "release-the-pour" for concrete placement.

B. Conform to ACI 304.2R for pumping of concrete.

C. Conform to ACI 305 for placing during hot weather.

D. Conform to ACI 306 for placing during cold weather.

3.08 BONDING TO "OLD" EXISTING CONCRETE

The Contractor shall execute the following:

A. If shown on the Drawings, coat the contact surfaces with epoxy bonding compound. Conform to the manufacturer's printed preparation and application instructions and recommendations.

3.09 CONCRETE FINISHES

A. Finish formed surfaces shown on the Contract Drawings according to the following form or "F" classifications. Formed surfaces shall include all surfaces formed by the use of formwork. Where a formed surface finish is not shown on the Contract Drawings, it is specified below:

Finish	Area
F-1	Buried concrete encasements, concealed surfaces which are to be covered as foundations, or in walls to be strapped and lined.
F-2	All types of interior or exterior surfaces which are not prominently exposed to public inspection and for which no other finishes are specified.

B. Finish the formed surface as follows based on the above "F" classifications:

1. Finish F-1 – Surface where roughness is not objectionable. No surface treatment is required other than repairing defective concrete. Color variations and physical irregularities are permitted.

2. Finish F-2 – Surfaces which provide a surface of thick surface coverings, i.e., plaster concrete skim, etc. Remove abrupt changes exceeding ¼-inch. Remove gradual variations exceeding ½-inch. Fill tie holes and depressions ⅜-inch and deeper.

C. Finish unformed surfaces shown on the Contract Drawings according to the following unformed or "U" classifications. Unformed surfaces include all surfaces formed without the use of formwork, such as pavements and floors. After proper and adequate vibration and tamping, bring all unformed top surfaces of slabs, floors, walls, and curbs to a uniform surface with suitable tools. The classifications of finishes specified for unformed concrete surfaces are as shown below:

Finish	Area
U-1	Grade slabs and foundations to be covered with concrete or fill material. Canal finish.

D. Finish the unformed surface as follows based on the above "U" classifications:

1. Finish U-1 – Sufficient leveling and screeding to produce an even, uniform surface with surface irregularities not to exceed ½-inch. No special finish is required.

3.10 CURING CONCRETE

The Contractor shall execute the following:

A. Conform to ACI 308.

B. Select the appropriate curing methods, curing materials and compounds in response to climatic and site conditions occurring at the time of concrete placement. Take appropriate measures as described in ACI 305 and ACI 306 for protecting and curing concrete during hot and cold weather.

C. If used, keep burlap cloth continuously wet and damp. Do not allow cloth to dry out. Conform to ASSHTO M182 when using burlap cloth for curing.

D. Do not use curing compound on surfaces which are to be coated or painted unless curing compound is completely removed by sand, grit or water blasting.

3.11 REPAIR OF DEFECTS

The Contractor shall execute the following:

A. Do not repair defects until the Engineer has inspected the defects and the Engineer has "reviewed-and-accepted" the site specific repair procedure.

B. Repair surface defects that are smaller than one (1) foot across in any direction and are less than ½-inch in depth by removing the honeycombed and other defective concrete down to sound concrete, make the edges perpendicular to the surface and at least ⅜-inch deep, thoroughly dampen the surface, work into the surface a bonding grout, fill the hole with mortar, match the finish and color on the adjacent concrete, and cure as specified.

C. Repair severe defects that are larger than surface defects but do not affect the structural integrity of the structure by removing the honeycombed and other defective concrete down to sound concrete, make the edges of the hole perpendicular to the surface, sand, grit or water blast the surface, coat the blasted surface with epoxy bonding compound, place non-shrink grout, match the finish and color on the adjacent concrete, and cure as specified.

D. If the defects affect the structural integrity of the structure or if patching does not satisfactorily restore the quality and appearance to the surface, remove and replace all affected areas.

3.12 REPAIR OF CRACKS

The Contractor shall execute the following:

A. Repair cracks in concrete structures that are greater than 1/10-inch in width by cutting out a square edged and uniformly aligned joint ¼-inch wide by ½-inch deep, preparing exposed surfaces of the joint, priming the joint, and applying polyurethane joint sealant.

B. If the crack affects the structural integrity or function of the element, remove and replace all affected areas.

3.13 FIELD QUALITY CONTROL

A. The Work covered by this Specifications Section shall be performed under the observation of the Engineer.

B. The Engineer and the Engineer's Materials Testing Laboratory will be present at the site intermittently to observe, collect samples and test the Work. The Contractor shall cooperate with the Engineer and the Engineer's Materials Testing Laboratory in performing the observations and tests. At the completion of their work, the Engineer and Engineer's Materials Testing Laboratory shall submit reports, including a tabulation of items observed and tests performed. The Engineer's and the Engineer's Materials Testing Laboratory's costs for observing the repair of unsatisfactory work performed shall be back-charged to the Contractor.

C. If the Contractor should fail to meet the technical or design requirements embodied in this Specifications Section or the applicable Contract Drawings, Contractor shall make the necessary readjustments until Work is deemed satisfactory, as determined by the Engineer. No deviation from the Specifications shall be made except by "review-and-written acceptance" from the Engineer.

D. Concrete Testing – Concrete quality testing will be performed on the concrete by the Engineer's Materials Testing Laboratory as follows:

1. Frequency of Sampling – Cast five (5) concrete test cylinders from each fifty (50) cubic yards, or fraction thereof, of each class of concrete placed in any one day. Sampling and curing of cylinders shall conform to ASTM C31.

2. Strength Testing – Test cylinders shall be in accordance with ASTM C39. Test one (1) cylinder at seven (7) days for information; test three (3) cylinders at twenty-eight (28) days for acceptance; and hold one (1) cylinder for verification or 56-day strength. Strength acceptance will be based on the average of the strengths of the three (3) cylinders tested at twenty-eight (28) days. If one (1) cylinder of a twenty-eight (28) day test manifests evidence of improper

sampling, molding, or testing, other than low strength, discard it and use the fifth (5^{th}) cylinder for the test result.

3. Slump – Determine concrete slump by ASTM C143 with each strength test sampling, prior to and after adding "add water" in the field, and as directed by the Engineer to establish consistency.

4. Air Entrainment – If air entraining is required or used, determine air content of the concrete using ASTM C231 to verify the percentage of air in the concrete immediately prior to depositing the concrete in the forms.

5. Concrete Strength – The average concrete strength value shall meet the strength test requirements of ASTM C94.

6. Failure to Meet Design Strength – If the twenty-eight (28) day strength tests fail to meet the specified minimum design compressive strength, the concrete will be assumed to be defective. In this case, one set of three (3) cores from each area shall be taken, as selected by the Engineer, in accordance with ASTM C42. If the average compressive strength of the set of three concrete cores fails to equal eighty-five percent (85%) of the specified minimum design compressive strength, or if a single core has a strength that is less than seventy-five percent (75%) of the minimum design compressive strength, the concrete will be considered defective. The Engineer shall require one or more of the following: additional coring, nondestructive load testing, repair of defective concrete and/or an equitable cost assessment. The Contractor shall pay for costs of coring, testing of cores, load testing, required repairs, and the assessment.

E. Concrete Sampling and Testing

1. Testing Labor – The Engineer's Materials Testing Laboratory shall perform the laboratory testing for the Project.

2. Notification – Advise the Engineer in writing at least two (2) working days in advance of concrete-placing operations to allow for scheduling and performing of the Owner's or Engineer's field quality control testing.

3. Storage Box Area – Contractor to provide and maintain facilities for safe storage of concrete test specimens on the Project Site.

3.14 CLEAN-UP AND RESTORATION

A. During concrete work, provide for adequate disposal of all waste and wastewater. Remove and properly dispose of all waste concrete resulting from concreting operations. Concrete spills shall be minimized and all clean-up of concrete and waste materials shall be performed immediately to avoid damage to the invert. The

contents of concrete lines discharged into the canal in excess of the amount required for the Work shall be considered waste.

B. Refer to Specification Section 02210 Site Preservation and Materials Disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Concrete invert infill and concrete overlay shall be measured by the square-foot (SF) as accepted by the Engineer.

B. Concrete footings including soil excavation and off-site disposal of soil shall be measured by the lineal-foot (LF).

4.02 BASIS FOR PAYMENT

A. Concrete invert infill and concrete overlay shall be paid by the Contract unit price per square-feet (SF) completed, the Contractor is required to provide an acceptable finish surface.

B. Concrete footings shall be paid by the Contract unit price lineal foot (LF) completed as accepted by the Engineer.

C. All other Work and accessories outlined in this Specification Section is considered incidental, therefore not subject for payment, or is paid for under another Specification Section.

- END OF SECTION 03300 -

SECTION 03470

SHOTCRETE

PART 1 - GENERAL

1.01 SCOPE

A. Specified Work – This Specification Section outlines and specifies the requirements, as shown on the Contract Drawings, for batching, mixing, transporting and applying shotcrete, including batching and mixing fiber reinforcement.

B. Work Inclusions – The Work shall include all labor, materials, equipment, and incidentals to perform the Work outlined and/or specified in this Section.

1.02 BACKGROUND AND SITE CONDITIONS

A. Wet-mix, fiber-reinforced shotcrete will be used for this Project, except as described in Article 1.02.B.

B. Bagged dry-mix shotcrete may be used for patches that are less than or equal to one (1) cubic-yard (CY) per application.

C. Welded wire fabric or other reinforcement shall be as shown on the Drawings or as added in local applications, as directed by the Engineer.

1.03 DEFINITIONS

A. Backfill Shotcrete – The shotcrete volume in excess of the theoretical volume calculated under Section 4.01.B.

B. Invert Edge Preparation (Prep) – Chipping, grinding or other method of excavation approved by the Engineer for removal of deteriorated existing shotcrete overlay as shown on the Contract Drawings

C. Invert Edge Overlay – Placement of two (2) inch thick by approximately eighteen (18) inch wide layer of shotcrete along the base of the existing canal wall

D. Canal Water – Water routed into the South Main Canal from the Stanislaus River at Goodwin Dam.

E. Dry Mix Shotcrete – Shotcrete with water added at the nozzle.

F. Engineer's Materials Testing Laboratory – Engineer's Materials Testing Laboratory that performs the Field Quality Control Testing.

G. Independent Materials Testing Laboratory – Materials testing laboratory that is not owned and/or operated by the Contractor or Subcontractors performing concrete or shotcrete work. The laboratory must be certified in accordance with ASTM C1077 and E329. Cost of testing performed in the field and the laboratory for the Contractor's purposes is billed directly to the Contractor. Cost of testing design mixes for the Contractor and/or Contractor's Subcontractor(s) is billed to the Contractor.

H. Fiber-Reinforced Shotcrete – Shotcrete that has been reinforced by adding either steel or synthetic fibers to the wet or dry mix at the mixer.

I. In Situ Core Specimen – A cylindrical core cut from production shotcrete according to ACI procedures.

J. Production Mix Design(s) – Shotcrete mixes that meet the specifications during the test and trail mix phases. Production mix designs have been "reviewed-and-accepted" by the Engineer for production shotcrete. Production mix designs are routinely tested for field quality control and assurance.

K. Production Shotcrete – Payable shotcrete placed according to the Contract Documents.

L. Rebound – The shotcrete material that does not adhere to the applied surface. Rebound mass may range from small particles that ricochet off the surface to large masses that slough off the overhead and vertical surfaces.

M. Shotcrete – Concrete pneumatically projected at a relatively high velocity onto a surface through a nozzle. The concrete mix contains microsilica and/or admixtures intended for attaining quick set, high early strength, and adequate compaction and adhesion. Shotcrete typically has a maximum aggregate size of ⅜-inch.

N. Synthetic Fiber – Synthetic structural fiber reinforcement for shotcrete.

O. Test Panels – A 20-by 20-by 5.5-inch box, with or without reinforcement in it that is leaned against a near-vertical surface or anchored to an overhead surface and filled with shotcrete in the same manner as applying production shotcrete. At the laboratory, test specimens are cored from the shotcrete in the test panel.

P. Test Mix Design(s) – Shotcrete mixes that are batched and tested in the materials testing laboratory using ASTM standard concrete "bench" methods of laboratory batching, mixing and testing.

Q. Trial Mix Design(s) – Shotcrete mixes that are batched in the laboratory and that are shot into test panels, cored and/or cut and tested in the materials testing laboratory for strength and other properties.

R. Wet Mix Shotcrete – Shotcrete with water added to the concrete mix before pumping to the nozzle.

1.04 SPECIFICATIONS, CODES, STANDARDS AND REPORTS

A. General – Unless otherwise revised, altered, modified and/or differently stated in this Specification Section or Related Work Specification Sections, the Contractor shall comply to the following Specifications, Codes, Standards and Reports, and their latest published edition:

1. American Concrete Institute (ACI)

211.1	Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete
301	Specification for Structural Concrete
301	Specification for Structural Concrete for Buildings
506R-05	Guide to Shotcrete
506.2-94	Specification for Shotcrete
506.3R	Guide to Certification of Shotcrete Nozzlemen
506.4R-94	Guide for Evaluation of Shotcrete

2. American Society for Testing and Materials (ASTM)

A185	Steel Welded Wire Reinforcement, Plain, for Concrete Reinforcement (Not Applicable)
A497	Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement (Not Applicable)
C31	Making and Coring Concrete Test Specimens in the Field
C33	Concrete Aggregates
C39	Compressive Strength of Cylindrical Concrete Specimens
C42	Obtaining and Testing Drilled Cores and Sawed Beans of Concrete
C94	Ready-Mixed Concrete
C150	Portland Cement
C192	Making and Curling Concrete Test Specimens in the Laboratory
C260	Air-Entraining Admixtures for Concrete
C494	Chemical Admixtures for Concrete
C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

C786 Fineness of Hydraulic Cement and Raw Materials by the 300-Micrometer (No. 50), 150-Micrometer (No. 100), and 75-Micrometer (No. 200) Sieves by Wet Methods.
C1018 Flexural Toughness and First Crack Strength of Fiber-Reinforced Concrete (Using Beam with Third-Point Loading)
C1064 Standard Test Method for temperature of Freshly Mixed Portland Cement Concrete
C1077 Standard Practice for Laboratories Testing Concrete and Concrete aggregates for Use in Construction and Criteria for Laboratory Evaluation
C1102 Time of Setting of Portland Cement Pasts Containing Accelerating Admixtures for Shotcrete by the Use of Gillmore Needles
C1116 Standard Specification for Fiber-Reinforced Concrete and Shotcrete
C1117 Time of Setting of Shotcrete Mixtures by Penetration Resistance
C1140 Preparing and Testing Specimens from Shotcrete Test Panels
C1141 Admixtures for Shotcrete
C1240 Silica Fume
D1889 Turbidity of Water
E329 Independent Laboratory Qualification

3. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice

4. California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volumes 1 and 2 latest edition

   a. Section 1913 – "Shotcrete" pp 191-192

   b. Table 1704.4

5. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition

6. OID Standard Specifications and Drawings

1.05 RELATED WORK SPECIFICATION SECTIONS

01200 Project Management, Administration and Facilities
01250 Quality Assurance and Quality Control
01320 Progress and Schedules
01330 Submittals
02210 Site Preservation and Materials Disposal
02230 Clearing and Grubbing
02460 Cement-Grouted Rock Dowels and Soil Nails

02775 Backdrains and Underdrains
03070 Concrete Reinforcement
03300 Concrete Cast-in-Place

1.06 DESIGN PARAMETERS

A. Shotcrete Mix Designs

1. Design mixes shall be prepared for each type and strength of shotcrete as follows:

   a) Total cement replacement shall be 30 percent or less

   b) Total silica fume replacement shall be 13 percent or less

   c) If silica fume is used in wet-mix shotcrete then a super-plasticizer is required

2. Aggregate: When used, limit coarse aggregate to a maximum passing screen size of ⅜-inch.

3. Chlorides: Limit water-soluble chloride ions to maximum percentage by weight of cement or cementitious materials permitted by ACI 301.

4. Admixtures: When included in shotcrete design mixes, use admixtures according to manufacturer's written instructions and applicable ASTM Standards.

5. Synthetic Fiber: Uniformly disperse in shotcrete mix, according to manufacturer's written instructions, at a rate shown on the Contract Drawings and "reviewed-and-accepted" by the Engineer.

6. Design-Mix Adjustments: Subject to compliance with requirements, shotcrete design-mix adjustments may be proposed when characteristics of materials, project conditions, weather, test results, or other circumstances warrant, and after "review-and-acceptance" by the Engineer.

7. Production Design Mix(es):

   a. Shotcrete mix designs after being tested and finalized shall meet the following compressive strengths versus time:

Unconfined Compressive Strength

Time After	Minimum lbs/in.^{2} (psi)
12 hours	500
72 hours	1,200
7 days	2,500
28 days	4,000

1.07 QUALITY CONTROL AND ASSURANCE REQUIREMENTS

A. Shotcrete Crew Qualifications and Performance

1. The Contractor and/or its Subcontractor shall perform the Work using a firm and individuals regularly engaged in shotcrete work.

2. Nozzle Team: The team shall consist of at least two (2) individuals, both of whom are qualified as nozzleman. Both individuals shall have previous experience in the application of shotcrete on at least two projects of comparable nature, or perform the Work under the immediate supervision of a foreman or instructor with experience of comparable nature. As an alternate qualification and certification, nozzlemen may gain scope and knowledge, and experience by becoming an ACI certified Shotcrete Nozzleman at the Wet-Mix Process Level for Vertical and Overhead Application. (The American Shotcrete Association, telephone (248) 848-3780, web-site www.shotcrete.org, offers shotcrete certifications.)

3. Team Demonstration: Each nozzle team shall demonstrate to the Engineer, by means of trial test panels or sections, acceptable proficiency in uniformity of application of shotcrete of specified quality to vertical test panels before start of the Work to become qualified.

4. Daily Performance Logs: The Contractor shall maintain daily log of work performed by each qualified Shotcrete Nozzle Team. The log shall show Qualified Shotcrete Nozzle Team's names, and production and testing results and include the following information:

   a. Date

   b. Names of team members

   c. Name of Supervisor

   d. Concrete batch tickets or numbers, concrete ages

   e. Location of area shotcreted

f. Shotcrete testing performed, i.e., test panels, slumps, concrete temperatures

B. Other Requirements – Refer to General Specifications Section 01250 Quality Control and Assurance.

C. Shotcrete Mix Testing – Shotcrete mix design quality control testing will be performed on the concrete by the Supplier, Contractor, and/or an Independent Materials Testing Laboratory hired by the Supplier or Contractor, as needed to verify the design strength of the mix. These data shall be submitted to the Engineer for "review-and-acceptance" prior to starting of the Work.

1. Strength Testing – Test cylinders shall be in accordance with ASTM C39.

2. Slump – Determine shotcrete slump by ASTM C143.

3. Air Entrainment – Determine air content of the shotcrete using ASTM C231.

4. Shotcrete Strength – The average shotcrete strength value shall meet the strength test requirements of ASTM C94.

D. Batch Plant Testing – By the Supplier, Contractor, and/or an Independent Materials Testing Laboratory hired by the Supplier or Contractor.

1. Test and document aggregate soundness, aggregate gradation, and concrete yield.

2. Certify cement.

1.08 SAFETY AND SECURITY REQUIREMENTS

A. Work Compliance – All Work shall be done in compliance with all applicable federal and state safety and health regulations (Fed-OSHA and Cal-OSHA).

B. Applicable Regulations – California Code Regulations, Title 8, Chapter 4 – Division of Industrial Safety Orders (Cal-OSHA), Subchapter 4 – Construction Safety Orders (Sections 1500 – 1938), and Subchapter 7 – General Industry Safety Orders (Sections 3200 – 6148) are the most applicable regulations for this Section.

C. Engineer and Owner Safety Responsibilities – Both the Engineer and the Owner will perform their Work, e.g., observations, inspections, quality assurance testing, etc., under the Contractor's Safety and Health Policies and Injury and Illness Prevention Program.

1.09 ENVIRONMENTAL REQUIREMENTS AND PERMITS

A. Permits – The Engineer is unaware of any special permit requirements.

B. Construction and Groundwater – The application of shotcrete and placement of concrete will cause wasted construction water and infiltrated groundwater to become high in pH. The Contractor may have to treat the construction and groundwater seepage in the canal to lower water's pH before releasing it further downstream.

C. Other Requirements – Refer to Specification Sections 02280 Erosion, Sediment and Pollution Control and 02290 Stormwater Management.

1.10 CONTRACTOR SUBMITTALS

A. Pre-Construction Phase – The Contractor shall submit to the Engineer for "review-and-acceptance" the following prior to the start of work:

1. Personnel Qualifications and Certifications – Provide qualifications, résumés and certifications for shotcrete supervisors and nozzle team members as specified by this Specification Section Article 1.07.A.

2. Surface Preparation – Provide a narrative and sketches describing the methods and means, procedures, sequences, and equipment for preparing various surfaces for shotcrete.

3. Shotcrete Materials

a. Product Data for manufactured materials and products for shotcrete materials (cement, slag, fly ash, silica fume, sand, coarse aggregate, and synthetic fibers) and admixtures (accelerators, water reducing agents, plasticizers, age extenders, etc.).

b. Design Mixes for each shotcrete mix, including synthetic fiber rates.

c. Test Reports for shotcrete materials from team demonstration, shotcrete mix testing, and batch plant testing, as described in Article 1.07.

d. Other Materials Data for manufactured materials and product used in association with shotcrete, i.e., reinforcement (welded wire fabric and reinforcing steel), curing compounds, etc.

e. Material Certificates for each material item, signed by manufacturers.

4. Daily Performance Log: Provide a sample copy of a daily performance log for charting production and quality control data. Refer to this Specification Section Article 1.07.A.4.

B. Construction Phase – The Contractor shall submit the following:

1. Daily Performance Log – Provide on a daily basis for "review-and-record" by the Engineer.

C. Close-out Phase – The Contractor shall submit to the Engineer for "review-and-acceptance" the following:

1. As-Built Drawings – Provide on the Contract Drawings

a. The volume, area, and thickness quantities for a unit of measure determined by the Engineer.

b. Specifications deviations, variance and changes.

c. Mix design changes by locations.

d. Shotcrete compression strength by locations. The Engineer will assist the Contractor in preparing the information to be placed on the Contract Drawings.

1.11 SPECIAL CONDITIONS AND REQUIREMENTS

A. Canal Water – Canal water will not be available for use with shotcrete.

PART 2 - PRODUCTS

2.01 CONSTRUCTION EQUIPMENT

A. Pressure Washer – Units capable of spraying water and additives at a pressure of 5,000 psi using a spray wand. The units may be gasoline powered.

2.02 CEMENT

A. Cement shall conform to ASTM C150, Type I or II, with a maximum tricalcium aluminate not to exceed 8 percent (8%). The maximum percent alkalies shall not exceed 0.6 percent (0.6%) to prevent or at least to reduce calcium leaching from concrete.

B. Pozzolanic material shall conform to the requirements of ASTM C618, Class N, with the following exceptions:

Sulfur Trioxide (SO_3), maximum percent	4
Pozzolanic activity index –	
With Portland cement, at 28 days, minimum percentage of control	85
With lime, at 7 days, minimum psi	950
Water requirement, maximum, percentage of control	110
Reactivity with cement alkalies –	
Reduction of mortar expansion at 14 days, minimum percent	85

2.03 FLY ASH

Fly ash shall be either Class C or Class F and shall conform to ASTM C618.

2.04 BLAST FURNACE SLAG

A. Blast furnace slag shall be ground granulated, Grade 100 or 120 according to ASTM C989.

2.05 SILICA FUME

A. Silica fume shall be amorphous silica according to ASTM C1240.

2.06 AGGREGATE

A. The aggregates shall be uniformly well graded and exhibiting no extremes of variation and in accordance with ASTM C33 and ACI 506.2 or R. Use gradation limit No. 2 for synthetic fiber reinforced shotcrete. Use gradation limit No. 1 or No. 2 for non-reinforced shotcrete.

B. Maximum size of aggregate may be varied subject to mix design laboratory testing and field trials, and "review-and-acceptance" by the Engineer. The maximum size shall not exceed ⅜ inch.

C. Specific gravity of the aggregate shall be greater than 2.55.

D. Aggregates shall comply with ASTM C33 and shall contain less than 1 percent (1%) asbestos by weight or volume and be free from any substances that will react with the cement alkalies. Maximum chloride content for sand shall not exceed 200 mg/l per Caltrans Test Method 422. Obtain aggregate from accepted sources. Submit location(s) of aggregate sourced for acceptance.

2.07 WATER

A. Water shall be free of organic materials and other impurities which might reduce the strength, durability or other quality of the cement mortar. Water shall have pH of 7.0 to 9.0, a maximum chloride concentration of 500 mg/l (per Caltrans Test Method 422), and a maximum sulfate concentration of 500 mg/l (per Caltrans Test Method 417) and shall comply with ASTM C94.

2.08 FIBER REINFORCEMENT

A. Synthetic Fiber: Polypropylene/polyethylene fibers engineered and designed for use in shotcrete, complying with ASTM C 1116, type III, not less that 1.5 inches (38 mm) long.

2.09 GROUND WIRE

A. High-strength steel wire, 0.8 to 1 mm in diameter.

2.10 ADMIXTURES

A. General: ASTM C1141, Class A or B, but limited to the following admixture materials. Provide admixtures for wet-mix shotcrete that contains not more than 0.1 percent chloride ions. Certify compatibility of admixtures with each other and with other cementitious materials.

1. Air-Entraining Admixture: ASTM C260.

2. Water-Reducing Admixture: ASTM C494, Type A.

3. Water-Reducing and Retarding Admixture: ASTM C494, Type D.

4. Water-Reducing and Accelerating Admixture: ASTM C494, Type E.

5. High-Range, Water-Reducing Admixture: ASTM C494, Type F.

6. Accelerating Admixture: ASTM C494, Type C (Alkali free).

B. Admixtures in the shotcrete mixes shall conform to ASTM C494, Type E. All shotcrete admixtures shall be “reviewed-and-accepted” by the Engineer.

C. The shotcrete mixes shall contain no materials corrosive to steel or entailing other detrimental effects such as cracking or spalling.

D. Each admixture used in the shotcrete mix(es) shall have a documented history of demonstrable satisfactory performance in the mix(es) of similar proportions.

E. Aluminum-based accelerator admixtures shall not be used.

F. After an admixture has been "reviewed-and-accepted" by the Engineer, the Contractor shall not change the admixture manufacturer and/or brand, without prior "review-and-acceptance" by the Engineer.

G. Liquid accelerator admixtures shall be used. Dry powder accelerator admixtures shall not be used.

2.11 CURING MATERIALS

A. Absorptive Cover: AASHTO M182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.

B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: SATM C309, Type 1, Class B. Shall not leave a visible residue.

2.12 SHOTCRETE EQUIPMENT

A. The wet mix process shall be used, except for conditions described in Article 1.02.B.

B. The Contractor shall use equipment that is capable of thoroughly mixing shotcrete materials in sufficient quantities to maintain continuous placement.

C. The Contractor shall use equipment that is capable of discharging aggregate-cement-water mixture accurately, uniformly and continuously.

2.13 BATCHING AND MIXING EQUIPMENT

A. Wet-Mix Process: Measure, batch, mix and deliver shotcrtete according to ASTM C-94 and furnish batch ticket information.

B. Dry-Mix Process: Comply with ASTM C685 when shotcrete ingredients are delivered dry, proportioned, and mixed on-site.

PART 3 - EXECUTION

3.01 PREAPPLICATION – The Contractor shall execute the following:

A. Pre-shotcrete Meeting: Conduct a "pre-shotcrete meeting" on the Project site after the Engineer has "reviewed-and-accepted" field trials and their pre-construction submittals and prior to production shotcrete.

3.02 DELIVERY, STORAGE, AND HANDLING

A. Fiber reinforcement shall be supplied in "concrete ready bags," wrapped in moisture-proof packaging and stored in a dry location to prevent exposure to moisture before introduced to concrete mix.

3.03 SURFACE PREPARATION – The Contractor shall execute the following:

A. Soil: Clear and grub surface. Remove any residual vegetation growth, i.e., algae, moss, weeds, etc. Compact and trim to line and grade before placing shotcrete. Blow-pipe the surface. Do not place shotcrete on frozen surfaces. Dampen surfaces before shotcreting.

B. Rock: Pressure wash to the satisfaction of the Engineer to remove algae and encrustation, loose materials, mud, and other foreign matter that might weaken shotcrete bonding.

C. Existing Concrete, Shotcrete and Masonry: Before applying shotcrete, remove unsound or loose materials and contaminants that may inhibit shotcrete bonding. Chip or scarify areas to be repaired to the extent necessary to provide sound substrate. Cut edges square and ½-inch deep at perimeter of existing material to taper remaining shoulder at 1:1 slope into cavity to eliminate square shoulders. Dampen surfaces before shotcreting.

1. Abrasive blast or hydroblast any existing surfaces that do not require chipping to remove paint, oil, grease, or other contaminats and to provide roughened surface for proper shotcrete bonding.

2. Provide invert edge preparation as defined in Article 1.03.B of this Specification Section and as shown on the Contract Drawings

D. Steel: Clean steel surfaces by abrasive blasting according to SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

3.04 STEEL REINFORCEMENT

A. Place reinforcement (reinforcing steel and welded wire fabric) as indicated in the Contract Drawings as verified by the Engineer or as indicated by the Engineer, according to Specification Section 03070 Concrete Reinforcement.

3.05 FIBER REINFORCEMENT

A. Fiber reinforcement shall be placed at the application rates shown on the Contract Drawings and in-accordance with the Manufacturer's specifications.

3.06 EMBEDDED ITEMS – The Contractor shall execute the following:

A. Embeds: Place and secure anchorage devices and other embedded items required for adjoining work, which is attached to or supported by shotcrete. Use setting sketches, templates, diagrams, instructions and directions furnished with items to be embedded.

3.07 ALIGNMENT AND THICKNESS CONTROL

A. Ground Wires: On planar surfaces, install ground wires to establish thickness and planes of shotcrete surfaces. Install ground wires at corners and offsets not established by forms. Pull ground wires taut and position adjustment devices to permit additional tightening.

B. Gauge Wires or Nails: On irregular surfaces, place + eight (8) inch-long gauge wires or nails against existing surface.

C. For shotcrete-in-place, drive 60d (6-inch) common or box nails into wet-fresh shotcrete to existing surface. Place wires or nails on two (2) foot each direction and high "bump" and low "valley" locations. Measure nominal, minimum, and maximum thicknesses using wires, nails, or pins, or another measure "reviewed-and-accepted" by the Engineer.

3.08 PROPORTIONING AND MIXING

The Contractor shall execute the following:

A. Batch Plant Proportions: Proportion aggregate and cement at the Contractor's selected batching plant that has been "reviewed-and-accepted" by the Engineer. Conform to ACI 21.1, 301 and 506.2 for proportioning.

B. Mixing Time Limit: Apply after adding batch water for each batch load, within ninety (90) minutes, whether additional water is added or not. The Contractor may use admixture(s) to extend the life of the mixed shotcrete. Engineer shall "review-and-accept" the admixture prior to use. If an accepted admixture is used and mixing

load remains plastic, the mixing time limit shall extend to the time recommended by admixture manufacturer, but no longer.

C. Accelerator: Accurately proportion accelerating admixtures into the shotcrete wet-mix at the nozzle. Do not introduce the accelerating admixtures into the mix at the pump or at the mixer.

D. Synthetic Fibers: Introduce and thoroughly mix into a shotcrete load the synthetic fibers in accordance with the manufacturer's recommendations and at the rate indicated on the Contract Drawings

E. Slump: Maintain a target slump between three (3) inch and three and one-half (3½) inches at the nozzle.

F. Add Water: Avoid adding additional water to the mixer in the field. Add only the amount of water to maintain a proper slump range to allow the shotcrete pump to deliver the mix to the nozzle efficiently and consistently. Do not add more than three (3) gallons per cubic-yard (CY) of batched shotcrete mix. Thoroughly mix the add-water into the mix before discharge from the mixer. Recheck mix for slump and document slump before and after adding add-water and the amount of add-water added.

3.09 COLD AND HOT WEATHER PROTECTION

The Contractor shall execute the following:

A. Cold Weather Shotcreting: Mix, apply and protect shotcrete from physical damage or reduced strength caused by frost, freezing, or low temperatures, according to ACI 306.1 and as follows:

1. Do not start or discontinue shotcreting when the ambient air temperature is 40ºF and is falling. Uniformly heat water and aggregates before mixing to obtain a shotcrete application temperature of not less than 50ºF and not more than 90ºF.

2. Do not use frozen materials containing ice or snow in the shotcrete mix.

3. Do not apply shotcrete on frozen surfaces or surfaces containing frozen materials.

4. Do not use calcium chloride, salt, and other materials containing antifreeze agents in the shotcrete mix.

B. Hot Weather Shotcreting: Mix, apply and protect shotcrete according to ACI 305R, when hot weather conditions and high temperatures would seriously impair quality and strength of shotcrete, and as follows:

1. Cool the shotcrete mix ingredients before mixing. Maintain shotcrete temperature at time of application below 90ºF for wet mix. Cool the transit mixer drum before adding the mix inside the drum.

2. Substitute ice for all or part of the amount of the design mix water.

3. Decrease temperature of reinforcing steel and receiving surfaces below 100ºF before shotcreting by cold water application or by other means-and-methods.

4. Do not start and discontinue shotcreting when the ambient air temperature is 95ºF and is rising.

3.10 APPLICATION

The Contractor shall execute the following:

A. General

1. Apply shotcrete mix to surfaces (rock, soil, concrete, masonry, shotcrete and/or steel) according to ACI 506.2, unless otherwise specified.

2. Where rebound cannot escape or cannot be blown free, fill corners and other areas with shotcrete first.

3. Hold nozzle at predetermined distance and position. Apply shotcrete perpendicular to surface in small oscillating circles, and at distance to allow maximum compaction consistent with minimum rebound.

4. Shotcrete continuously in multiple passes, to required thickness, without cold joints and laminations developing.

5. Remove, using a compressed air blow pipe or other means, and dispose of rebound and overspray materials during shotcreting to maintain clean surfaces and to prevent rebound entrapment.

6. Maintain reinforcement in position during shotcreting. Place shotcrete to encase reinforcement and other embedded items completely. Maintain steel reinforcement free of overspray and prevent build-up against front face during shotcreting.

7. Use ground wires, measuring pins, wires, nails, crosses, probes, or other means-and-methods to indicate thickness of shotcrete layers. The means-and-methods are subject to “review-and-acceptance” by the Engineer. The

measuring devices shall be noncorrosive, and designed to prevent infiltration of water through shotcrete.

8. Deliver and apply shotcrete with uniform consistency; maximize bonding, cohesion and density, and minimize rebound and segregation; prevent sagging, sloughing and dislodging of applied shotcrete.

9. Apply shotcrete to achieve mean "core grades" not exceeding 2.5 according to ACI 506.2, with no single "core grade" exceeding 3.0.

10. Apply shotcrete without exceeding installation tolerances permitted by ACI 117R, increased by a factor of 2.

11. Do not place subsequent lifts until previous lift of shotcrete is capable of supporting new shotcrete.

12. Remove hardened overspray, rebound, and laitance from reinforcing steel bar, welded wire fabric and shotcrete surfaces to receive additional layers of shotcrete.

13. Do not disturb shotcrete surfaces before beginning finishing operations.

14. Remove ground wires or other alignment control devices after shotcrete placement. Embedded thickness devices shall be left in place.

B. Rebound Protection: Apply temporary protective coverings and protect adjacent surfaces against deposit of rebound and overspray or impact from nozzle stream.

C. Moisten Surfaces: Moisten wood forms and surfaces to receive shotcrete immediately before applying shotcrete. Wood forms having coating do not require moistening.

3.11 SURFACE FINISHES

The Contractor shall execute the following:

A. Gun Finish: Leave the surface untextured and uneven, with the natural sprayed finish. Screeding, troweling or other finishing is not required unless otherwise indicated on the Contract Drawings.

B. Smoothness criteria as shown on the Drawings and/or other Contract Documents.

3.12 CONSTRUCTION AND CONTRACTION JOINTS

The Contractor shall execute the following:

A. Construction Joints: Locate construction joints as shown on the Contract Drawings or as approved by the Engineer. Install construction joints square at joints that are perpendicular to the main reinforcement and with a 1:1 taper at joints that are not subject to compression loads.

B. Contraction Joints: If directed by the Engineer or shown on the Contract Drawings, construct contraction joints in shotcrete using saw cuts ⅛-inch wide by ⅓ shotcrete depth, or by using premolded plastic, hardboard, or fiberboard strip inserts ¼-inch wide by ⅓ shotcrete depth, unless otherwise indicated.

1. Do not cut reinforcement

2. After shotcrete has cured, remove strip inserts and clean groove of loose debris

3. Spacing: Space contraction joints at ten (10) to fifteen (15) feet on center horizontally.

3.13 CURING

The Contractor shall execute the following:

A. Drying Protection: Protect freshly placed shotcrete from premature drying and excessive cold or hot temperatures.

B. Initial Curing: Start initial curing as soon as free water has disappeared from shotcrete surface after placing and finishing.

C. Curing Exposed Surfaces: Cure shotcrete by the following methods:

1. Moisture Curing: Keep surfaces continuously moist for at least seven days with water, continuous water-fog spray, water-saturated absorptive covers, or moisture-retaining covers. Lap and seal sides and ends of covers.

2. Curing Compound: Apply curing compound uniformly in continuous operation by power spray according to manufacturer’s written instructions to final surfaces only. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

a. Apply curing compound to gun- or screed-finished shotcrete at a rate of 1 gal./100 sq. ft.

b. Curing compound shall not be used where subsequent shotcrete, gunite, or other cementitious layers are planned.

D. Curing Formed Surfaces: Cure formed shotcrete surfaces by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, cure form stripped surfaces by the same methods specified above.

3.14 FIELD QUALITY CONTROL

A. Contractor's Responsibility – The Contractor shall execute the following:

1. Production shotcrete "test panel" sampling:

a. Prepare 20- by 20- by 5.5-inch nominal test panels from + ⅜-inch thick plywood and 2- by 6-inch structural light framing lumber. Frame only three (3) sides leaving the bottom "open."

b. Lean test panels against outside wall in a secure position not to collect rebound and slough and not to vibrate during shotcrete shooting.

c. Shoot into test panels, having the same reinforcement as in the structure, for each production shotcrete design mix used, and for each work shift or for each fifty (50) cubic yards of shotcrete applied, but not less than one per shift. Fill the test panels over the perimeter frame and "strike-off" the shotcrete surface even with the perimeter frame.

d. Leave test panel specimen(s) in same curing environment as production shotcrete applied. After twenty-four (24) hours, deliver test panel specimen(s) to the Laydown Area for pick up by the Engineer or the Engineer's Materials Testing Laboratory.

2. Shotcrete Mix and Ambient Air Temperatures: Measure and record shotcrete mix temperature for each load at the shotcrete pump and at the nozzle. Refer to ASTM C1064. Notify Contractor supervision and the Engineer when mix temperatures start to exceed 85ºF. Discontinue shotcreting when the ambient air temperature falls below 40ºF or rises above 90ºF.

3. Shotcrete Mix Age: Determine and record shotcrete mix age for each load at the shotcrete pump and at the nozzle. Notify Contractor supervision and the Engineer when the age approaches ninety (90) minutes. Reject shotcrete in ready mixers and dump shotcrete in pump hoses when standing time for mix without "age extender" admixture exceeds ninety (90) minutes, or

when standing time for mix with "age extender" exceeds the manufacturer's recommendations. If the mix consistency remains plastic, the mix temperature remains below 80ºF, and mix age does not exceed the manufacturer's recommendations, a mixed load with "age extender" admixtures may be shot.

4. Shotcrete Mix Slump: Measure and record shotcrete mix slump for each load at the shotcrete pump and at the nozzle. Notify Contractor supervision and the Engineer when slumps exceed the 3½ inch target limits, i.e., over 4½ inches or under 3 inches. Adjust shotcrete mix and "add" water accordingly.

B. Engineer's Materials Testing Laboratory's responsibility – The Engineer will perform the following:

1. Monitor shotcrete placement and test panels.

2. Production shotcrete compressive strength:

a. When delivered by the Contractor, prepare the test panels from production shotcrete for uniaxial compression, core strength testing and "core grading."

b. From each test panel, core and cut seven (7) sample cores (one set of four (4) cores unreinforced and one set of three (3) cores of WWF or bar reinforced).

c. Determine unit weight and test each set of unreinforced specimens for uniaxial compressive strength according to ASTM C1140 and construction testing requirements in ACI 506.2. Test one core at an age of seven (7) days and three cores at an age of twenty-eight (28) days. Mean core grades exceeding 2.5, or any individual core exceeding 3.0 shall be considered unsatisfactory. (Note: Strength of shotcrete sample will be considered satisfactory when the mean compressive strength of each set of three (3) unreinforced cores equals or exceeds eighty-five percent (85%) of specified compressive strength, with no individual core less than seventy-five percent (75%) of specified compressive strength.)

d. Visually inspect each set of reinforced shotcrete cores taken from test panels and determine mean "core grades" according to ACI 506.2.

e. Document and forward results of production shotcrete core and materials testing to the Contractor and Engineer by email and followed by "hard copy."

3.15 SHOTCRETE REMOVAL AND REPAIRS

The Contractor shall execute the following:

A. Core Grade and In-place Visual Quality Results: Remove and reapply shotcrete placed as part of this Work that is delaminated or exhibits laminations, voids, or sand/rock pockets exceeding limits for specified core grade of shotcrete. Remove unsound or loose materials and contaminants that may inhibit bond of shotcrete repairs. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and ½ inch deep at perimeter of the defective work, tapering remaining shoulder at 1:1 slope into cavity to eliminate square shoulders. Dampen surfaces and apply new shotcrete.

B. Core Compressive Strength Results:

1. If directed by the Engineer, remove and reapply shotcrete placed as part of this Work in areas representing lower than acceptable shotcrete compressive strength. Shotcrete with very low strength shotcrete, excessive rebound entrapment and "honeycomb" would require shotcrete removal and reapplication.

2. If not directed by the Engineer, prepare defective shotcrete surface by high-pressure (+2,500 psi) hydrobrooming. Reapply another layer of shotcrete over defective shotcrete that equals or exceeds the original specified thickness.

3.16 CLEANING

The Contractor shall execute the following:

A. Final Shotcrete Surfaces: Remove and properly dispose of rebound and overspray materials from final shotcrete surfaces and areas not intended for shotcrete placement.

B. Invert: Remove and properly dispose of rebound and slough from the canal invert. Wash and clean invert and wall with water.

C. Refer to Specifications Section 02210 Site Preservation and Materials Disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Quantities for upslope shotcrete liner, shoring, shotcrete liner over swales, downslope liner overlay and shotcrete patches, shall be measured based on the square footage (SF) of the area covered.

B. Theoretical shotcrete volume associated with items listed in Article 4.01.A of this Specification Section shall be calculated by multiplying the area covered by the specified shotcrete thickness, and then applying a 25 percent overage factor. Backfill shotcrete shall be determined as the volume of actual shotcrete placed in excess of the theoretical shotcrete volume.

C. Actual shotcrete volume associated with items listed in Article 4.01.A of this Specification Section shall be calculated from the volume of shotcrete mix delivered and pumped minus the following volumes:

1. Shotcrete rebound (defined by Article 4.01.F in this Specification Section).

2. Shotcrete left over in the pump and hoses

3. Wasted and rejected shotcrete

4. Shotcrete volume associated with Down-Turned Edge at Swales

D. Top of upslope shotcrete liner Type B, Down-Turned Liner Edge at Swales, Invert Edge Preparation and Invert Edge Overlay as shown on the Contract Drawings shall be measured on a linear-foot basis.

E. Shotcrete volume associated with items listed in Article 4.01.D of this Specification Section shall not be measured.

F. Unless otherwise demonstrated to a lower value, rebound shall be set at the following percentage passing through the nozzle:

1. Canal liners, shoring and exterior cutslope liners less than twelve (12) feet height above the canal invert: Ten percent (10%)

2. Canal liners. shoring and exterior cutslope liners more than twelve (12) feet height above the canal invert: Fifteen percent (15%)

3. Shotcrete patches: Ten percent (10%)

4.02 BASIS OF PAYMENT

A. Upslope shotcrete liner, shotcrete for shoring (both types), shotcrete liners over swales, downslope liner overlay and shotcrete patches shall be paid by the Contract unit price per square-foot (SF) for respective items.

B. Top of upslope shotcrete liner Type B, Down-Turned Liner Edge at Swales, Invert Edge Preparation and Invert Edge Overlay shall be paid by Contract unit price per linear-foot (LF) for respective items..

C. Backfill Shotcrete shall be paid by the Contract unit price per cubic yard (CY).

D. Incidentals: All other Work outlined in this Specification Section is considered incidental, therefore, not subject for payment, or is paid for under another Specification Section.

- END OF SECTION 03470 -

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