

SPECIFICATIONS

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

BUDGET / ACCOUNT: 9026 / 8150



Department of Public Works and Planning

CONTRACT NUMBER 16-16-SW



County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

January 13, 2017

Contract No. 16-16-SW

ADDENDUM NO. 1 to the Bidding and Contract Documents for Contract No. 16-16-SW American Avenue Disposal Site, Landfill Gas and Leachate Collection System Expansion, revising the Bidding and Contract Documents as follows:

NOTICE TO BIDDERS

DELETE the following text:

The work to be done consists, in general, of: installing 29 new single and 11 new dual vertical landfill gas extraction wells; decommissioning 16 single and 5 dual vertical landfill gas extraction wells; installation of header and lateral piping necessary to the collection, transmission and removal of landfill gas; installation and testing of a new landfill gas condensate sump; furnishing five new control panels for leachate collection and removal, and installing three of them; expansion of the existing supervisory control and data acquisition system to integrate control capabilities over the expanded landfill gas and leachate collection system expansion; and furnishing all appurtenances and performing all incidental work to effectuate the planned expansion of the site's landfill gas collection and control system.

REPLACE with the following text:

The work to be done consists, in general, of: installing 30 new single and 10 new dual vertical landfill gas extraction wells; decommissioning 15 single and 6 dual vertical landfill gas extraction wells; installation of header and lateral piping necessary to the collection, transmission and removal of landfill gas; installation and testing of a new landfill gas condensate sump; furnishing five new control panels for leachate collection and removal, and installing three of them; expansion of the existing supervisory control and data acquisition system to integrate control capabilities over the expanded landfill gas and leachate collection system expansion; and furnishing all appurtenances and performing all incidental work to effectuate the planned expansion of the site's landfill gas collection and control system.

SPECIFICATIONS

SECTION 01 11 00 – SUMMARY OF WORK

DELETE the following text from Part 1, Subsection 1.04:

- D. Smoking: Due to widespread presence of methane gas processes, smoking is prohibited at the project site.

REPLACE with the following text:

- D. Smoking and vaping: Due to the widespread presence of methane gas processes, smoking and vaping are prohibited at the project site.

SECTION 01 20 00 – MEASUREMENT AND PAYMENT

DELETE the following text from Part 4, Subsection 4.01, Bid Item 5:

- 5. Basis for Payment: Payment for this item includes all labor, equipment and materials to perform surveying and layout, and to prepare record drawings.

REPLACE with the following text:

- 5. Basis for Payment: Payment for this item includes all labor, equipment and materials to perform surveying and layout to document and provide information to the Engineer for the preparation of record drawings depicting as-constructed conditions.

PLANS

DRAWING SHEET #2

REPLACE Table 2 with Table 2R, attached.

DRAWING SHEET #2

REPLACE Table 3 with Table 3R, attached.

DRAWING SHEET #3

ADD the following note:

- 5. Alternative Staging Area can be used in coordination with Engineer.

BID BOOK - TABLE OF CONTENTS

DELETE the following text:

- 15 OPT OUT OF PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

REPLACE with the following text:

- 15 NOT USED

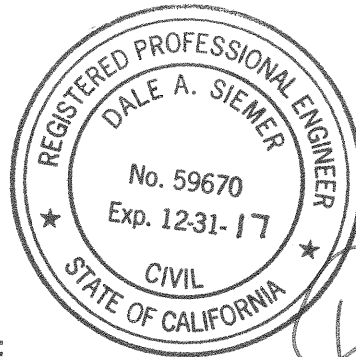
END OF ADDENDUM NO. 1

Addendum 1
Contract No. 16-16-SW

American Avenue Disposal Site – Landfill Gas
& Leachate Collection System Expansion
Page 2

Attachments:
Supplemental Information
Tables 2R and 3R

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.



1/13/17
Date Signed

Supervising Engineer: _____

Dale Siemer
Dale Siemer, PE C59670
Lic. Expiration: 12/31/17

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Suite 720
Fresno, CA 93721-2106



Date Signed: 1/11/2017

Consultant Engineer: _____

Andrew Paul Wang
Andrew Paul Wang, PE C46899
Lic. Expiration: 06/30/17

Golder Associates
425 Lakeside Drive
Sunnyvale, CA 94085

SUPPLEMENTAL INFORMATION – Not Part of the Contract Documents

The following list is comprised of paraphrased questions submitted by potential bidders or sub-bidders in writing via facsimile, email, or letter. These paraphrased questions and associated responses are not part of the contract documents and shall have no bearing whatsoever on the interpretation of the Standard Specifications, the Standard Plans, the Special Provisions, or the Plans. Nor shall they have any bearing whatsoever on the interpretation of other publications referenced therein.

- 1. Question:** General: "When does the County expect to award the project?"

Response: The anticipated award date is February 28, 2017, and is subject to potential change.
- 2. Question:** Section 01 20 00 - 5: "The specification section for Bid Items 7 and 8 says the contractor is to be paid by LF of drilling, but quantities are for LF of pipe for each item. Can quantity for Items 7 and 8 be made to agree with drilling quantity?"

Response: Drilling is paid for in Bid Item 6. Drilling quantities (item 6) are different from installation quantities listed in items 7 & 8.
- 3. Question:** Section 01 20 00, Part 4, Subsection 4.01, Bid Item 5: "Section says Contractor responsible for survey staking and as-built's, at pre-bid we were told County will provide surveyor for project. Which is correct?"

Response: Section 01 20 00, Part 4, Subsection 4.01, Bid Item 5 to be revised per Addendum #1.
- 4. Question:** Bid Book: "The bid item page with the 36 pay items break the project into phase II and phase III. Will the work be done in separate phases, or can it be done in one mobilization? Does the driller need to mobilize separately for Phase III?"

Response: Work sequencing/constraints are listed in Section 01 31 13, 1.06. The Phase II and Phase III titles are listed to group bid items together by landfill site location.
- 5. Question:** Detail 7, Sheet 7: "On the drawings it shows the berm for the 10" pipe as 6' wide on the top and up to 22' wide at the bottom. Is this correct?"

Response: Detail (7/7) shall be bid and constructed as shown on the plans.

Table 2R
Phase III Header

ID	Station	Coordinates		Invert Elev. (ft)
		Northing	Easting	
18" valve (BP)	0+00	14,946	14,848	232.79
PI: Header 45° Elbow	0+27	14,940	14,875	232.50
Leachate sump riser P3M1LCH (E) connection	2+77	14,739	15,023	206.49
PI: Header 30° Bend	3+76	14,659	15,082	195.50
18" x 6" LFG sub-header stub-out and 6" valve (LC-1)	4+52	14,585	15,094	189.77
18" x 6" LFG sub-header stub-out and 6" valve (LC-2)	7+87	14,254	15,148	188.37
Leachate sump riser P3M2LCH (E) connection	8+26	14,215	15,153	188.11
PI: Header 15° Bend	8+50	14,191	15,158	187.70
18" LFG header low point (drain to condensate sump)	8+50	14,191	15,158	187.70
18" X 6" LFG sub-header stub-out and 6" valve (LC-3)	10+01	14,041	15,145	188.10
Under Drain 1, (N) 12" CMP	10+51	13,992	15,140	189.99
Under Drain 2, (N) 12" CMP	12+28	13,815	15,127	191.78
18" LFG header high point	12+53	13,790	15,124	192.03
Under Drain 3, (N) 12" CMP	14+03	13,641	15,115	191.54
Leachate sump riser (E) P3M3LCH LFG connection	14+35	13,609	15,113	191.22
18" blind flange (EP)	14+73	13,570	15,110	190.83
New condensate sump and inlet	16+57	13,391	15,148	187.66

Leachate riser P3M4 LYS force main connection	NA	13,024	15,164	~28" BGS
Leachate riser P3M4 LCH force main connection	NA	13,002	15,164	~28" BGS
Leachate riser P3M5 LYS force main connection	NA	12,431	15,167	~28" BGS
Leachate riser P3M5 LCH force main connection	NA	12,409	15,167	~28" BGS
Leachate riser P3M6 LYS force main connection	NA	11,839	15,170	~28" BGS
Leachate riser P3M6 LCH force main connection	NA	11,817	15,170	~28" BGS

Stations 0+00 to 8+50: Invert elevations are based on various survey sources dated Dec 2014 to May 2016.

Stations 8+50 to 14+73: Invert elevations = estimated top of soil berm elevations.

TABLE 3R
Phase III Sub-Headers

ID	Station	Coordinates		Invert Elev. (ft)
		Northing	Easting	
EW-111 (BP)	0+00	14,616	14,431	234
EW-109 Lateral	2+37	14,605	14,667	230
EW-110 Lateral	3+11	14,601	14,741	229
EW-108 Lateral	3+84	14,583	14,814	228
6" valve, Header Tie-in (EP)	6+64	14,585	15,094	190
EW-115 (BP)	0+00	14,354	14,424	234
EW-114 Lateral	1+60	14,271	14,545	232
EW-113 Lateral	4+22	14,236	14,821	228
EW-112 Lateral	6+08	14,245	15,006	212
6" Valve, Header Tie-in (EP)	7+50	14,254	15,148	188
EW-118 (BP)	0+00	14,122	14,424	234
EW-117 Lateral	1+85	14,058	14,595	231
EW-116 Lateral	4+05	14,033	14,813	228
6" valve, Header Tie-in (EP)	7+37	14,041	15,145	188

Elevations are interpolated from conceptual grading contours (See General Note 21).

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COVER SHEET

BOARD ADOPTION AND ACKNOWLEDGMENT

Engineer's Signature
Consultant's Signature

NOTICE TO BIDDERS

BID ITEMS AND APPLICABLE SECTIONS

SPECIAL PROVISIONS

PROJECT DETAILS / DRAWINGS

Project Drawings/Details
Self-Dealing Transactions Disclosure Form
Contractor Request for Clarification

BID BOOK

Bidder's Declaration
Bid Form
Abbreviations Used
Signature Page
Noncollusion Affidavit
Public Contract Code
Subcontractor List
Certifications
Guaranty

AGREEMENT

PLANS

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION

Adopted by the Fresno County Board of Supervisors, November 15, 2016

Ernest Buddy Mendes, Chairman	4th District
Brian Pacheco, Vice Chairman	1st District
Andreas Borgeas	2nd District
Henry R. Perea	3rd District
Deborah A. Poochigian	5th District

Jean Rousseau, County Administrative Officer

Steven E. White, Director
Department of Public Works and Planning



Date Signed: 12/7/16

Supervising Engineer: _____

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Suite 720
Fresno, CA 93721-2106

Dale Siemer PE C59670
Lic. Expiration: 12/31/17

Contract Number 16-16-SW

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION



Date Signed: 12.02.2016

Consultant Engineer: _____

Andrew P. Wang

Golder Associates
425 Lakeside Drive
Sunnyvale, CA 94085

Andrew Paul Wang, PE C46899
Lic. Expiration: 06/30/2017

Contract Number 16-16-SW

NOTICE TO BIDDERS

Sealed proposals will be received at the Fresno County Department of Public Works and Planning (Department), Office of the Design Engineer, Seventh Floor, Fresno County Plaza Building, 2220 Tulare Street, Fresno, CA 93721 until

**2:00 P.M., (1400 hours and 00 seconds)
Thursday, January 19, 2017**

at which time the bidding will be closed. Promptly following the closing of the bidding all timely submitted bids will be publicly opened and read at the Department in said building, for construction in accordance with the project specifications therefor, to which special reference is made as follows:

AMERICAN AVENUE DISPOSAL SITE**LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION****CONTRACT NUMBER: 16-16-SW**

The work to be done consists, in general, of: installing 29 new single and 11 new dual vertical landfill gas extraction wells; decommissioning 16 single and 5 dual vertical landfill gas extraction wells; installation of header and lateral piping necessary to the collection, transmission and removal of landfill gas; installation and testing of a new landfill gas condensate sump; furnishing five new control panels for leachate collection and removal, and installing three of them; expansion of the existing supervisory control and data acquisition system to integrate control capabilities over the expanded landfill gas and leachate collection system expansion; and furnishing all appurtenances and performing all incidental work to effectuate the planned expansion of the site's landfill gas collection and control system.

In accordance with the provisions of Public Contract Code 3400(C) 2 and 3400(C) 3, the Board of Supervisors made a finding that the following products specified in Section 01 60 00 are designated as sole source components for the work, and no substitutions are allowed:

- Landfill Gas Wellheads (with ancillary components) - QED Environmental Systems
- Landfill Gas Condensate Sump - Real Environmental Products
- Programmable Logic Controller (with interface components) - AutomationDirect PLC
- Wireless Radio Modem - MOXA

A mandatory pre-bid meeting is scheduled for 10:00 a.m., on January 4, 2017, at the project site (18950 W American Ave, Kerman, CA 93630). A discussion of the project will be held and the project site will be open for examination. This meeting will inform bidders of project requirements and subcontractors of subcontracting and material supply opportunities. Any bid submitted by a prime contractor who does not attend this meeting will be considered non-responsive.

The County of Fresno is committed to increasing the availability of employment and training opportunities, and requires that the Contractor and each subcontractor employed on this Project shall use their best efforts to ensure that thirty-three percent (33%) of apprentice hours are performed by qualified participants in state approved apprenticeship programs who also are current or former "Welfare-to-Work" participants in the CalWORKs program. Attention is directed to "Apprentices" in Section 7 of these special provisions.

Incentives whereby the Contractor or subcontractor receives partial reimbursement for the wages paid to apprentices who qualify may be available. The incentive program is administered by the County of Fresno, Department of Social Services, Employment

Resource Center. For questions regarding the incentive program, contact the Employment Resource Center at (559) 600-5370.

Planholder and exchange/publication names may be obtained from the Fresno County website at <http://www.co.fresno.ca.us/planholders>.

Electronic copies, in “.pdf” file format, of the official project plans and specifications, and such additional supplemental project information as may be provided, are available to view, download, and print at <http://www.co.fresno.ca.us/planholders>.

Bid books, which contain bid proposal sheets necessary to submit a bid, may be obtained at no charge by sending a request to DesignServices@co.fresno.ca.us. Upon receipt of the request, a bid book will be mailed to the requestor via First Class United States Mail and the requestor will then be listed as a planholder for the project.

Project plans and specifications will not be sold to prospective bidders in hardcopy format except upon special written request to DesignServices@co.fresno.ca.us. A payment to the Department in the amount of **\$40** will be required for each set of plans and **\$40** for each set of specifications.

A Summary of Bids and a list of subcontractors for the apparent low bidder will be posted at the above listed website, generally within 24 hours of the Bid Opening.

All questions regarding this project shall be in writing and shall be received by the Department of Public Works and Planning, Design Division, no later than 2:00 P.M. on the seventh (7th) calendar day before bid opening. Any questions received after this deadline will not receive a response unless the Department of Public Works and Planning elects to issue an addendum to revise the bid opening date. In the event that the bid opening date is revised, the deadline for questions will be extended to no later than 2:00 P.M. on the seventh (7th) calendar day before the revised bid opening date. Questions shall be submitted on the “CONTRACTOR REQUEST FOR CLARIFICATION” form provided in the “Project Details” section of these project specifications. Fax questions to (559) 455-4609; e-mail to DesignServices@co.fresno.ca.us or mail to:
County of Fresno
Department of Public Works and Planning
2220 Tulare Street, Sixth Floor
Fresno, Ca. 93721-2104

Any changes to, or clarification of, the project plans and specifications shall be in the form of a written addendum issued to planholders of record. Questions that prompt a change or clarification shall be included in the addendum with the subsequent answer.

Any oral explanation or interpretations given to this project are not binding.

Bids shall be submitted in a sealed envelope addressed to the Department and labeled with the name of the bidder, the name of the project and the statement 'Do Not Open Until The Time Of Bid Opening.'

Bid security in the amount of ten (10) percent of the amount of the bid, and in the form of a bid bond issued by an admitted surety insurer licensed by the California Department of Insurance, cash, cashier's check or certified check shall accompany the bid. Bid security shall be made in favor of the County of Fresno.

No contract will be awarded to a contractor who has not been licensed in accordance with the provisions of the Contractors State License Law, California Business and Professions Code, Division 3, Chapter 9, as amended, or whose bid is not on the proposal form included in the contract document. A valid California Contractor's License, **Class A (General Engineering)**, is required for this project.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at County of Fresno, Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno CA 93721-2104 and available from the California Department of Industrial Relations' Internet web site at <http://www.dir.ca.gov/DLSR/PWD>. Future effective general prevailing wage rates, which have been predetermined and are on file with the California Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Bids are required for the entire work described herein. Bids will be compared on the basis of the total of bid items.

The successful bidder shall furnish a faithful performance bond in the amount of 100 percent of the contract amount and a payment bond in the amount of 100 percent of the contract amount. Each bond specified in this Notice (bid bond, faithful performance bond and payment bond) shall meet the requirements of all applicable statutes, including but not limited to those specified in Public Contract Code section 20129 and Civil Code section 3248.

Each bond specified in this Notice shall be issued by a surety company designated as an admitted surety insurer in good standing with and authorized to transact business in this state by the California Department of Insurance, and acceptable to the County of Fresno. Bidders are cautioned that representations made by surety companies will be verified with the California Department of Insurance. Additionally, the County of Fresno, in its discretion, when determining the sufficiency of a proposed surety company, may require the surety company to provide additional information supported by documentation. The County generally requires such information and documentation whenever the proposed surety company has either a Best's Key Rating Guide of less than **A** and a financial size designation of less than **VIII**. Provided, however, that the County expressly reserves its right to require all information and documentation to which the County is legally entitled from any proposed surety company.

The Board of Supervisors reserves the right to reject any or all bids.

Board of Supervisors, County of Fresno

Jean Rousseau, County Administrative Officer

Dated: November 15, 2016

By: Bernice E. Seidel, Clerk to the Board

DIVISION I GENERAL PROVISIONS

1 GENERAL

Replace the headings and paragraphs of Section 1 with:

1-1.01 GENERAL

The work is done in accordance with the 2010 Standard Specifications, 2010 Standard Plans and the following special provisions.

Where these special provisions indicate to replace, add to, delete, delete from, or otherwise modify a "section," or a portion thereof, the section or portion thereof to which such modification is to be applied is the section or portion thereof with the corresponding numbering in the 2010 Standard Specifications.

Except to the extent that they may conflict with these special provisions, revised standard specifications apply if included in the section entitled "Revised Standard Specifications" of the specifications.

Revised standard plans apply if listed on the "List of Revised Standard Plans," if any, in these special provisions.

In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and be used in lieu of such conflicting portions.

In case of conflict between applicable Revised Standard Specifications and these special provisions, the special provisions shall take precedence over and be used in lieu of such conflicting portions.

Section 1 includes general rules of interpretation.

The standard specifications are divided into 11 divisions.

Division I includes general specifications applicable to every contract unless specified as inapplicable under certain conditions.

Division II includes specifications for general construction applicable to every contract unless specified as applicable under certain conditions.

Divisions III through IX include construction specifications for specific bid items.

Division X includes specifications for common materials. For a material specified in this division, that material specified in any section must comply with the specifications in division X.

Division XI includes construction specifications for buildings.

The bid items set forth the construction specifications that apply. The first 2 digits of a bid item code correspond to the specification section number with the same 2 first digits except for bid item code 999990 that corresponds to section 9 and unless shown otherwise in the table titled "Bid Items and Applicable Sections" in the special provisions.

The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences written in the imperative mood as starting with "The Contractor must" and interpret "you" as "the Contractor" and "your" as "the Contractor's."

After Contract approval, submit documents and direct questions to the Engineer. Orders, authorizations, and requests to the Contractor are by the Engineer.

The following items from the Department are in writing:

1. Approvals
2. Authorizations
3. Decisions

CONTRACT NUMBER 16-16-SW

4. Notifications
5. Orders
6. Responses

The following items from the Contractor must be in writing:

1. Assignments
2. Notifications
3. Proposals
4. Reports
5. Requests, including RFIs, sequentially numbered
6. Subcontracts
7. Test results

Where a location is not specified with the words "shown," "specified," or "described," interpret:

1. "Shown" as "shown on the plans."
2. "Specified" as "specified in the specifications."
3. "Described" as "described in the Contract." "Described" means "shown, specified, or both."

Headings are included for the purposes of organization and referencing. Inclusion of a heading with no related content, "Not Used," or "Reserved" does not indicate that no specification exists for that subject; applicable specifications may be covered in a general or referenced specification.

Sections are reserved in the *Standard Specifications* for correlation of special provisions and revised standard specifications with the *Standard Specifications* and for future expansion of the *Standard Specifications*.

The specifications are expressed in U.S. customary units except where a referenced document uses the International System of Units as the standard.

Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.

All items in a list apply unless the items are specified as choices.

1-1.02 STYLE VARIATIONS

The Department is gradually standardizing the style of the specifications. The use of the new style does not change the meaning of a Contract part not using this style. The new style includes:

1. Use of:
 - 1.1. Imperative mood
 - 1.2. Introductory modifiers
 - 1.3. Conditional clauses
 - 1.4. Industry-standard terms
2. Elimination of:
 - 2.1. Language variations
 - 2.2. Definitions for industry-standard terms
 - 2.3. Redundant specifications
 - 2.4. Needless cross-references

Because of the transition, some terms or clauses used in Division I are different from those used in other divisions and in other Contract parts. Interpret the equivalent term or clause shown in the following table as having the same meaning as the corresponding term or clause in Division I:

Terms Equivalencies		
Term or clause in Division I	Equivalent term or phrase that may be in other divisions and in other Contract parts	Conditions
Authorize	Approve	Except in a <i>Change Order</i>
Authorized Material List	Pre-Qualified Products List	--
Department	Engineer	Where referring to anyone other than the Resident Engineer or the Resident Engineer's authorized representatives
Department-furnished material	State-furnished material	--
<work description> is change order work	<work description> will be paid for as extra work <with or without a reference to a section>	--

1-1.03–1-1.04 RESERVED

1-1.05 REFERENCES

A reference within parentheses to a law or regulation is included in the Contract for convenience only and is not a comprehensive listing of related laws and regulations. Lack of a reference does not indicate no related laws or regulations exist.

Where the version of a referenced document is not specified, use the most recent version in effect on the date adopted by the Fresno County Board of Supervisors shown on the *Notice to Bidders*.

A reference to a section includes the general specifications for the section.

Any reference directly to a revised standard specification section is for convenience only. Lack of a direct reference to a revised standard specification section does not indicate a revised standard specification for the section does not exist.

Where a section number is referenced without a reference to a document, the reference is to a section of the *Standard Specifications* as modified by the special provisions.

A code not specified as a federal code is a California code.

A department not specified as a federal or local department is a California department.

Any repetition of, special emphasis regarding, or superfluous reference to any requirement in the Standard Specifications does not diminish the applicability of other provisions in the Standard Specifications which are so not repeated, emphasized, or specially referenced in the special provisions.

1-1.06 ABBREVIATIONS

Interpret the meaning of an abbreviation used in the specifications and the Bid Item List as shown in the following table:

Abbreviations	
Abbreviation	Meaning
AASHTO	American Association of State Highway and Transportation Officials
AB	aggregate base

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMA	archaeological monitoring area
ANSI	American National Standards Institute
API	American Petroleum Institute
AREMA	American Railway Engineering and Maintenance-of-Way Association
AS	aggregate subbase
ASME	American Society of Mechanical Engineers
ASQ	American Society for Quality
ATPB	asphalt treated permeable base
AWG	American Wire Gauge
AWPA	American Wood Protection Association
AWS	American Welding Society ^a
AWWA	American Water Works Association
BBS	battery backup system
BNSF	Burlington Northern Santa Fe
Cal/OSHA	California Division of Occupational Safety and Health Administration
CBC	California Building Code
CDPH	California Department of Public Health
CIDH	cast-in-drilled-hole
CIH	Certified Industrial Hygienist
CIP	cast in place
CJP	complete joint penetration
CMU	concrete masonry unit
CPM	critical path method
CPL	composite plastic lumber
CRCP	continuously reinforced concrete pavement
CRM	crumb rubber modifier
CTB	cement treated base
CTPB	cement treated permeable base
CVN	Charpy V-notch
CWI	AWS Certified Welding Inspector
DBE	Disadvantaged Business Enterprise
DRA	Dispute Resolution Advisor
DRB	Dispute Resolution Board
DTSC	Department of Toxic Substances Control
DVBE	Disabled Veteran Business Enterprise
ECTC	Erosion Control Technology Council
EIA	Electronic Industries Alliance
ESA	environmentally sensitive area
ETL	Electrical Testing Laboratories
f_c	extreme fiber compressive stress in concrete at service loads
f'_c	compressive strength of concrete
FHWA	Federal Highway Administration
GAAP	Generally Accepted Accounting Principles
GGBFS	ground granulated blast furnace slag; slag cement
GSP	galvanized steel pipe
HMA	hot mix asphalt
HMA-O	hot mix asphalt (open graded)
HS	high strength
ICC	International Code Council
ITE	Institute of Transportation Engineers

IEEE	Institute of Electrical and Electronics Engineers
JMF	job mix formula
JPCP	jointed plain concrete pavement
Ksf	kips per square foot
Ksi	kips per square inch
LCB	lean concrete base
LEED	Leadership in Energy and Environmental Design
LOTB	log of test boring
LTDS	long term design strength
MC	medium curing
METS	Cal Trans Materials Engineering and Testing Services
MPI	Master Painters Institute
MR	movement rating
MSDS	material safety data sheet
MT	magnetic particle testing
<i>MUTCD</i>	<i>Manual on Uniform Traffic Control Devices</i>
NDT	nondestructive testing
NETA	International Electrical Testing Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
NPT	National Pipe Thread Taper
NRTL	Nationally Recognized Testing Laboratory
OBC	optimum binder content
OGFC	open graded friction course
OSD	Offices of Structure Design
PLAC	permit, license, agreement, certification, or any combination of these
PC	Precast
PCC	portland cement concrete
Pcf	pounds per cubic foot
PG	performance grade
PI ₀	zero blanking band profile index
PJP	partial joint penetration
POC	pedestrian overcrossing
PQR	procedure qualification record
PS	Prestressed
PSF	pedestrian signal face
PV	programmed visibility
QSD	qualified SWPPP developer
QSP	qualified SWPPP practitioner
RAP	reclaimed asphalt pavement
RCSC	Research Council on Structural Connections
RECP	rolled erosion control product
RFI	request for information
RHMA	rubberized hot mix asphalt
RHMA-G	rubberized hot mix asphalt (gap graded)
RHMA-O	rubberized hot mix asphalt (open graded)
RHMA-O-HB	rubberized hot mix asphalt (open graded high binder)
RPL	recycled plastic lumber
RSC	rapid strength concrete
RSP	rock slope protection
RSS	revised standard specifications

RT	radiographic testing
RWQCB	Regional Water Quality Control Board
SMSA	Standard Metropolitan Statistical Area
SC	slow curing
SCC	self-consolidating concrete
SCM	supplementary cementitious material
SSPC	The Society for Protective Coatings
SWPPP	storm water pollution prevention plan
TEES	Transportation Electrical Equipment Specifications
TIA	time impact analysis
TRO	time-related overhead
TV	target value
UFFA	ultra fine fly ash
UL	Underwriters Laboratories, Inc
USC	United States Code
USM	unidentified stock material
UT	ultrasonic testing
VECP	value engineering change proposal
VFD	Variable-frequency drive
VPM	volts per mil
WPC	water pollution control
LCS	Department's lane closure system
WPCP	water pollution control program
WPS	welding procedure specification

^aInterpret a reference to AWS as a reference to AWS, ANSI/AWS, or AASHTO/AWS

Bid Item List Abbreviations

Abbreviation	Meaning
ACRE	Acre
CF	cubic foot
CY	cubic yard
EA	Each
(F)	final pay item
GAL	Gallon
H	Hour
LB	Pound
LF	linear foot
LS	lump sum
LNMI	lane mile
MFBM	thousand foot board measure
MI	Mile
MSYD	thousand station yard
STA	station (100 feet)
SQFT	square foot
SQYD	square yard
TAB	Tablet
TON	2,000 pounds
WDAY	working day

1-1.07 DEFINITIONS

1-1.07A General

Interpret terms as defined in the Contract documents.

1-1.07B Glossary

acts of God: "Acts of God" as defined in Pub Cont Code § 7105

activity: Task, event, or other project element on a schedule that contributes to completing the project. An activity has a description, start date, finish date, duration, and one or more logic ties.

aerially deposited lead: Lead primarily from vehicle emissions deposited within unpaved areas or formerly unpaved areas.

agreement: the section in the Notice to Bidders and Special Provisions which includes forms which the successful bidder will be required to execute to enter into a contract with the Department.

archaeological monitoring area: Area within or near construction limits where access is allowed, but work is subject to archaeological monitoring.

archaeological resources: Remains of past human activity, including historic and prehistoric material (e.g., tools and tool fragments, hearth and food remains, structural remains, and human remains).

authorized laboratory: Independent testing laboratory (1) not employed or compensated by any subcontractor or subcontractor's affiliate providing other services for the Contract and (2) authorized by the California Department of Transportation.

base: Layer of specified material of planned thickness placed immediately below the pavement or surfacing.

basement material: Material in excavation or embankment under the lowest layer to be placed.

bid item: Specific work unit for which the Bidder provides a price.

Bid Item List: List of bid items and the associated quantities. The verified Bid Item List is the Bid Item List with verified prices. The Contract Proposal of Low Bidder at the Design Services web site is the verified Bid Item List. After Contract award, interpret a reference to the Bid Item List as a reference to the verified Bid Item List.

bridge: Structure that:

1. Has a bridge number
2. Carries a utility or railroad or vehicle, pedestrian, or other traffic over, under, or around obstructions or waterways

building-construction contract: Contract that involves the construction of a structure with a roof and walls.

California Test: California Department of Transportation-developed test for determining work quality. For California Tests, go to the METS Web site.

certificate of compliance: Certificate stating the material complies with the Contract.

Certified Industrial Hygienist: Industrial hygienist certified in comprehensive practice by the American Board of Industrial Hygiene.

change order work: Work described in a *Change Order*, including extra work and work described in the Contract as change order work.

commercial quality: Quality meeting the best general practices.

commercial source: Established business operating as a material source to the general public.

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Contract: Written and executed contract between the Department and the Contractor.

Contract acceptance: Engineer's written acceptance of a completed Contract.

Contract time: Number of original working days as adjusted by any time adjustment.

Contractor: Person or business or its legal representative entering into a Contract with the Department for performance of the work.

controlling activity: Construction activity that will extend the scheduled completion date if delayed.

County: The County of Fresno, including its agencies, departments or divisions whose conduct or action is related to the work.

critical path: Longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path extends the scheduled completion date.

critical path method: Network based planning technique using activity durations and relationships between activities to calculate a schedule for the entire project.

culvert: Structure other than a bridge that provides an opening under a roadway.

data date: Day after the date through which a schedule is current. Everything occurring earlier than the data date is as-built and everything on or after the data date is planned.

day: 24 consecutive hours running from midnight to midnight; calendar day.

1. **business day:** Day on the calendar except a Saturday and a holiday.
2. **working day:** Time measure unit for work progress. A working day is any 24-consecutive-hour period except:
 - 2.1. Day on the calendar except a Saturday and a holiday.
 - 2.2. Day during which you cannot perform work on the controlling activity for at least 50 percent of the scheduled work shift with at least 50 percent of the scheduled labor and equipment due to any of the following:
 - 2.2.1. Adverse weather-related conditions.
 - 2.2.2. Maintaining traffic under the Contract.
 - 2.2.3. Suspension of a controlling activity that you and the Engineer agree benefits both parties.
 - 2.2.4. Unanticipated event not caused by either party such as:
 - 2.2.4.1. Act of God.
 - 2.2.4.2. Act of a public enemy.
 - 2.2.4.3. Epidemic.
 - 2.2.4.4. Fire.
 - 2.2.4.5. Flood.
 - 2.2.4.6. Governor-declared state of emergency.
 - 2.2.4.7. Landslide.
 - 2.2.4.8. Quarantine restriction.
 - 2.2.5. Issue involving a third party, including:
 - 2.2.5.1. Industry or area-wide labor strike.
 - 2.2.5.2. Material shortage.
 - 2.2.5.3. Freight embargo.
 - 2.2.5.4. Jurisdictional requirement of a law enforcement agency.
 - 2.2.5.5. Workforce labor dispute of a utility or nonhighway facility owner resulting in a nonhighway facility rearrangement not described and not solely for the Contractor's convenience. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.
 - 2.3. Day during a concurrent delay.
3. **original working days:**

- 3.1. Working days to complete the work shown on the *Notice to Bidders* for a non–cost plus time based bid.
- 3.2. Working days bid to complete the work for a cost plus time based bid.

Where working days is specified without the modifier "original" in the context of the number of working days to complete the work, interpret the number as the number of original working days as adjusted by any time adjustment.

daytime: The time between sunrise and sunset each day as determined by the National Oceanic and Atmospheric Administration's National Weather Service (www.noaa.nws.gov) for the project location.

Department-owned float: Time saved on the critical path by actions of the Department. It is the last activity shown on the schedule before the scheduled completion date.

deduction: Money permanently taken from progress payment and final payment. Deductions are cumulative and are not retentions under Pub Cont Code § 7107.

delay: Event that extends the completion of an activity.

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the work began such as:
 - 1.1. Change in the work
 - 1.2. Department action that is not part of the Contract
 - 1.3. Presence of an underground utility main not described in the Contract or in a location substantially different from that specified
 - 1.4. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the Contractor's convenience
 - 1.5. Department's failure to obtain timely access to the right-of-way
 - 1.6. Department's failure to review a submittal or provide notification in the time specified
2. **critical delay:** Excusable delay that extends the scheduled completion date
3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
 - 3.1. Critical delay
 - 3.2. Delay to a controlling activity caused by you
 - 3.3. Non–working day

Department: The Fresno County Board of Supervisors and its authorized representatives.

Design Services: A section of the Design Division of the Fresno County Department of Public Works and Planning responsible for administration of construction contracts out for bids.

detour: Temporary route for traffic around a closed road part. A passageway through a job site is not a detour.

Director: Chairman of the Fresno County Board of Supervisors.

Disadvantaged Business Enterprise: Disadvantaged Business Enterprise as defined in 49 CFR 26.5.

dispose of: Remove from the job site.

divided highway: Highway with separated traveled ways for traffic, generally in opposite directions.

early completion time: Difference in time between an early scheduled completion date and the work completion date.

Engineer: The Director of the Fresno County Department of Public Works and Planning or his authorized representative, typically the Resident Engineer responsible for the Contract's administration or the Resident Engineer's authorized representatives.

environmentally sensitive area: Area within or near construction limits where access is prohibited or limited to protect environmental resources.

estimated cost: Estimated cost of the project.

extra work: Any work, desired or performed, but not included in the original Contract.

federal-aid contract: Contract that has a federal project funding number on the cover of the *Specifications*.

final pay item: Bid item whose quantity shown on the Bid Item List is the quantity paid.

fixed cost: Labor, material, or equipment cost directly incurred by the Contractor as a result of performing or supplying a particular bid item that remains constant regardless of the item's quantity.

float: Difference between the earliest and latest allowable start or finish times for an activity.

force account work: Work ordered on a construction project without an existing agreement on its cost, and performed with the understanding that the contractor will bill the owner according to the cost of labor, materials, and equipment, plus a certain percentage for overhead and profit.

grading plane: Basement material surface on which the lowest layer of subbase, base, pavement, surfacing, or other specified layer is placed.

highway: Whole right-of-way or area reserved for use in constructing the roadway and its appurtenances.

holiday: Holidays are as shown in the following table:

Holidays	
Holiday	Date observed
Every Sunday	Every Sunday
New Year's Day	January 1 st
Birthday of Martin Luther King, Jr.	3rd Monday in January
Presidents' Day	3rd Monday in February
Cesar Chavez Day	March 31 st
Memorial Day	Last Monday in May
Independence Day	July 4 th
Labor Day	1st Monday in September
Veterans Day	November 11 th
Thanksgiving Day	4th Thursday in November
Day after Thanksgiving Day	Day after Thanksgiving Day
Christmas Day	December 25 th

If January 1st, March 31st, July 4th, November 11th, or December 25th fall on a Sunday, the Monday following is a holiday. If November 11th falls on a Saturday, the preceding Friday is a holiday.

idle equipment: Equipment:

1. On the job site at the start of a delay
2. Idled because of the delay
3. Not operated during the delay

job site: Area within the defined boundaries of a project.

Labor Surcharge and Equipment Rental Rates: California Department of Transportation publication that lists labor surcharge and equipment rental rates.

landscaping: Practice of a landscaping contractor under 16 CA Code of Regs § 832.27.

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listed species: Any species listed as threatened or endangered under (1) federal Endangered Species Act of 1973, 16 USC § 1531 et seq., (2) California Endangered Species Act, Fish & Game Code §§ 2050–2115.5, or (3) both.

material: Any product or substance specified for use in the construction of a project.

material shortage: Shortage of raw or produced material that is area-wide and caused by an unusual market condition except if any of the following occurs:

1. Shortage relates to a produced, nonstandard material
2. Supplier's and the Contractor's priority for filling an order differs
3. Event outside the U.S. for a material produced outside the U.S.

material source facility audit: Self-audit and a Department audit evaluating a facility's capability to consistently produce materials that comply with Department standards.

median: Portion of a divided highway separating the traveled ways including inside shoulders.

milestone: Event activity that has zero duration and is typically used to represent the start or end of a certain stage of the project.

mobilization: Preparatory work that must be performed or costs incurred before starting work on the various items on the job site (Pub Cont Code § 10104).

narrative report: Document submitted with each schedule that discusses topics related to project progress and scheduling.

near critical path: Chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.

nighttime: the period of time beginning at sunset on one day and ending at sunrise of the following day, with sunset and sunrise as determined by the National Oceanic and Atmospheric Administration's National Weather Service (www.noaa.nws.gov) for the project location.

owner: The County of Fresno, including its agencies, departments or divisions whose conduct or action is related to the work.

paleontological resources: Fossils and the deposits they are found in. Fossils are evidence of ancient life preserved in sediments and rock. Examples of paleontological resources are remains of (1) animals, (2) animal tracks, (3) plants, and (4) other organisms. Archaeological resources are not paleontological and fossils found within an archaeological resource are generally considered archaeological resources, not paleontological resources.

pavement: Uppermost layer of material placed on the traveled way or shoulder.

permitted biological activities: Monitoring, surveying, or other practices that require a take permit and project-specific permission from the U.S. Fish and Wildlife Service or NOAA Fisheries or a take permit or memorandum of understanding with the Department of Fish and Game.

plans: Standard plans, revised standard plans, and project plans.

1. **standard plans:** Plans developed by the State of California Department of Transportation (Caltrans).. These plans are in a book titled Standard Plans 2010.
2. **revised standard plans:** New or revised standard plans.
3. **project plans:** Drawings specific to the project, including authorized shop drawings.

plant establishment period: Number of days shown on the *Notice to Bidders* for plant establishment.

protective radius: Minimum distance between construction activities and a regulated species.

quality control plan: Contractor's plan to ensure QC.

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retentions: money earned by a contractor but not paid for an agreed period as a safeguard against any faults found in the work carried out.

regulated species: Any species protected by one or any combination of the following:

1. Federal Endangered Species Act of 1973, 16 USC § 1531 et seq.
2. California Endangered Species Act, Fish & Game Code §§ 2050–2115.5
3. Fish & Game Code §§ 1600–1616
4. National Environmental Policy Act, 42 USC § 4321 et seq.
5. California Environmental Quality Act, Pub Res Code § 21000 et seq.
6. Other law or regulation that governs activities that affect species or their habitats

roadbed: Roadway portion extending from curb line to curb line or shoulder line to shoulder line. A divided highway has 2 roadbeds.

roadside: Area between the outside shoulder edge and the right-of-way limits.

roadway: That portion of the highway within the outside lines of curbs, sidewalks, slopes, ditches, channels, or waterways. Roadway includes structures and features necessary for safety, protection of facilities, and drainage.

routine biological activities: Biological monitoring, surveying, or other activity that does not require a take permit from the U.S. Fish and Wildlife Service or NOAA Fisheries or a take permit or memo of understanding with the Department of Fish and Game.

schedule:

1. **baseline schedule:** Initial schedule showing the original work plan starting on the date of Contract approval. This schedule shows no completed work to date and no negative float or negative lag to any activity.
2. **revised schedule:** Schedule that incorporates a proposed or past change to logic or activity durations.
3. **updated schedule:** Current schedule developed from the accepted baseline and any subsequent accepted updated or revised schedules through regular monthly review to incorporate actual past progress.

scheduled completion date: Planned work completion date shown on the current schedule.

service-approved biologist: Biologist whose activities must be approved by a state or federal agency as provided in PLACs.

shoulder: Roadway portion contiguous with the traveled way for stopped vehicle accommodation, emergency use, and lateral support of base and surface courses.

small tool: Tool or piece of equipment not listed in Labor Surcharge and Equipment Rental Rates that has a replacement value of \$500 or less.

specifications: Standard specifications, revised standard specifications, and special provisions.

1. **standard specifications:** Specifications developed by the State of California Department of Transportation (Caltrans.) These specifications are in a book titled *Standard Specifications 2010*.
2. **revised standard specifications:** New or revised standard specifications.
3. **special provisions:** Specifications specific to the project including the book entitled “Technical Specifications”. These specifications are in a section titled *Special Provisions* of a book titled *Specifications*.

State: The County of Fresno, including its agencies, departments or divisions whose conduct or action is related to the work.

Structure Design: Offices of Structure Design of the Department of Transportation.

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subbase: Layer of material between a base and the basement material.

subgrade: Roadbed portion on which pavement, surfacing, base, subbase, or a layer of any other material is placed.

submittal:

1. **action submittal:** Written and graphic information and samples that require the Department's response.
2. **informational submittal:** Written information that does not require the Department's response.

substantial defects: Defects plainly seen as damaged, displaced, or missing parts or improper functioning of materials, parts, equipment, or systems.

substructure: Bridge parts below the bridge seats, pier tops, and haunches for rigid-framed bridges or spring lines for arched bridges; includes abutment backwalls, abutment parapets, and wingwalls.

superstructure: Bridge parts except the substructure.

supplemental project information: Information relevant to the project, specified as supplemental project information, and made available to bidders.

surfacing: Uppermost layer of material placed on a traveled way or shoulders; pavement.

take: Legal definition regarding harm to listed species as defined in 16 USC § 1532 and Fish & Game Code § 86.

take permit: Permit granted by the U.S. Fish and Wildlife Service or by the NOAA Fisheries that allows take of federal-listed species under 16 USC § 1539 or by the Department of Fish and Game that allows take of state-listed species under Fish & Game Code § 2081.

time impact analysis: Analysis using a CPM schedule developed specifically to demonstrate the effect a proposed or past change or delay has on the current scheduled completion date.

timely: accomplishment of a task in accordance with the associated requirements in the special provisions.

time-scaled network diagram: Graphic depiction of a CPM schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

total bid: Sum of the item totals as verified by the Department; original Contract price.

total float: Amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

traffic: Pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

traffic lane: Portion of traveled way used for the movement of a single line of vehicles.

traveled way: Roadway portion for the movement of vehicles except shoulders.

tunnel: Tunnel as defined in 8 CA Code of Regs § 8405 et seq.

unauthorized work: Work performed beyond the lines and grades described in the Contract or established by the Engineer or extra work performed without authority.

withhold: Money temporarily or permanently taken from progress payment.

work: Resources and activities required for Contract acceptance, including labor, materials, equipment, and the created product.

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work zone: Area of a highway with construction, maintenance, or utility work activities.

1-1.09 FREEZE-THAW AREAS

This project is not in a freeze-thaw area.

1-1.11 WEB SITES, ADDRESSES, AND TELEPHONE NUMBERS

Reference or agency or department unit	Web site	Address	Telephone no. Fax no. Email
Authorized Laboratory Lists Authorized Material Lists Authorized Material Source Lists	http://www.dot.ca.gov/hq/esc/approved_products_list	--	--
CA Unified Certification Program's list of certified DBEs	http://www.dot.ca.gov/hq/bep/find_certified.htm	--	--
Department	http://www.co.fresno.ca.us/	--	--
Department of Conservation, Office of Mine Reclamation	http://www.conservaion.ca.gov/omr/	--	--
Department of Industrial Relations	http://www.dir.ca.gov	455 GOLDEN GATE AVENUE SAN FRANCISCO CA 94102	--
Design Services - Contract Administration, Planholders, Bid Results	http://www.co.fresno.ca.us/planholders	2220 TULARE STREET; 7 TH FLOOR; FRESNO, CA 93721	Tel: (559) 600-4528 Fax:(559) 600-4399 Email: DesignServices@co.fresno.ca.us
Publication Distribution Unit	--	PUBLICATION UNIT DEPARTMENT OF TRANSPORTATION 1900 ROYAL OAKS DR SACRAMENTO CA 95815-3800	--

Make checks and bonds payable to the Fresno County Director of Department of Public Works and Planning.

AA

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2 BIDDING

Replace the headings and paragraphs of Section 2 with:

2-1.01 GENERAL

Section 2 includes specifications related to bid eligibility and the bidding process.

2-1.02 BID INELIGIBILITY

A firm that has provided architectural or engineering services to the Department for this contract before bid submittal for this contract is prohibited from any of the following:

1. Submitting a bid
2. Subcontracting for a part of the work
3. Supplying materials

2-1.03–2-1.05 RESERVED

2-1.06 BID DOCUMENTS

2-1.06A General

Standard Specifications and *Standard Plans* may be purchased at the Publication Distribution Unit.

The *Specifications* and project plans may be viewed at the Design Services website.

Bid books may be ordered from Design Services.

The *Specifications* include, but may not be limited to, the *Notice to Bidders*, *Special Provisions*, *Federal Requirements*, *Project Details*, *Agreement*, and the *Bid Book*.

2-1.06B Supplemental Project Information

The Department makes supplemental project information available as shown in the following table and as otherwise specified in the special provisions:

Supplemental Project Information

Where Available	Description
Included in <i>Project Details</i> in the <i>Notice to Bidders</i> and <i>Special Provisions</i>	Title V Permit to Operate in San Joaquin Air Pollution District Limits

2-1.06C–2-1.06D Reserved

2-1.07 JOB SITE AND DOCUMENT EXAMINATION

Examine the job site and bid documents.

Bid submission is your acknowledgment that you have examined the job site and bid documents and are satisfied with:

1. General and local conditions to be encountered
2. Character, quality, and scope of work to be performed
3. Quantities of materials to be furnished
4. Character, quality, and quantity of surface and subsurface materials or obstacles
5. Requirements of the contract

2-1.08 RESERVED

2-1.09 BID ITEM LIST

Submit a bid based on the bid item quantities the Department shows on the Bid Item List.

2-1.10 SUBCONTRACTOR LIST

On the Subcontractor List form, list each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or \$10,000, whichever is greater (Pub Cont Code § 4100 et seq.).

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The Subcontractor List form must show the name, address, the contractors license number, and work portions to be performed by each subcontractor listed. Show work portions by bid item number, description, and percentage of each bid item subcontracted.

2-1.11 RESERVED

2-1.12 DISADVANTAGED BUSINESS ENTERPRISES

Not used.

2-1.13–2-1.23 RESERVED

2-1.24 TIED BID RESOLUTION

After bid verification, the Chairman of the Department's Board of Supervisors breaks a tie between 2 bidders with a coin toss.

After bid verification the Chairman of the Department's Board of Supervisors breaks a tie between more than 2 bidders with a succession of coin tosses.

2-1.25–2-1.28 RESERVED

2-1.29 NOT USED

2-1.30–2-1.32 RESERVED

2-1.33 BID DOCUMENT COMPLETION

2-1.33A General

Complete forms in the *Bid* book.

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date

Certain bid forms must be submitted with the bid and properly executed.

Certain other forms and information must be submitted either with the bid or within the prescribed period after bid opening as specified elsewhere in these special provisions.

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

2-1.33B Bid Item List and Bid Comparison

Submit a bid based on the bid item quantities the Department shows on the Bid Item List. Bids will be evaluated and the low bidder determined as indicated in the *Notice to Bidders*.

2-1.33C Bid Document Completion

Proposal sheets are identified by title and by the letter "P" followed by the number assigned to the proposal sheet in question. Proposal sheets are included in the *Bid Book*.

2-1.33C(1) Proposal 1 - Proposal to the Board of Supervisors of Fresno County

2-1.33C(2) Proposal 2 - Bid Proposal Sheet

One or more sheet(s) upon which the bidder completes the bid.

Fill out completely including a unit price and total for each unit price-based item and a total for each lump sum item.

Do not make any additions such as "plus tax", "plus freight", or conditions such as "less 2% if paid by 15th".

Use ink or typewriter.

2-1.33C(3) Proposal 3 - Evaluation of Bid Proposal Sheet

Describes how inconsistencies and irregularities are evaluated and corrected when Design Services reviews the Bid Sheet.

2-1.33C(4) Proposal 4 - Bid Security and Signature

Submit one of the following forms of bidder's security equal to at least 10 percent of the bid:

- Cash
- Cashier's check
- Certified check
- Signed bidder's bond by an admitted surety insurer

Indicate type of bid security provided.

- Cash – Acceptable but not recommended. Cash is deposited in a clearing account and is returned to bidders by County warrant. This process may take several weeks.
- Cashier's or Certified Checks. This type of security is held until the bid is no longer under consideration. If submitted by a potential awardee, they will be returned when the contract is fully executed by the bidder and bonds and insurance have been approved.
- Bid Bonds - Must be signed by the bidder and by the attorney-in-fact for the bonding company. Provide notarized signature of attorney-in-fact accompanied by bonding company's affidavit authorizing attorney-in-fact to execute bonds. An unsigned bid bond will be cause for rejection.

Provide contractors license information.

State business name and if business is a:

- Corporation - list officers
- Partnership - list partners
- Joint Venture - list members; if members are corporations or partnerships, list their officers or partners.
- Individual - list Owner's name and firm name style

Signature of Bidder - the following lists types of companies and corresponding authorized signers.

- Corporation - by an officer
- Partnership - by a partner
- Joint Venture - by a member
- Individual - by the Owner

If signature is by a Branch Manager, Estimator, Agent, etc., the bid must be accompanied by a power of attorney authorizing the individual to sign the bid in question or to sign bids more generally, otherwise the bid may be rejected.

Business Address - Firm's Street Address

Mailing Address - P.O. Box or Street Address

Complete, sign, and return with bid.

2-1.33C(5) Proposal 5 - Noncollusion Affidavit

Must be completed, signed, and returned with bid.

2-1.33C(6) Proposal 6 - Public Contract Code Section 10285.1 Statement

Check "has" or "has not" in accordance with instructions on form, return completed form with bid. Note that signing the bid constitutes signing this statement.

2-1.33C(7) Proposal 7 - Public Contract Code Section 10162 Questionnaire And Public Contract Code 10232 Statement

Check: "yes" or "no" accordance with instructions on form, include explanation if "yes" is checked. Return completed form with bid. Note that signing the bid constitutes signing this questionnaire and statement.

2-1.33C(8) Proposal 8(a) through Proposal 8(f) - Subcontractors

Sheet(s) upon which bidder lists subcontractors. List each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or \$10,000, whichever is greater (Pub Cont Code § 4100 et seq.). The *Subcontractor List* submitted with the bid must show the name, location of business, work portions to be performed, and the contractor's license number for each subcontractor listed.

- Use subcontractor's business name style as registered with the License Board.
- Specify the city in which the subcontractor's business is located and the state if other than California.
- Description of the work to be performed by the subcontractor. Indicate with bid item numbers from the bid sheet and/or work descriptions similar to those on bid sheet.
- List license number and Department of Industrial Relations registration number for each subcontractor.

Upon request from Design Services, provide the following additional information within 24 hours of bid opening if not included on the *Subcontractor List* submitted with the bid:

- Complete physical address for each subcontractor listed.
- Percentage of the total bid or dollar amount associated with each subcontractor listed.

2-1.33C(9) Proposal 9

Not Used

2-1.33C(10) Proposal 10

Not Used

2-1.33C(11) Proposal 11

Not Used

2-1.33C(12) Proposal 12(a) through Proposal 12(b)

Not Used

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2-1.33C(13) Proposal 13(a) through Proposal 13(b)

Not Used

2-1.33C(14) Proposal 14(a) through Proposal 14(c)

Not Used

2-1.33C(15) Proposal 15

Not Used

2-1.33C(16) Proposal 16 - *Guaranty*

Does not need to be signed with the bid. Part of the contract which must be signed by the contractor when contract is executed.

2-1.34–2-1.39 RESERVED

2-1.40 BID WITHDRAWAL

An authorized agent may withdraw a bid before the bid opening date and time by submitting a written, signed bid withdrawal request at the location where the bid was submitted.

Only an individual who is authorized to sign the bid is authorized to sign a request to withdraw the bid.

Withdrawing a bid does not prevent you from submitting a new bid.

2-1.41–2-1.42 RESERVED

2-1.43 BID OPENING

Design Services publicly opens and reads bids at the time and place shown on the Notice to Bidders.

2-1.44–2-1.45 RESERVED

2-1.46 DEPARTMENT'S DECISION ON BID

The Department's decision on the bid amount is final.

The Department may reject:

1. All bids
2. A nonresponsive bid

2-1.47 BID RELIEF

The Department may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to Design Services.

2-1.48 RESERVED

2-1.49 SUBMITTAL FAILURE HISTORY

The Department considers a bidder's past failure to submit documents required after bid opening in determining a bidder's responsibility.

2-1.50 DISCLOSURE OF SELF-DEALING TRANSACTIONS

This provision is only applicable if the contractor is operating as a corporation (a for-profit or non-profit corporation) or if during the term of this agreement, the contractor changes its status to operate as a corporation.

Members of the contractor's Board of Directors shall disclose any self-dealing transactions that they are a party to while contractor is providing goods or performing services under this agreement. A self-dealing transaction shall mean a transaction to which the contractor is a party and in which one or more of its

directors has a material financial interest. Members of the Board of Directors shall disclose any self-dealing transactions that they are a party to by completing and signing a Self-Dealing Transaction Disclosure Form which is included in *Project Details* of these special provisions.

In the event that the Contractor (to whom the project is awarded) is operating as a corporation or incorporates during the course of the construction contract, and any member of its board of directors is engaged or intends to become engaged in self-dealing transaction(s), each member of its board of directors who is engaged or intends to become engaged in a self-dealing transaction or transactions must complete and submit to the County a completed Self-Dealing Transaction Disclosure Form (in Project Details) for each such transaction prior to engaging therein or immediately thereafter.

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3 CONTRACT AWARD AND EXECUTION

Replace the headings and paragraphs of Section 3 with:

3-1.01 GENERAL

Section 3 includes specifications related to contract award and execution.

3-1.02-3-1.03 RESERVED

3-1.04 CONTRACT AWARD

If the Department awards the contract, the award is made to the lowest responsible bidder within 54 days after bid opening.

The Department may extend the specified award period if the bidder agrees.

3-1.05 CONTRACT BONDS (PUB CONT CODE §§ 10221 AND 10222)

The successful bidder must furnish 2 bonds conforming to the requirements in the *Agreement* of these special provisions.

3-1.06 CONTRACTOR LICENSE

For a federal-aid contract, the Contractor must be properly licensed as a contractor from contract award through Contract acceptance (Pub Cont Code § 10164).

For a non-federal-aid contract:

1. The Contractor must be properly licensed as a contractor from bid opening through Contract acceptance (Bus & Prof Code § 7028.15)
2. Joint venture bidders must obtain a joint venture license before contract award (Bus & Prof Code § 7029.1)

3-1.07 INSURANCE POLICIES

The successful bidder must submit copies of its insurance policies conforming to the requirements in the *Agreement* of these special provisions.

3-1.08 NOT USED

3-1.09-3-1.10 RESERVED

3-1.11 NOT USED

3-1.12 NOT USED

3-1.13-3-1.17 RESERVED

3-1.18 CONTRACT EXECUTION

The successful bidder must sign the *Agreement*.

Deliver to Design Services:

CONTRACT NUMBER 16-16-SW

1. Signed *Agreement*
2. Contract bonds
3. Documents identified in section 3-1.07

Design Services must receive these documents before the 10th business day after the bidder receives the contract.

The bidder's security may be forfeited for failure to execute the contract within the time specified (Pub Cont Code §§ 10181, 10182, and 10183).

3-1.19 BIDDERS' SECURITIES

The Department keeps the securities of the 1st, 2nd, and 3rd low bidders until the contract has been executed. The other bidders' securities, other than bidders' bonds, are returned upon determination of the 1st, 2nd, and 3rd low bidders, and their bidders' bonds are of no further effect

^^

4 SCOPE OF WORK

Replace the headings and paragraphs of Section 4 with:

4-1.01 GENERAL

Section 4 includes specifications related to the scope of work.

4-1.02 INTENT

The Contract intent is to provide for work completion using the best general practices.

Nothing in the special provisions, Standard Specifications, or in any other Contract document voids the Contractor's public safety responsibilities.

4-1.03 WORK DESCRIPTION

Construct the work described on the *Notice to Bidders* and as described in the Contract.

4-1.04 USE OF MATERIALS FOUND ON THE JOB SITE

You may use aggregate or other materials found in excavation that comply with the specifications. The Department pays for the material excavated as included in the various items of work, and no additional compensation will be allowed therefor. The use of material must be authorized by the Engineer or have been designated for use in the work. Except for material used as structure backfill, the Department does not pay for replacing the material. The Department pays for excavated material replacement used for structure backfill at the Contract price for the item utilizing structure backfill. Do not excavate material from outside the excavation's slope and grade lines without authorization.

4-1.05 CHANGES AND EXTRA WORK

4-1.05A General

The Department may make changes within the scope of work and add extra work. The Engineer describes the changes and extra work, the payment basis, and any time adjustment in a *Change Order*.

A *Change Order* is approved when the Director signs the *Change Order*.

Continue contract operations as directed by the Engineer pending approval of any change order. Do not begin change order work until the change order has been approved in writing.

Submit detailed cost data for a unit price adjustment for a bid item if (1) the Engineer requests the data or (2) you request a unit price adjustment resulting from a change of more than 25 percent in the bid item's quantity.

4-1.05B Work-Character Changes

The Department adjusts the unit price for an item if:

1. An ordered plan or specification change materially changes the character of a work item from that on which the bid price was based
2. The unit cost of the changed item differs when compared to the unit cost of that item under the original plans and specifications
3. No approved *Change Order* addresses the payment

4-1.06 DIFFERING SITE CONDITIONS (23 CFR 635.109)

4-1.06A General

Reserved

4-1.06B Contractor's Notification

Promptly notify the Engineer if you find either of the following conditions:

1. Physical conditions differing materially from either of the following:

- 1.1. Contract documents
- 1.2. Job site examination
2. Physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract

Include details explaining the information you relied on and the material differences you discovered.

If you fail to promptly notify the Engineer, you waive the differing site condition claim for the period between your discovery of the differing site condition and your notification to the Engineer.

If you disturb the site after discovery and before the Engineer's investigation, you waive the differing site condition claim.

4-1.06C Engineer's Investigation and Decision

Upon your notification, the Engineer investigates job site conditions and:

1. Notifies you whether to resume affected work
2. Decides whether the condition differs materially and is cause for an adjustment of time, payment, or both

4-1.07 VALUE ENGINEERING

4-1.07A General

Reserved

4-1.07B Value Engineering Change Proposal

You may submit a VECP to reduce any of the following:

1. Total cost of construction
2. Construction activity duration
3. Traffic congestion

Before preparing a VECP, meet with the Engineer to discuss:

1. Proposal concept
2. Permit issues
3. Impact on other projects
4. Project impacts, including traffic, schedule, and later stages
5. Peer reviews
6. Overall proposal merits
7. Review times required by the Engineer and other agencies

The VECP must not impair the project's essential functions or characteristics, including:

1. Service life
2. Operation economy
3. Maintenance ease
4. Desired appearance
5. Design and safety

The VECP must include:

1. Description of the Contract specifications and drawing details for performing the work and the proposed changes.
2. Itemization of Contract specifications and plan details that would be changed.
3. Detailed cost estimate for performing the work under the existing Contract and under the proposed change. Determine the estimates under section 9-1.04.
4. Deadline for the Engineer to decide on the changes.
5. Bid items affected and resulting quantity changes.

If the Engineer does not approve a *Change Order* before the deadline stated in the VECP or other date you subsequently stated in writing, the VECP is rejected. The Engineer does not adjust time or payment for a rejected VECP.

The Engineer may require you to accept a share of the investigation cost as a condition of reviewing a VECP. After written acceptance, the Engineer considers the VECP and deducts the agreed cost.

1. Incorporates changes in the Contract necessary to implement the VECP or the parts adopted
2. Includes the Engineer's acceptance conditions
3. States the estimated net construction-cost savings resulting from the VECP
4. Obligates the Engineer to pay you 50 percent of the estimated net savings

If a VECP providing for a reduction in working days is accepted by the Engineer, 50 percent of the reduction is deducted from Contract time.

The Engineer may apply an accepted VECP for general use on other contracts.

If the Engineer does not adopt a general-use VECP, an identical or similar submitted proposal is eligible for acceptance.

4-1.13 CLEANUP

1. Rubbish
2. Excess materials
3. Falsework
4. Temporary structures
5. Equipment

AA

5 CONTROL OF WORK

Delete the 9th Paragraph of Section 5-1.01

Add to Section 5-1.02 after the first sentence:

With regard to the governing ranking of Contract parts, the book entitled "Technical Specifications" is considered to be part of the Special Provisions.

Delete Section 5-1.09

Replace Section 5-1.12 with:

5-1.12 ASSIGNMENT

No third-party agreement relieves you or your surety of the responsibility to complete the work. Do not sell, transfer, or otherwise dispose of any Contract part without prior written consent from the Department.

If you assign the right to receive Contract payments, the Engineer accepts the assignment upon the Engineer's receipt of a notice. Assigned payments remain subject to deductions and withholds described in the Contract. The Department may use withheld payments for work completion whether payments are assigned or not.

A pending or disapproved request for assignment does not relieve you of the responsibility to commence and pursue work timely and in strict accordance with contract documents.

Delete Section 5-1.13C

Delete Section 5-1.13D

Add to Section 5-1.20A:

During the progress of the work under this Contract, the American Avenue Disposal Site will be operating. Coordination with owner forces will be necessary to avoid interfering with normal business to the greatest possible extent.

Work for the **AADS – Phase III – Modules 7 & 8 Excavation and Liner System** may be in progress at or near the job site of this contract.

Replace Section 5-1.20B(4) with

5-1.20B(4) Contractor-Property Owner Agreement

Before procuring material from or disposing or stockpiling of material on nonhighway property:

1. Provide proof that the property where materials are to be stockpiled or equipment parked/stored is appropriately zoned and/or permitted for the use proposed by the Contractor.
2. Obtain written authorization from each and every owner of the property where materials are to be stockpiled or equipment parked/stored.
3. Provide proof that the signor(s) of the authorization are the owners of the property.
4. Provide an executed release from the property owner(s) absolving the Department from any and all responsibility in connection with the stockpiling of materials or parking/storage of equipment on said property.
5. Obtain written permission from the Engineer to stockpile materials or park/store equipment at the location designated in said authorization.

Before Contract acceptance, submit a document signed by the owner of the material source or disposal site stating that the Contractor has complied with the Contractor-owner agreement.

Failure by the Contractor to provide written authorization shall result in the withholding of all funds due to the Contractor until said authorization is received by the County.

Replace Section 5-1.26 with:

5-1.26 CONSTRUCTION SURVEYS

The Engineer places stakes and/or marks as the Engineer determines to be necessary to establish the lines and grades required for the work.

Submit your request for Engineer-furnished stakes:

1. Once staking area is ready for stakes
2. On a Request for Construction Staking form

After your submittal, the Engineer starts staking within 2 business days.

Preserve stakes and marks placed by the Engineer. If the stakes or marks are destroyed, the Engineer replaces them at the Engineer's earliest convenience and deducts the cost.

Replace Section 5-1.27E with:

5-1.27E Change Order Bills

Maintain separate records for change order work costs.

Replace Section 5-1.32 with:

5-1.32 AREAS FOR USE

Occupy the site only for purposes necessary to perform the work.

Defend, indemnify, and hold the Department harmless to the same extent as under section 7-1.05.

The Department does not allow temporary residences within the site.

6 CONTROL OF MATERIALS

Replace Section 6-2.03 with:

6-2.03 DEPARTMENT-FURNISHED MATERIALS

Request Department-furnished material at least 15 days before their scheduled installation.

If the Department furnishes the material:

1. At the job site, unload and store the material
2. At a location other than the job site, pick up the material, deliver to the job site and store it

You are responsible for the return or disposal of surplus Department-furnished material as specified or as directed.

Department-furnished material not used in the work remains the property of the Department.

Add to Section 6-2.03:

The Department furnishes you with:

- Leachate Pumps
- Lysimeter Pumps
- Mechanical Flow Meters
- Promag Mag Flow Transmitters
- Disks for survey monuments

Replace Section 6-3.02 with:

6-3.02 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

If substitution is expressly precluded for particular components by the special provisions, provide the specified components and do not request substitution.

A non-exclusive reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Except for components for which the special provisions disallow substitution, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

Include substantiating data with the substitution request that proves that substitution:

1. Causes no delay
2. Is of equal or better quality and suitability

Replace Section 6-3.05A with:

6-3.05A General

The Department may use multiple QA methods for a material.

The Department's performs QA at its discretion.

You are solely responsible for ensuring the quality of your work.

Allow the Department to record, including photograph and video record, to ensure a material is produced to comply with the Contract.

You may examine the records and reports of tests the Department performs if they are available at the job site.

Schedule work to allow time for QA.

The Department deducts testing costs for work that does not comply with the Contract.

The Department may retest material previously tested and authorized for use. If the Department notifies you of a retest, furnish resources for retesting.

For a material specified to comply with a State Specification number, the material may comply with a later version of the specification. Obtain State Specifications from METS.

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Replace the 2nd Paragraph of Section 7-1.02K(2) with:

The general prevailing wage rates and any applicable changes to these wage rates are available:

1. From Design Services
2. From the Department of Industrial Relations' Web site

Replace Section 7-1.02K(3) with:

7-1.02K(3) Certified Payroll Records (Labor Code § 1776)

Keep accurate payroll records.

Submit a copy of your certified payroll records, weekly, including those of subcontractors. Include:

1. Each employee's:
 - 1.1. Full name
 - 1.2. Address
 - 1.3. Social security number
 - 1.4. Work classification
 - 1.5. Straight time and overtime hours worked each day and week
 - 1.6. Actual wages paid for each day to each:
 - 1.6.1. Journeyman
 - 1.6.2. Apprentice
 - 1.6.3. Worker
 - 1.6.4. Other employee you employ for the work
 - 1.7. Pay rate
 - 1.8. Itemized deductions made
 - 1.9. Check number issued
2. Apprentices and the apprentice-to-journeyman ratio

Each certified payroll record must include a *Statement of Compliance* signed under penalty of perjury that declares:

1. The information contained in the payroll record is true, correct, and complete
2. The employer has complied with the requirements of sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project
3. The wage rates paid are at least those required by the Contract

The Department allows the use of a form with identical wording as the *Statement of Compliance* form provided by the Department.

Make certified payroll records available for inspection at all reasonable hours at your main office on the following basis:

1. Upon the employee's request or upon request of the employee's authorized representative, make available for inspection a certified copy of the employee's payroll record.
2. Refer the public's requests for certified payroll records to the Department. Upon the public's request, the Department makes available for inspection or furnishes copies of your certified payroll records. Do not give the public access to the records at your main office.

Make all payroll records available for inspection and copying or furnish a copy upon request of a representative of the:

1. Department
2. Division of Labor Standards Enforcement of the Department of Industrial Relations
3. Division of Apprenticeship Standards of the Department of Industrial Relations

Furnish the Department the location of the records. Include the street address, city, and county. Furnish the Department a notification of a location and address change within 5 business days of the change.

Comply with a request for the records within 10 days after you receive a written request. If you do not comply within this period, the Department withholds from progress payments a \$100 penalty for each day or part of a day for each worker until you comply. You are not assessed this penalty for a subcontractor's failure to comply with Labor Code § 1776.

The Department withholds from progress payments for delinquent or inadequate records (Labor Code § 1771.5). If you have not submitted an adequate record by the month's 15th day for the period ending on or before the 1st of that month, the Department withholds up to 10 percent of the monthly progress estimate, exclusive of mobilization. The Department does not withhold more than \$10,000 or less than \$1,000.

Add to Section 4-1.02K(4):

7-1.02K(4)i Apprenticeship Requirements for non-Federal Projects

- A. Pursuant to Sections 1770-1780 of the Labor Code of the State of California, the Director of the Department of Industrial Relations has determined the general prevailing rate of wages in the locality for each craft or type of worker needed to execute the work. Said wage rates pursuant to Section 1773.2 of the Labor Code are on file with the Clerk to the Fresno County Board of Supervisors, and will be made available to any interested person on request. A copy of this wage scale may also be obtained at the following Web Site: www.dir.ca.gov/dlsr.
- B. Pursuant to Section 1775 of the Labor Code of the State of California, nothing in this Article shall prevent the employment of properly registered apprentices upon public works. Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which he/she is registered.
- C. Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards and written apprentice agreements under Chapter 4 (commencing at Section 3070), Division 3, of the Labor Code, are eligible to be employed on public works. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.
- D. Fresno County is committed to increasing the availability of employment and training opportunities, with particular attention to the plight of those who are most economically disadvantaged. In an effort to advance that purpose, the County will require that the Contractor and each subcontractor employed on this Project shall use their best efforts to ensure that thirty-three percent (33%) of apprentice hours, as determined by California Labor Code Section 1777.5 for each contractor and subcontractor of any tier on this Project, are performed by qualified participants in state approved apprenticeship programs who also are current or former "Welfare-to-Work" participants in the CalWORKs program. Provided, that nothing contained in this Paragraph D shall be interpreted to relieve or in any way diminish the obligation of the Contractor and each subcontractor to comply fully with all applicable apprenticeship laws in accordance with the California Labor Code and the California Code of Regulations; and accordingly such requirements as are contractually imposed by this Paragraph D shall be in addition to such legally mandated requirements, and applicable only to the extent fully consistent therewith.

Replace Section 7-1.02M(2) with:

7-1.02M(2) Fire Prevention

Cooperate with local fire prevention authorities in eliminating hazardous fire conditions.

Obtain the phone numbers of the nearest fire suppression agency, California Department of Forestry and Fire Protection (Cal Fire) unit headquarters, United States Forest Service (USFS) ranger district office, and U.S. Department of Interior (USDI) BLM field office. Submit these phone numbers to the Engineer before the start of job site activities.

Immediately report to the nearest fire suppression agency fires occurring within the project limits.

Prevent project personnel from setting open fires that are not part of the work.

Prevent the escape of and extinguish fires caused directly or indirectly by job site activities

Except for motor trucks, truck tractors, buses, and passenger vehicles, equip all hydrocarbon-fueled engines, both stationary and mobile including motorcycles, with spark arresters that meet USFS standards as specified in the *Forest Service Spark Arrester Guide*. Maintain the spark arresters in good operating condition. Spark arresters are not required by Cal Fire, the BLM, or the USFS on equipment powered by properly maintained exhaust-driven turbo-charged engines or equipped with scrubbers with properly maintained water levels. The *Forest Service Spark Arrester Guide* is available at the district offices.

Each toilet must have a metal ashtray at least 6 inches in diameter by 8 inches deep half-filled with sand and within easy reach of anyone using the facility.

Locate flammable materials at least 50 feet away from equipment service, parking, and gas and oil storage areas. Each small mobile or stationary engine site must be cleared of flammable material for a radius of at least 15 feet from the engine.

Each area to be cleared and grubbed must be cleared and kept clear of flammable material such as dry grass, weeds, brush, downed trees, oily rags and waste, paper, cartons, and plastic waste. Before clearing and grubbing, clear a fire break at the outer limits of the areas to be cleared and grubbed. Other fire breaks may be ordered and are change order work.

Furnish the following fire tools:

1. 1 shovel and 1 fully charged fire extinguisher UL rated at 4 B:C or more on each truck, personnel vehicle, tractor, grader, or other heavy equipment.
2. 1 shovel and 1 backpack 5-gallon water-filled tank with pump for each welder.
3. 1 shovel or 1 chemical pressurized fire extinguisher, fully charged, for each gasoline-powered tool, including chain saws, soil augers, and rock drills. The fire tools must always be within 25 feet from the point of operation of the power tool. Each fire extinguisher must be of the type and size required by the Pub Res Code § 4431 and 14 CA Code of Regs § 1234. Each shovel must be size O or larger and at least 46 inches long.

Furnish a pickup truck and driver that will be available for fire control during working hours.

Furnish a pickup truck and driver for the sole purpose of fire control during working hours. The truck must be equipped with:

1. 10 shovels, 5 axes, 2 backpack 5-gallon water-filled tanks with pumps
2. 100-gallon tank of water with a gasoline motor powered pump and 100 feet of 3/4-inch hose on a reel.

The pickup truck and operator must patrol the area of construction for at least 1/2 hour after job site activities have ended.

In addition to being available at the site of the work, the truck and operator must patrol the area of construction from noon until at least 1/2 hour after job site activities have ended. If the fire danger rating is very high or extreme, the truck and operator must patrol the area of construction while work is being done and for at least 1/2 hour after job site activities have ended.

Cal Fire, USFS, and BLM have established the following adjective class ratings for 5 levels of fire danger for use in public information releases and fire protection signing: low, moderate, high, very high, extreme. Obtain the fire danger rating daily for the project area from the nearest Cal Fire unit headquarters, USFS ranger district office, or BLM field office.

Arrangements have been made with Cal Fire, USFS, and BLM to notify the Department when the fire danger rating is very high or extreme. This information will be furnished to the Engineer who will notify you for dissemination and action in the area affected. If a discrepancy between this notice and the fire danger rating obtained from the nearest office of either Cal Fire or USFS exists, you must conduct operations according to the higher of the two fire danger ratings.

If the fire danger rating reaches very high:

1. Falling of dead trees or snags must be discontinued.
2. No open burning is permitted and fires must be extinguished.
3. Welding must be discontinued except in an enclosed building or within an area cleared of flammable material for a radius of 15 feet.
4. Blasting must be discontinued.
5. Smoking is allowed only in automobiles and cabs of trucks equipped with an ashtray or in cleared areas immediately surrounded by a fire break unless prohibited by other authority.
6. Vehicular travel is restricted to cleared areas except in case of emergency.

If the fire danger rating reaches extreme, take the precautions specified for a very high fire danger rating except smoking is not allowed in an area immediately surrounded by a firebreak and work of a nature that could start a fire requires that properly equipped fire guards be assigned to such operation for the duration of the work.

The Engineer may suspend work wholly or in part due to hazardous fire conditions. The days during this suspension are non-working days.

If field and weather conditions become such that the determination of the fire danger rating is suspended, section 7-1.02M(2) will not be enforced for the period of the suspension of the determination of the fire danger rating. The Engineer will notify you of the dates of the suspension and resumption of the determination of the fire danger rating.

Replace the headings and paragraphs of Section 7-1.04 with:

7-1.04 PUBLIC SAFETY

7-1.04A GENERAL

You are responsible to provide for public safety.

Do not construct a temporary facility that interferes with the safe passage of traffic.

Control dust resulting from the work, inside and outside the right-of-way.

Move workers, equipment, and materials without endangering traffic.

Whenever your operations create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public.

Any fences, temporary railing, barricades, lights, signs, or other devices furnished, erected and maintained by you are in addition to those for which payment is provided elsewhere in the specifications.

Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone. At locations where traffic is being routed through construction under one-way controls, move your equipment in compliance with the one-way controls unless otherwise ordered.

Use of signs, lights, flags, or other protective devices must comply with the *California MUTCD* and any directions of the Engineer. Signs, lights, flags or other protective devices must not obscure the visibility of, nor conflict in intent, meaning, and function of either existing signs, lights and traffic control devices, or any construction area signs.

Keep existing traffic signals and highway lighting in operation. Other forces within the Department will perform routine maintenance of these facilities during the work.

Cover signs that direct traffic to a closed area. Except for work specified in section 12, maintaining, and removing the covers on construction area signs is change order work.

Install temporary illumination in a manner which the illumination and the illumination equipment does not interfere with public safety. The installation of general roadway illumination does not relieve you from furnishing and maintaining any protective devices.

Equipment must enter and leave the highway via existing ramps and crossovers and must move in the direction of traffic. All movements of workmen and construction equipment on or across lanes open to traffic must be performed in a manner that do not endanger the public. Your vehicles or other mobile equipment leaving an open traffic lane to enter the construction area must slow down gradually in advance of the location of the turnoff to give the traffic following an opportunity to slow down. When leaving a work area and entering a roadway carrying traffic, your vehicles and equipment must yield to traffic.

Immediately remove hauling spillage from a roadway lane or shoulder open to traffic. When hauling on roadways, trim loads and remove material from shelf areas to minimize spillage.

Notify the Engineer not less than 20 days and not more than 90 days before the anticipated start of an activity that will change the vertical or horizontal clearance available to traffic, including shoulders.

If vertical clearance is temporarily reduced to 15.5 feet or less, place low clearance warning signs in compliance with the *California MUTCD* and any directions of the Engineer. Signs must comply with the dimensions, color, and legend requirements of the *California MUTCD* and section 12-3.06 except that the signs must have black letters and numbers on an orange retroreflective background. W12-2P signs must be illuminated so that the signs are clearly visible.

Pave or provide full width continuous and cleared wood walks for pedestrian openings through falsework. Protect pedestrians from falling objects and concrete-curing water. Extend overhead protection for pedestrians at least 4 feet beyond the edge of the bridge deck. Illuminate all pedestrian openings through falsework. Temporary pedestrian facilities must comply with the *California MUTCD*, Part 6, Chapter 6D, "Pedestrian and Worker Safety."

Do not store vehicles, material, or equipment in a way that:

1. Creates a hazard to the public
2. Obstructs traffic control devices

Do not install or place temporary facilities used to perform the work which interfere with the free and safe passage of traffic.

Temporary facilities that could be a hazard to public safety if improperly designed must comply with design requirements described in the Contract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop drawings and supplemental calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

If you appear to be neglectful or negligent in furnishing warning devices and taking protective measures, the Engineer may direct your attention to the existence of a hazard. You must furnish and install the necessary warning devices. If the Engineer points out the inadequacy of warning devices and protective measures, that action on the part of the Engineer does not relieve you from your responsibility for public safety or abrogate your obligation to furnish and pay for these devices and measures.

Install Type K temporary railing or other authorized protective systems under any of the following conditions:

1. Excavations: Where the near edge of the excavation is within 15 feet from the edge of an open traffic lane
2. Temporarily unprotected permanent obstacles: When the work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and you elect to install the obstacle before installing the protective system; or you, for your convenience and as authorized, remove a portion of an existing protective railing at an obstacle and do not replace such railing completely the same day
3. Storage areas: When material or equipment is stored within 15 feet of the edge of an open traffic lane and the storage is not otherwise prohibited by the Contract
4. Height differentials: When construction operations create a height differential greater than 0.15 feet within 15 feet of the edge of traffic lane

Installation of Type K temporary railing is not required if an excavation within 15 feet from the edge of an open traffic lane is protected by any of the following:

1. Steel plate or concrete covers of adequate thickness to prevent accidental entry by traffic or the public
2. Side slope where the downhill slope is 4:1 (horizontal: vertical) or less unless a naturally occurring condition
3. Barrier or railing

Offset the approach end of Type K temporary railing a minimum of 15 feet from the edge of an open traffic lane. Install the temporary railing on a skew toward the edge of the traffic lane of not more than 1 foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot minimum offset cannot be achieved, the temporary railing must be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules must be installed at the approach end of the temporary railing.

Secure Type K temporary railing in place before starting work for which the temporary railing is required.

Where 2 or more lanes in the same direction are adjacent to the area where the work is being performed, including shoulders, the adjacent lane must be closed under any of the following conditions:

1. Work is off the traveled way but within 6 feet of the edge of the traveled way, and the approach speed is greater than 45 miles per hour
2. Work is off the traveled way but within 3 feet of the edge of the traveled way, and the approach speed is less than 45 miles per hour

Closure of the adjacent traffic lane is not required when performing any of the following:

1. Working behind a barrier
2. Paving, grinding, or grooving
3. Installing, maintaining, or removing traffic control devices except Type K temporary railing

Do not reduce an open traffic lane width to less than 10 feet. When traffic cones or delineators are used for temporary edge delineation, the side of the base of the cones or delineators nearest to traffic is considered the edge of the traveled way.

If a traffic lane is closed with channelizers for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices as specified for the lane closure.

Do not move or temporarily suspend anything over a traffic lane open to the public unless the public is protected.

7-1.04B WORK ZONE SAFETY AND MOBILITY

7-1.04B(1) POLICY

In order to ensure safe and efficient flow of traffic through work zones, the County of Fresno, via its General Plan, Transportation and Circulation Element, Policy TRA-1, has adopted the use of AASHTO Standards as supplemented by Caltrans and County Department of Public Works and Planning Standards.

7-1.04B(2) TRAFFIC MANAGEMENT PLAN

Perform traffic management shall be in accordance with Section 12, "TEMPORARY TRAFFIC CONTROL," of these special provisions.

7-1.04B(3) TEMPORARY TRAFFIC CONTROL PLAN

Prepare traffic control plan(s) in accordance with Section 12, "TEMPORARY TRAFFIC CONTROL," of these special provisions.

7-1.04B(4) PUBLIC INFORMATION

Provide notice to public agencies and others to the extent required, if any, elsewhere in these special provisions. The Engineer provides other noticing not identified to be performed by the Contractor.

Replace the headings and paragraphs of Section 7-1.06 with:

7-1.06 INSURANCE

7-1.06A General

Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

7-1.06B Casualty Insurance

Obtain and maintain insurance on all of your operations with companies acceptable to the Department as follows:

1. Keep all insurance in full force and effect from the start of the work through Contract acceptance.
2. All insurance must be with an insurance company with a rating from A.M. Best Financial Strength Rating of A or better and a Financial Size Category of VIII or better.
3. Maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Civ Pro Code § 337.15.

7-1.06C Workers' Compensation and Employer's Liability Insurance

Under Labor Code § 1860, secure the payment of worker's compensation under Labor Code § 3700.

Submit to the Department the following certification before performing the work (Labor Code § 1861):

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

Contract signing constitutes certification submittal.

Provide Employer's Liability Insurance in amounts not less than:

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1. \$1,000,000 for each accident for bodily injury by accident
2. \$1,000,000 policy limit for bodily injury by disease
3. \$1,000,000 for each employee for bodily injury by disease

If there is an exposure of injury to your employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage must be included for such injuries or claims.

7-1.06D Liability Insurance

7-1.06D(1) General

Carry General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of you providing insurance for bodily injury liability and property damage liability for the following limits and including coverage for:

1. Premises, operations and mobile equipment
2. Products and completed operations
3. Broad form property damage (including completed operations)
4. Explosion, collapse, and underground hazards
5. Personal injury
6. Contractual liability

7-1.06D(2) Liability Limits/Additional Insureds

Refer to the *Agreement* of these special provisions

Additional insured coverage must be provided by a policy provision or by an endorsement providing coverage at least as broad as *Additional Insured* (Form B) endorsement form CG 2010, as published by the Insurance Services Office (ISO), or other form designated by the Department.

7-1.06D(3) Contractor's Insurance Policy is Primary

The policy must stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self-insurance maintained by the State is excess only and must not be called upon to contribute with this insurance.

7-1.06E Automobile Liability Insurance

Comply with requirements in the *Agreement* of these special provisions

7-1.06F Policy Forms, Endorsements, and Certificates

Provide your General Liability Insurance under Commercial General Liability policy form no. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form no. CG0001.

7-1.06G NOT USED

7-1.06H Enforcement

The Department may assure your compliance with your insurance obligations. Ten days before an insurance policy lapses or is canceled during the Contract period you must submit to the Department evidence of renewal or replacement of the policy.

If you fail to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to you or terminate your control of the work.

You are not relieved of your duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department's acceptance of insurance policies and certificates.

Minimum insurance coverage amounts do not relieve you for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this Contract.

7-1.06I Self-Insurance

Comply with the *Agreement* of these special provisions

Replace the headings and paragraphs of Section 7-1.07 with:

7-1.07 LEGAL ACTIONS AGAINST THE DEPARTMENT**7-1.07A General**

If legal action is brought against the Department over compliance with a State or federal law, rule, or regulation applicable to highway work, then:

1. If the Department in complying with a court order prohibits you from performing work, the resulting delay is a suspension related to your performance, unless the Department terminates the Contract.
2. If a court order other than an order to show cause or the final judgment in the action prohibits the Department from requiring you to perform work, the Department may delete the prohibited work or terminate the Contract.

7-1.07B NOT USED

8 PROSECUTION AND PROGRESS

Add Section 8-1.01A

8-1.01A Work Hours

Perform all work on working days during daytime. Construction operation will be allowed on Monday-Friday from 7 AM to 5 PM.

You may request approval to work on a holiday or on a non-working day. If, pursuant to such request, the Engineer authorizes you to work on a holiday or on a non-working day, you pay the actual cost incurred by the Department to perform all inspection, surveying, testing, and all other project-related work by the Department on such holiday or non-working day. Such payment will be deducted from monies due or which may become due to the Contractor.

Plan work so that all construction operations performed each day, including cleanup of the project site, establishment of appropriate traffic control and any other work necessary for the safety of the public shall be completed within the daytime hours.

Do not perform work during nighttime unless approved by the Engineer.

Request approval to work during nighttime in writing and include the appropriate traffic control plan(s) and work plan(s) which clearly identify all provisions for illuminating all portions of the work site, including any flagging operations.

If you fail to complete work during the daytime hours, the Engineer may stop all work upon the onset of nighttime and order you to perform any and all work the Engineer deems necessary to ensure the safety of the public during the nighttime hours.

You are not entitled to any additional compensation or extension of the contract time as a result of the Engineer stopping the work due to the onset of nighttime.

Replace the headings and paragraphs of Section 8-1.02 with:

8-1.02 SCHEDULE

8-1.02A General

No pay item is provided for Level 1 Critical Path Project Schedule. Payment is considered to be included in the various items of work.

8-1.02B Level 1 Critical Path Method Schedule

8-1.02B(1) General

Section 8-1.02B applies unless otherwise specified in 8-1.02C.

Before or at the preconstruction conference, submit a CPM baseline schedule.

For each schedule submittal:

1. Submit a plotted original, time-scaled network diagram on a sheet at least 8-1/2 by 11 inches with a title block and timeline
2. If a computer program is used to make the schedule, submit a read-only compact disc or other Engineer-authorized data-storage device containing the schedule data. Label the data storage device with:
 - 2.1. Contract number
 - 2.2. CPM schedule number and date produced
 - 2.3. File name

8-1.02B(2) Schedule Format

On each schedule, show:

1. Planned and actual start and completion date of each work activity, including applicable:
 - 1.1. Submittal development

- 1.2. Submittal review and acceptance
- 1.3. Material procurement
- 1.4. Contract milestones and constraints
- 1.5. Equipment and plant setup
- 1.6. Interfaces with outside entities
- 1.7. Erection and removal of falsework and shoring
- 1.8. Test periods
- 1.9. Major traffic stage change
- 1.10. Final cleanup
2. Order that you propose to prosecute the work
3. Logical links between the time-scaled work activities
4. All controlling activities
5. Legible description of each activity
6. At least 1 predecessor and 1 successor to each activity except for project start and project end milestones
7. Duration of at least 1 working day for each activity
8. Start milestone date as the Contract approval date

8-1.02B(3) Updated Schedule

Submit a monthly updated schedule that includes the status of work completed to date and the work yet to be performed as planned.

You may include changes on updated schedules that do not alter a critical path or extend the scheduled completion date compared to the current schedule. Changes may include:

1. Adding or deleting activities
2. Changing activity constraints
3. Changing durations
4. Changing logic

If any proposed change in planned work results in altering the critical path or extending the scheduled completion date, submit a revised schedule within 15 days of the proposed change.

8-1.02C - 8-1.02D(10) Reserved

Replace Section 8-1.03 with:

8-1.03 PRECONSTRUCTION CONFERENCE

Attend a preconstruction conference with key personnel, including your assigned representative, at a time and location determined by the Engineer. Submit documents as required before the preconstruction conference. You may start work before the preconstruction conference only upon written authorization.

Be prepared to discuss the topics and documents shown in the following table:

Topics	Document
Potential claim and dispute resolution	Potential claim forms
Contractor's representation	Assignment of Contractor's representative
Equipment	Equipment list
Labor compliance and equal employment opportunity	Job site posters and benefit and payroll reports
Material inspection	<i>Notice of Materials to be Used</i>
Materials on hand	<i>Request for Payment for Materials on Hand</i>
Measurements	--
Partnering	--
Quality control	QC plans
Safety	Injury and Illness Prevention Program and job site posters
Schedule	Baseline schedule and <i>Weekly Statement of Working Days</i>
Subcontracting	<i>Subcontracting Request</i>
Surveying	<i>Survey Request</i>
Traffic control	Traffic contingency plan and traffic control plans
Utility work	--
Weight limitations	--
Water pollution control	SWPPP or WPCP
Work restrictions	PLACs
Action submittals	--

Replace the headings and paragraphs of Section 8-1.04 with:

8-1.04 START OF JOB SITE ACTIVITIES

8-1.04A General

Provide signed contracts bonds and insurance timely as required.

This section, 8-1.04, "Start of Job Activities," does not modify remedies available to the Department should you fail to provide signed contracts bonds and insurance timely.

Submit a notice 72 hours before starting job site activities. If the project has more than 1 location of work, submit a separate notice for each location.

You may start job site activities before receiving notice of Contract approval if you:

1. Deliver the signed Contract, bonds, and evidence of insurance to the Department
2. Submit 72-hour notice
3. Obtain an encroachment permit from the Department (if applicable)
4. Are authorized by the Department to start
5. Perform work at your own risk
6. Perform work under the Contract

If the Contract is approved, work already performed that complies with the Contract is authorized.

If the Contract is not approved, leave the job site in a neat condition. If a facility has been changed, restore it to its former condition or an equivalent condition. The Department does not pay for the restoration.

Replace Section 8-1.04B with:

8-1.04B Reserved

Replace "Reserved" of Section 8-1.04C with:

8-1.04C Long Lead Time Equipment Start

This project includes two, non-concurrent phases.

The first order of work, submittals, involves submittals and equipment procurement.

The second order of work involves physical construction upon the project site.

8-1.04C(1) First Order of Work, Submittals

Be prepared to begin the first order of work no later than the **20th** business day after award of the Contract by the Department.

The Engineer may issue a notice to proceed with the first order of work as soon as the Contracts, including bonds and insurance certificates, have been approved.

Start the first order of work on the day shown in the notice to proceed, unless an early start has been approved.

The Engineer may issue a notice of commencement of contract time for the first order of work if you fail to provide Contracts, including bonds and insurance certificates or other required documents timely.

The first order of work is complete when you:

- have received approval for all submittals required for the project.
- have furnished a statement from the vendors that the orders for required equipment and materials has been received and accepted by said vendor
- have furnished a statement from vendors which indicates that the anticipated delivery date for the equipment and materials ordered is in conformance with contract requirements.
- The Engineer issues a statement that the first order of work is complete.

Complete the first order of work before the expiration of

THIRTY (30) WORKING DAYS

from the date shown in said Notice to Proceed, or in the Notice of Commencement of Contract Time, whichever was issued first.

Pay to the County of Fresno the sum of

TWO THOUSAND DOLLARS (\$2000.00)

per day for each and every calendar day's delay in finishing the first order of work in excess of the number of working days prescribed above.

8-1.04C(2) Second Order of Work

Be prepared to begin the second order of work within ten (10) days of receiving written notice from the Contractor that all materials and equipment required to complete the project have been delivered, the County will issue the "Notice to Proceed – Construction" for the notice of commencement of contract time.

Start the first order of work on the day shown in the notice to proceed, unless an early start has been approved.

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If you are not prepared to commence the second order of work within ten (10) days of the receipt of written notice of delivery, the Engineer may issue a notice of commencement of contract time for the second order of work on or after:

June 5, 2017.

A notice of commencement of contract time does not authorize you to begin work on the project site.

**Complete the second order of work before the expiration of
SEVENTY (70) WORKING DAYS**

from the date shown in the Notice to Proceed - Construction, or in the Notice of Commencement of Contract Time, whichever was issued first.

**Pay to the County of Fresno the sum of
SIX THOUSAND DOLLARS (\$6000.00)**

per day for each and every calendar day's delay in finishing the second order of work in excess of the number of working days prescribed above.

Such payment is in addition to payment, if any, for failure to complete the first order of work as specified.

Complete all work, including corrective work and punch list work, prior to the expiration of the allotted working days. Working days continue to accrue until corrective work and punch list work is completed and accepted.

The Department deducts specified damages from payments for each day in completing a work part beyond the time specified for completing the work part.

Damages for untimely completion of work parts may not be equal to the daily amount specified as liquidated damages for the project as a whole, but the Department does not simultaneously assess damages for untimely completion of work parts and for the whole work.

Damages accrue starting the 1st day after a work part exceeds the specified time through the day the specified work part is complete.

Liquidated damages for not completing any phase of work are described in Section 8-1.04C.

Replace Section 8-1.05 with:

8-1.05 TIME

Contract time starts on the day specified in the notice to proceed or in the notice of commencement of contract time as described in section 8-1.04 or on the day you start job site activities, whichever occurs first.

Complete the work within the Contract time.

Meet each specified interim work completion date.

The Engineer issues a *Weekly Statement of Working Days* by the end of the following week.

The *Weekly Statement of Working Days* shows:

1. Working days and non-working days during the reporting week
2. Time adjustments
3. Work completion date computations, including working days remaining
4. Controlling activities

Replace Section 8-1.10A with:

8-1.10A General

The Department specifies liquidated damages (Pub Cont Code § 10226). Liquidated damages, if any, accrue starting on the 1st day after the expiration of the working days through the day of Contract acceptance except as specified in sections 8-1.10B and 8-1.10C.

The Department withholds liquidated damages before the accrual date if the anticipated liquidated damages may exceed the value of the remaining work.

9 PAYMENT

Replace Section 9-1.03 with:

9-1.03 PAYMENT SCOPE

The Department pays you for furnishing the resources and activities required to complete the work. The Department's payment is full compensation for furnishing the resources and activities, including:

1. Risk, loss, damage repair, or cost of whatever character arising from or relating to the work and performance of the work
2. PLACs and taxes
3. Any royalties and costs arising from patents, trademarks, and copyrights involved in the work

The Department does not pay for your loss, damage, repair, or extra costs of whatever character arising from or relating to the work that is a direct or indirect result of your choice of construction methods, materials, equipment, or manpower, unless specifically mandated by the Contract.

Payment is:

1. Full compensation for all work involved in each bid item shown on the Bid Item List by the unit of measure shown for that bid item
2. For the price bid for each bid item shown on the Bid Item List or as changed by change order with a specified price adjustment

Full compensation for work specified in Divisions I, II, and X is included in the payment for the bid items unless:

1. Bid item for the work is shown on the Bid Item List
2. Work is specified as change order work

Work paid for under one bid item is not paid for under any other bid item.

Payment for a bid item includes payment for work in sections referenced by the section set forth by that bid item.

Notwithstanding anything to the contrary in these special provisions, full compensation for performing all work as shown, as specified, and as directed by the Engineer is considered to be included in the various bid items, and no additional payment will be made, except pursuant to a contract change order to perform work not shown and/or specified.

If one or more bid item(s) is/are not included, perform the work as shown and as specified and payment therefor is considered to be included in the various items of work.

If an alternative is described in the Contract, the Department pays based on the bid items for the details and specifications not described as an alternative unless the bid item is described as an alternative, in which case, the Department pays based on the details and specifications for that alternative.

The Department pays for change order work based on one or a combination of the following:

1. Bid item prices
2. Force account
3. Agreed price
4. Specialist billing

If the Engineer chooses to pay for change order work based on an agreed price, but you and the Engineer cannot agree on the price, the Department pays by force account.

If a portion of extra work is covered by bid items, the Department pays for this work as changed quantities in those items. The Department pays for the remaining portion of the extra work by force account or agreed price.

If the amount of a deduction or withhold exceeds final payment, the Department invoices you for the difference, to be paid upon receipt.

Pay your subcontractors within 10 days of receipt of each progress payment under Pub Cont Code §§ 10262 and 10262.5.

Replace the 5th paragraph of Section 9-1.07A with:

For the California statewide crude oil price index, go to the Caltrans Division of Construction Web site.

Replace Section 9-1.16F with:

9-1.16F Retentions

The Department, once in each month, shall cause an estimate in writing to be made by the Engineer. The estimate shall include the total amount of work done and acceptable materials furnished, provided the acceptable materials are listed as eligible for partial payment as materials in the special provisions and are furnished and delivered by the Contractor on the ground and not used or are furnished and stored for use on the contract, if the storage is within the State of California and the Contractor furnishes evidence satisfactory to the Engineer that the materials are stored subject to or under the control of the Department, to the time of the estimate, and the value thereof. The estimate shall also include any amounts payable for mobilization. Daily extra work reports furnished by the Contractor less than 5 calendar days, not including Saturdays, Sundays and legal holidays, before the preparation of the monthly progress estimate shall not be eligible for payment until the following month's estimate.

The amount of any material to be considered in making an estimate will in no case exceed the amount thereof which has been reported by the Contractor to the Engineer on State-furnished forms properly filled out and executed, including accompanying documentation as therein required, less the amount of the material incorporated in the work to the time of the estimate. Only materials to be incorporated in the work will be considered. The estimated value of the material established by the Engineer will in no case exceed the contract price for the item of work for which the material is furnished.

The Department shall retain 5 percent of the estimated value of the work done and 5 percent of the value of materials so estimated to have been furnished and delivered and unused or furnished and stored as aforesaid as part security for the fulfillment of the contract by the Contractor.

The Department shall pay monthly to the Contractor, while carrying on the work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of the contract. No monthly estimate or payment shall be required to be made when, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the contract.

No monthly estimate or payment shall be construed to be an acceptance of any defective work or improper materials.

Attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in Business and Professions Code Sections 7028.15(a) and 7031.

No partial payment will be made for any materials on hand which are furnished but not incorporated in the work.

Add the following Section:

9-1.23 RESOLUTION OF CONTRACT CLAIMS

Public works contract claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a Contractor and a local public agency shall be resolved in accordance with the provisions of Article 1.5 (Sections 20104-20104.6, inclusive) of Chapter 1 of Part 3 of Division 2 of the Public Contract Code. Article 1.5 requires that its provisions or a summary thereof be set forth in the plans and specifications for any work which may give rise to a claim thereunder. Accordingly, this contract incorporates all of the terms and conditions of Article 1.5, as follows:

Article 1.5 Resolution of Contract Claims

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" has the same meaning as in Sections 3100 and 3106 of the Civil Code, except that "public work" 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.

20104.2 For any claim subject to this article, 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 or claims 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 or claims 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

12 TRAFFIC CONTROL SYSTEM

Replace section 12-1.03 with:

12-1.03 FLAGGING COSTS

You pay the cost of furnishing all flaggers, including transporting flaggers and furnishing stands and towers for flaggers to provide for the passage of traffic through the work as specified in sections 7-1.03 and 7-1.04.

Furnishing and operating pilot cars if ordered is not change order work.

Replace Section 12-3.01C with:

12-3.01C Construction

Furnishing, installing, maintaining, moving, and removing traffic control equipment and devices and performing lane closures, if lane closures are allowed, is your responsibility. For stationary lane closures use only one type of delineation - traffic cones or delineators.

Traffic control ordered by the Engineer is only change order work if the character of the work changes. Providing for public safety and convenience under section 7 is not change order work.

Replace 1st paragraph in section 12-3.06B(1) with:

Construction area warning and guide signs must have a black legend on a retroreflective, nonfluorescent-orange background. W10-1 advance warning sign for highway-rail grade crossings must have a black legend on a retroreflective, nonfluorescent-yellow background.

Replace section 12-5 with:

12-5 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

12-5.01 GENERAL

Section 12-5 includes specifications for closing traffic lanes, ramps, or a combination, with stationary lane closures on multilane highways. The traffic control system for a lane closure or a ramp closure must comply with the details shown.

Traffic control system includes signs.

Add to section 12-5.01:

The Contractor shall prepare and submit to the County Construction Engineer for approval, a traffic control system plan indicating the means and methods he will employ to institute and maintain traffic control for all phases of the work within the project. The traffic control system plan shall be submitted to the County Construction Engineer as early as possible, preferably **five (5) working days** prior to pre-construction meeting. The Engineer will require five (5) working days to review the initial submittal of the traffic control system plan and an additional five (5) working days for each successive review.

No work at the project site whatsoever, including preparatory work such as the installation of construction project funding signs, shall commence until the traffic control system plan has been approved in writing by the Engineer. In the event that the traffic control system plan is not submitted timely, the Engineer may issue a notice of commencement of contract time prior to

approval of the traffic control system plan, and working days will begin to accrue against the allotted contract time.

If the Contractor's haul route crosses the existing entrance road or operation roads of the disposal site, then the Contractor shall provide a flagman at each point of crossing during hauling operations. Said flagman may stop traffic entering or exiting the disposal site or site of active garbage dumping only as necessary to allow construction vehicles to pass. Disposal site traffic shall not be stopped such that said vehicles are backed up beyond the front entrance gate to the site or to such an extent as to create a hazardous situation as determined by the Engineer.

The Contractor is responsible for placing appropriate traffic control signs as directed by the Engineer at the point of crossing and in advance of the location. Said signing shall be placed on American Avenue if necessary to warn traffic entering the Disposal Site.

If the Contractor does not provide the traffic control and it becomes necessary for the Engineer to notify the Contractor of the Contractor's duties according to the Standard Specifications and these Special Provisions, the Contractor shall pay \$200 per 15-minute period or portion thereof to the County for all the time required to acquire the traffic control, including pilot car. If the Contractor does not take immediate measures to correct the traffic control deficiency, then the Engineer may terminate all crossing of construction equipment over the existing disposal site roads. Construction equipment shall not cross active roads until required flagmen and traffic control signs have been provided.

Such payment for failure to provide traffic control shall commence at the time notice of the improper traffic control condition is given to the Contractor or the Contractor's authorized representative by the Engineer and shall terminate when the condition is corrected. Such payment will be deducted from the Contractor's payment.

In addition thereto, when it is necessary for the Engineer to perform the work, the Contractor shall pay the actual cost for the performance thereof. This reimbursement will be in addition to any other penalties imposed in this section of the Special Provisions. Such amount will be deducted from the Contractor's payment.

Traffic will be controlled by flagmen by eyesight, radio (walkie-talkie), or baton. In the event these methods do not work satisfactorily, as determined by the Engineer, a pilot car will be required.

The Engineer may require a pilot car to be used during any operation when the Contractor's operations cover an area beyond the line of sight, or beyond the range of radios or when the baton method does not function satisfactorily.

12-5.02 MATERIALS

Not Used

12-5.03 CONSTRUCTION

Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

For a stationary lane closure made only for the work period, remove the components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period. You may store the components at selected central locations designated by the Engineer within the limits of the highway.

You may use a pilot car to control traffic. If a pilot car is used for traffic control, the cones shown along the centerline need not be placed. The pilot car must have radio contact with personnel in the work area. Operate the pilot car through the traffic control zone at a speed not greater than 25 miles per hour.

Traffic control system for lane closure is paid for as traffic control system. Flagging costs are paid for as specified in section 12-1.03.

Full compensation for furnishing and operating the pilot car (including driver, radios, and any other equipment and labor required) shall be considered as included in the contract lump sum price paid for Traffic Control System and no separate payment will be made therefor.

AA

Replace “Reserved” in section 14-12.02 with:

CONTRACT NUMBER 16-16-SW

Preparation Manual: The Department's Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual.

Semi-significant spills: Spills that can be controlled by a first responder with help from other personnel.

Significant or hazardous spills: Spills that cannot be controlled by construction personnel.

WPC: Water Pollution Control

WPC Manager: Water Pollution Control Manager as defined under "Water Pollution Control" of these special provisions.

Submittals

Submit the following:

1. MSDS at least 5 days before material is used or stored
2. Monthly inventory records for material used or stored
3. Copy of written approval to discharge into a sanitary sewer system at least 5 days before beginning discharge activities

Quality Control and Assurance

Not Used

MATERIALS

Not Used

CONSTRUCTION

Spill Prevention and Control

Implement spill and leak prevention procedures for chemicals and hazardous substances stored at the job site. If you spill or leak chemicals or hazardous substances at the job site, you are responsible for all associated cleanup costs and related liability.

As soon as it is safe, contain and clean up spills of petroleum products, sanitary and septic waste substances listed under CFR Title 40, Parts 110, 117, and 302.

Minor Spills

Clean up minor spills using the following procedures:

1. Contain the spread of the spill
2. Recover the spilled material by absorption
3. Clean the contaminated area
4. Dispose of the contaminated material promptly and properly

CONTRACT NUMBER 16-16-SW

Semi-significant Spills

Clean up semi-significant spills immediately by the following procedures:

1. Contain the spread of the spill
2. Recover the spilled material using absorption whenever a spill occurs on a paved surface or an impermeable surface
3. Contain the spill with an earthen dike and dig up the contaminated soil for disposal whenever a spill occurs on soil
4. If the spill occurs during precipitation, cover the spill with plastic or other material to prevent contaminated runoff
5. Dispose of the contaminated material promptly and properly

Significant or Hazardous Spills

Immediately notify qualified personnel of significant or hazardous spills. Do not let construction personnel attempt to clean up the spill until qualified staff have arrived. Do the following:

1. Notify the Engineer and follow up with a written report
2. Obtain the services of a spills contractor or hazardous material team immediately
3. Notify the local emergency response team by dialing 911 and county officials at the emergency phone numbers kept at the job site
4. Notify the Governor's Office of Emergency Services Warning Center at (805) 852-7550
5. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under CFR Title 40, Parts 110, 119, and 302
6. Notify other agencies as appropriate, including:
 - 6.1. Fire Department
 - 6.2. Public Works Department
 - 6.3. Coast Guard
 - 6.4. Highway Patrol
 - 6.5. City Police or County Sheriff Department
 - 6.6. Department of Toxic Substances
 - 6.7. California Division of Oil and Gas
 - 6.8. Cal OSHA
 - 6.9. Regional Water Resources Control Board

Report minor, semi-significant, and significant spills to the WPC Manager. The WPC Manager must notify the Engineer immediately. The WPC Manager must oversee and enforce proper spill prevention and control measures.

Prevent spills from entering storm water runoff before and during cleanup. Do not bury spills or wash spills with water.

Keep material or waste storage areas clean, well organized, and equipped with enough cleanup supplies for the material being stored.

Material Management

General

Material must be delivered, used, and stored for this job in a way that minimizes or eliminates discharge of material into the air, storm drain systems, and watercourses.

Implement the practices described under "Material Management" of these special provisions while taking delivery of, using, or storing any of the following materials:

1. Hazardous chemicals including acids, lime, glues, adhesives, paints, solvents, and curing compounds
2. Soil stabilizers and binders
3. Fertilizers
4. Detergents
5. Plaster
6. Petroleum materials including fuel, oil, and grease
7. Asphalt components and concrete components
8. Pesticides and herbicides

Employees trained in emergency spill cleanup procedures must be present during the unloading of hazardous materials or chemicals.

If practicable, use less hazardous materials.

Material Storage

Use the following material storage procedures:

1. Store liquids, petroleum materials, and substances listed in CFR Title 40, Parts 110, 117, and 302 as specified by the Department, and place them in secondary containment facilities.
2. Secondary containment facilities must be impervious to the materials stored there for a minimum contact time of 72 hours.
3. Cover secondary containment facilities during non-working days and when precipitation is predicted. Secondary containment facilities must be adequately ventilated.
4. Keep secondary containment facility free of accumulated rainwater or spills. After precipitation, or in the event of spills or leaks, collect accumulated liquid and place into drums within 24 hours. Handle these liquids as hazardous waste under "Hazardous Waste" of these special provisions unless testing determines them to be nonhazardous.
5. Do not store incompatible materials, such as chlorine and ammonia, in the same secondary containment facility.

6. Store materials in the original containers with the original material labels maintained in legible condition. Replace damaged or illegible labels immediately.
7. Secondary containment facilities must have the capacity to contain precipitation from a 24-hour-long, 25-year storm, and 10 percent of the aggregate volume of all containers, or entire volume of the largest container within the facility, whichever is greater.
8. Store bagged or boxed material on pallets. Protect bagged or boxed material from wind and rain during non-working days and while precipitation is predicted.
9. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well organized, and equipped with cleanup supplies appropriate for the materials being stored.
10. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after precipitation, and at least weekly during other times.

Stockpile Management

Use the following stockpile management procedures:

1. Reduce or eliminate potential water pollution from stockpiled material including soil, paving material, and pressure treated wood.
2. Locate stockpiles:
 - 2.1. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, and inlets unless approved
 - 2.2. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, and inlets unless approved

Install WPC practices within 15 days or before predicted precipitation, whichever occurs first.

Active and inactive soil stockpiles must be:

1. Covered with soil stabilization measures, plastic sheeting, or geosynthetic fabric
2. Surrounded with a linear sediment barrier

Control wind erosion year round under Section 10, "Dust Control" of the Standard Specifications.

Repair or replace linear sediment barriers and covers as needed to keep them functioning properly. If sediment accumulates to 1/3 of the linear sediment barrier height, remove the sediment.

Waste Management

Solid Waste

Do not allow litter or debris to accumulate anywhere at the job site, including storm drain grates, trash racks, and ditch lines. Pick up and remove trash and debris from the job site at least once a week. The WPC Manager must monitor solid waste storage and disposal procedures at the job site.

If practicable, recycle nonhazardous job site waste and excess material. If recycling is not practicable, disposal must comply with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way" of the Standard Specifications. Highway Right of Way shall include American Avenue Disposal Site boundaries.

Disposal of solid waste generated during the Phase III Module 4, 5 and 6 project will be the sole responsibility of the contractor. All waste disposed of at AADS shall be at the published rates. Only waste permitted by various regulatory agencies to be disposed of at the site can be accepted for disposal.

Furnish enough closed-lid dumpsters of sufficient size to contain any solid waste generated by work activities. When the refuse reaches the fill line, empty the dumpsters. Dumpsters must be watertight. Do not wash out dumpsters at the job site. Furnish additional containers and pick up dumpsters more frequent during the demolition phase of construction.

Solid waste includes:

1. Brick
2. Mortar
3. Timber
4. Metal scraps
5. Sawdust
6. Pipe
7. Electrical cuttings
8. Non-hazardous equipment parts
9. Styrofoam and other packaging materials
10. Vegetative material and plant containers from highway planting
11. Litter and smoking material, including litter generated randomly by the public
12. Other trash and debris

Furnish and use trash receptacles at the job site yard, field trailers, and locations where workers gather for lunch and breaks.

Hazardous Waste

Use hazardous waste management practices if waste is generated at the job site from the following substances:

1. Petroleum products
2. Asphalt products
3. Concrete curing compound
4. Pesticides
5. Acids
6. Paints
7. Stains
8. Solvents
9. Wood preservatives and treated posts
10. Roofing tar

11. Road flares
12. Lime
13. Glues and adhesives
14. Materials classified as hazardous by California Code of Regulations, Title 22, Division 4.5; or listed in CFR Title 40, Parts 110, 117, 261, or 302

The WPC Manager must oversee and enforce hazardous waste management practices. Minimize the production of hazardous materials and hazardous waste at the job site. If damaged, repair or replace perimeter controls, containment structures, and covers.

If hazardous material levels are unknown, use a laboratory certified by ELAP under CDPH to sample and test waste to determine safe methods for storage and disposal.

Separate potentially hazardous waste from nonhazardous waste at the job site. Hazardous waste must be handled, stored, and disposed of under California Code of Regulations, Title 22, Division 4.5, Section 66262.34; and in CFR Title 49, Parts 261, 262, and 263.

Store hazardous waste in sealed containers constructed and labeled with the contents and date accumulated under California Code of Regulations, Title 22, Division 4.5; and in CFR Title 49, Parts 172, 173, 178, and 179. Keep hazardous waste containers in temporary containment facilities under "Material Storage" of these special provisions.

Furnish containers with adequate storage volume at convenient locations for hazardous waste collection. Do not overfill hazardous waste containers. Do not mix hazardous wastes. Do not allow potentially hazardous waste to accumulate on the ground. Store containers of dry waste that are not watertight on pallets. Store hazardous waste away from storm drains, watercourses, moving vehicles, and equipment.

Dispose of hazardous waste within 90 days of being generated. Use a licensed hazardous waste transporter to take hazardous waste to a Class I Disposal Site. Submit a copy of uniform hazardous waste manifest forms within 24 hours of transporting hazardous waste.

The WPC Manager must inspect the following daily:

1. Storage areas for hazardous materials and wastes
2. Hazardous waste disposal and transporting activities
3. Hazardous material delivery and storage activities

Contaminated Soil

Identify contaminated soil from spills or leaks by noticing discoloration, odors, or differences in soil properties. Soil with evidence of contamination must be sampled and tested by a laboratory certified by ELAP.

If levels of contamination are found to be hazardous, handle and dispose of the soil as hazardous waste.

Prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of the following measures:

1. Berms
2. Cofferdams
3. Grout curtains
4. Freeze walls

5. Concrete seal course

If water mixes with contaminated soil and becomes contaminated, sample and test the water using a laboratory certified by ELAP. If levels of contamination are found to be hazardous, handle and dispose of the water as hazardous waste.

Sanitary and Septic Waste

Do not bury or discharge wastewater from sanitary or septic systems within American Avenue Disposal Site. The WPC Manager must inspect sanitary or septic waste storage and monitor disposal procedures at least weekly. Sanitary facilities that discharge to the sanitary sewer system must be properly connected and free from leaks. Place sanitary facilities at least 50 feet away from storm drains, watercourses, and flow lines.

Obtain written approval from the local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system, and submit a copy to the Engineer. Comply with local health agency provisions while using an on-site disposal system.

Liquid Waste

Use practices that will prevent job site liquid waste from entering storm drain systems or watercourses. Liquid wastes include the following:

1. Drilling slurries or fluids
2. Grease-free or oil-free wastewater or rinse water
3. Dredgings, including liquid waste from drainage system cleaning
4. Liquid waste running off a surface including wash or rinse water
5. Other non-stormwater liquids not covered by separate permits

Hold liquid waste in structurally sound, leak proof containers such as:

1. Roll-off bins
2. Portable tanks

Liquid waste containers must be of sufficient quantity and volume to prevent overflow, spills and leaks.

Store containers:

1. At least 50 feet from moving vehicles and equipment
2. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
3. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

Liquid waste may require testing to determine hazardous material content before disposal.

If an approved location is available within the job site, fluids and residue exempt under California Code of Regulations, Title 23, Section 2511(g) may be dried by evaporation in a leak proof container. Dispose of remaining solid waste under "Solid Waste" of these special provisions.

Non-Storm Water Management

Water Control and Conservation

Manage water used for work activities to prevent erosion or discharge of pollutants into storm drain systems or watercourses. Obtain approval before washing anything at the job site with water that could discharge into a storm drain system or watercourse. Report discharges immediately.

If water is used at the job site, implement water conservation practices. Inspect irrigation areas. Adjust watering schedules to prevent erosion, excess watering, or runoff. Shut off water source to broken lines, sprinklers, or valves, and repair breaks within 24 hours. If possible, reuse water from waterline flushing for landscape irrigation. Sweep and vacuum paved areas; do not wash them with water.

Direct job site water runoff, including water from water line repair, to areas where it can infiltrate into the ground and not enter storm drain systems or watercourses. Do not allow spilled water to escape water truck filling areas. If possible, direct water from off-site sources around the job site. Minimize the contact of off-site water with job site water.

Illegal Connection and Discharge Detection and Reporting

Inspect the job site and the site perimeter before starting work for evidence of illegal connections, discharges, or dumping. After starting work, inspect the job site and perimeter on a daily schedule.

Whenever illegal connections, discharges, or dumping are discovered, notify the Engineer immediately. Take no further action unless ordered by the Engineer. Assume unlabeled or unidentifiable material is hazardous.

Look for the following evidence of illegal connections, discharges, or dumping:

1. Debris or trash piles
2. Staining or discoloration on pavement or soils
3. Pungent odors coming from drainage systems
4. Discoloration or oily sheen on water
5. Stains or residue in ditches, channels or drain boxes
6. Abnormal water flow during dry weather
7. Excessive sediment deposits
8. Nonstandard drainage junction structures
9. Broken concrete or other disturbances near junction structures

Vehicle and Equipment Cleaning

Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam. Contain and recycle or dispose of resulting waste under "Liquid Waste" or "Hazardous Waste" of these special provisions, whichever is applicable. Do not use diesel to clean vehicles or equipment, and minimize the use of solvents.

Clean or wash vehicles and equipment in a structure equipped with disposal facilities. If using a structure is not possible, clean or wash vehicles and equipment in an outside area. The outside area must be:

1. Paved with AC, HMA, or concrete paving

2. Surrounded by a containment berm
3. Equipped with a sump to collect and dispose of wash water
4. If within the floodplain, located at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
5. If outside the floodplain, located at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

When washing vehicles or equipment with water, use as little water as possible. Hoses must be equipped with a positive shutoff valve.

Discharge liquid from wash racks to a recycle system or to another approved system. Remove liquids and sediment as necessary.

The WPC Manager must inspect vehicle and equipment cleaning facilities:

1. Daily if vehicle and equipment cleaning occurs daily
2. Weekly if vehicle and equipment cleaning does not occur daily

Vehicle and Equipment Fueling and Maintenance

If practicable, perform maintenance on vehicles and equipment off the job site.

If fueling or maintenance must be done at the job site, designate a site, or sites, and obtain approval before using. Minimize mobile fueling or maintenance.

If vehicle and equipment fueling and maintenance must be done at the job site, areas for the following activities must be:

1. On level ground
2. Protected from storm water run-on
3. If within the floodplain, located at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
4. If outside the floodplain, located at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

Use containment berms or dikes around the fueling and maintenance area. Keep adequate quantities of absorbent spill cleanup material and spill kits in the fueling and maintenance area and on fueling trucks. Dispose of spill cleanup material and kits immediately after use. Use drip pans or absorbent pads during fueling or maintenance.

Fueling or maintenance activities must not be left unattended. Fueling nozzles must be equipped with an automatic shutoff control. Vapor recovery fueling nozzles must be used where required by the San Joaquin Valley Air Pollution Control District. When not in use, nozzles must be secured upright. Do not top-off fuel tanks.

Recycle or properly dispose of used batteries and tires.

The WPC Manager must inspect vehicle and equipment maintenance and fueling areas:

1. Daily when vehicle and equipment maintenance and fueling occurs daily
2. Weekly when vehicle and equipment maintenance and fueling does not occur daily

The WPC Manager must inspect vehicles and equipment at the job site for leaks and spills on a daily schedule. Operators must inspect vehicles and equipment each day of use.

If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

Dewatering

Dewatering consists of discharging accumulated storm water, ground water, or surface water from excavations or temporary containment facilities.

If dewatering and discharging activities are specified under a work item such as "Temporary Active Treatment System" or "Dewatering and Discharge," perform dewatering work as specified in the section involved.

If dewatering and discharging activities are not specified under a work item and you will be performing dewatering activities, you must:

1. Submit a Dewatering and Discharge Plan under Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and "Water Pollution Control" of these special provisions at least 10 days before starting dewatering activities. The Dewatering and Discharge Plan must include:
 - 1.1. Title sheet and table of contents
 - 1.2. Description of dewatering and discharge activities detailing locations, quantity of water, equipment, and discharge points
 - 1.3. Estimated schedule for dewatering and discharge (start and end dates, intermittent or continuous)
 - 1.4. Discharge alternatives such as dust control or percolation
 - 1.5. Visual monitoring procedures with inspection log
2. Conduct dewatering activities under the Departments' s "Field Guide for Construction Dewatering."
3. Ensure that any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
4. Discharge the water within the project limits. Dispose of the water in the same way as specified for material in Section 7-1.13 "Disposal of Material Outside the Highway Right of Way" of the Standard Specification if it cannot be discharged within project limits due to site constraints.
5. Do not discharge storm water or non-stormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Notify the Engineer immediately upon discovering any such condition.

The WPC manager must inspect dewatering activities:

1. Daily when dewatering work occurs daily
2. Weekly when dewatering work does not occur daily

PAYMENT

The contract lump sum price paid for construction site management includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in spill prevention and control, material management, waste management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous waste resulting from your activities, as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

CONTRACT NUMBER 16-16-SW



Technical Specifications

TECHNICAL SPECIFICATIONS

**American Avenue Disposal Site
Phase II and Phase III - Landfill Gas Collection and
Control System Expansion – SCADA Integration
Contract 16-16-SW**

Submitted To: County of Fresno
Department of Public Works & Planning, Resources Division
2220 Tulare Street, 6th Floor
Fresno, California

Submitted By: Golder Associates Inc.
425 Lakeside Drive
Sunnyvale, California 94085

November 2016

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CONSTRUCTION DRAWINGS

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- 1 Title Sheet
- 2 General Notes and Survey Control Information
- 3 Existing Site Conditions and Decommissioning Plan
- 4 Proposed GCCS Expansion Plan, Phase II
- 5 Proposed GCCS Expansion Plan, Phase III
- 6 Details – Vertical Extraction Wells
- 7 Details - Piping
- 8 Details – Leachate Sump Riser Connections
- 9 Condensate Sump Details
- 10 Well Schedule
- 11 Electrical Site Plan
- 12 Single Line Diagram
- 13 Control Diagram-1
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DIVISION 01

GENERAL REQUIREMENTS

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SECTION 01 11 00

SUMMARY OF WORK

PART 1. GENERAL

1.01 PROJECT DESCRIPTION

- A. The Work: The Work to be performed by the Contractor under this project consists of performing all work and providing all labor, services, tools, machinery, equipment, and materials necessary to complete the project. The Work includes but is not limited to the following items:
1. Mobilization and demobilization
 2. Verifying and protecting the locations of all existing and proposed equipment, utilities and facilities in the areas of the Work
 3. Installing eighteen (18) new single landfill gas (LFG) vertical extraction wells and ten (10) new dual LFG vertical extraction wells in Phase II, including casings, gravel, bentonite, soil backfill, and wellheads
 4. Installing twelve (12) new single LFG vertical extraction wells in Phase III, including casings, gravel, bentonite, soil backfill, and wellheads
 5. Installing above-ground 18-inch LFG header pipe and connection to existing header, including pipe supports for above-ground header
 6. Installing 4-inch and 6-inch lateral LFG piping and connections to LFG headers
 7. Furnishing, installing, and testing one (1) new LFG condensate sump, including condensate pump, connections, and piping
 8. Excavating, trenching, backfilling, and placing earthfill as required to complete the Work in accordance with the Specifications and Project Drawings
 9. Furnishing, factory-testing and programming five (5) new control panels, and installing, connecting and field testing three (3) new control panels for existing leachate collection and removal system sump pumps, including supervisory control and data acquisition (SCADA) communications and extending electrical power to Modules 6, 7 and 8. New leachate control panels' PLC and HMI touch screen to be fully integrated and configured for form and function similar to existing.
 10. Furnishing, installing, connecting, and testing six (6) leachate pump discharge piping manifolds, including fittings, valves, and supports
 11. Decommissioning fifteen (15) single and six (6) dual LFG vertical

extraction wells

12. Connecting one (1) new and two (2) existing Phase III, Modules 1 and 2 leachate sump LFG laterals, and one (1) existing condensate sump to LFG header
13. Providing equipment program copies, operations and maintenance manuals and “record” drawing set reflecting as-built conditions
14. Completing all incidental work including:
 - a. Providing required training, personnel protective equipment and observing site-safety requirements at all times during construction.
 - b. Providing stormwater, dust and other environmental controls, as needed.
 - c. Clean up, recycle, and disposal of waste or excess materials.

1.02 WORK UNDER OTHER CONTRACTS

- A. Quality Assurance Consultant: A separate contract with the County may be issued to a Construction Quality Assurance (CQA) Consultant. That contract includes:
 1. Construction quality assurance monitoring
 2. Construction quality assurance testing
- B. Modules 7 and 8 Liner Construction: A separate contract with the County may be issued to a contractor for construction of liner in Modules 7 and 8, which are shown on the construction drawings. That contract includes:
 1. Clearing and grubbing
 2. Excavation of Modules 7 and 8
 3. Hauling of excavated soil to stockpiles located west of Modules 3 – 6
 4. Preparing subgrade to receive geosynthetic liner materials
 5. Placing geosynthetic liner materials
 6. Placing leachate collection piping
 7. Placing granular drainage layer over leachate collection piping
 8. Placing soil operations layer over granular drainage layer

Liner contractor will be operating in the vicinity of Contractor's work.

Contractor shall coordinate with liner contractor to avoid conflicts during construction, including liner contractor's hauling equipment.

1.03 STANDARD OPERATING PROCEDURES

- A. The Contractor should review and adhere to all restrictions and implement all requirements of the American Avenue Disposal Site (AADS). Some additional safety items (e.g. lock out tag out, confined space) are separate programs. AADS will provide copies of available training and operating procedures as needed for the project.

1.04 CONTRACTOR USE OF PREMISES

- A. Work Days and Hours: All Work shall be performed between 7:00 a.m. and 5:00 p.m. Monday through Friday. The Contractor shall obtain approval from the Engineer before working on Saturdays. AADS is closed on Sundays. The Contractor shall have construction work access to the site during days and hours approved by the Engineer.
- B. Access: No later than 5 days after Notice to Proceed, the Contractor shall accept required safety items, means of access, space for storage of materials and equipment, and use of approaches and roadways. Contractor's use of the premises shall be confined to the areas approved by the Engineer.
 - 1. All Contractor personnel must sign in/out daily on the visitors log in the AADS office to indicate their presence or absence on site during normal business hours.
 - 2. AADS entry during non-business hours requires the consent of the Engineer.
- C. Secure and Hazardous Areas:
 - 1. Contractor shall be aware of localized operational and construction hazards at the AADS and additional applicable safety items.
- D. Smoking: Due to widespread presence of methane gas processes, smoking is prohibited at the project site.
- E. Driveways: The Contractor shall not use driveways or other routine or emergency vehicle access routes for parking, material storage or any other use.
- F. Storage Areas: Contractor shall use only those areas designated for their use and comply with the requirements of Part 1.04 of Section 01 50 00 and Part 1.01 of Section 01 56 37 for proper storage of wastes and materials, hazardous or otherwise.
- G. Liquid and Solid Wastes: Contractor shall not dispose of waste oils, fuels, cleaners or any other potentially hazardous substances on-site. Contractor

shall not discharge liquids of any kind (including landfill condensate) to any site facility without approval from Engineer. Non-hazardous waste generated during the project may be disposed on site as directed by the Engineer. Waste shall be weighed before disposal. Contractor shall pay disposal fee for project-generated waste disposed on site.

1.05 OCCUPANCY AND CURRENT OPERATIONS

- A. The Contractor shall not interrupt existing AADS operations.

1.06 FURNISHED MATERIALS

- A. Trench backfill, soil berm material, and select backfill to be obtained by Contractor from a location designated by Engineer.
- B. In-line mag flow meters to be installed as part of leachate metering manifold to be provided by County.

1.07 SITE CONDITIONS

- A. The landfill is capable of producing leachate and LFG as a result of the decomposition of waste. The Contractor shall convey and enforce all applicable safety procedures and requirements, whether County's, regulatory, or internal, to minimize hazards to workers, the public, and the environment.
- B. Existing Features: The existence and location of features are not guaranteed. County takes no responsibility, implied or otherwise, for the accuracy of information provided in the Contract Documents or in County's record drawings. The Contractor shall field verify all existing features that may be affected or impacted by the Work. The Contractor shall protect all existing features, both above and below ground.
- C. The Contractor shall enforce all County, site and project safety procedures to minimize hazards to workers, the public, and the environment.

1.08 SUPERINTENDENT

- A. Provide a single qualified full time superintendent for the duration of the project. Contractor shall not change superintendent without Engineer's written approval. Contractor's proposal to change personnel must be justifiable to the Engineer, and must demonstrate that the proposed replacement possesses adequate qualifications.

PART 2. PRODUCTS (Not Applicable)

PART 3. EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 20 00
MEASUREMENT AND PAYMENT

PART 1. GENERAL

1.01 SECTION INCLUDES

- A. General measurement methods
- B. General payment requirements.
- C. Calculation of quantities.
- D. Value of unit prices.
- E. Changes and extra work.
- F. Rejected materials.
- G. Force account work.
- H. Specific measurement and payment descriptions for contract bid items.

1.02 REFERENCES

- A. State of California, Department of Transportation, Standard Specifications, 2010 edition, as amended.

1.03 MEASUREMENT

- A. Performed according to United States Standard measure.
- B. Based on actual units installed or neat line dimensions of work completed.
- C. Contractor shall be responsible for measurement for payment, including surveying. Engineer shall have the option of verifying Contractor's measurements.

1.04 PAYMENT

- A. In accordance with lump sum, unit prices, or force account rates shown on the Bid Form.
- B. Includes all costs for overhead and profit and for supplying materials, labor, equipment, and tools, necessary to complete the Work in accordance with the Special Provisions, Technical Specifications, and Project Drawings.

1.05 CALCULATION OF QUANTITIES

- A. Progress Payment Quantities:

1. Engineer will compute all quantities of Work performed, or of materials and equipment delivered to the site for progress payment purposes.
- B. Final Payment Quantities: Engineer will compute all quantities of Work performed, or of materials and equipment delivered to the site for final payment purposes.
- C. Earthwork quantities: Earthwork (excavating, trenching, backfilling, and placing earthfill) will be required and is considered to be incidental to the bid item. Separate calculation of earthwork quantities will not be made. Include all costs related to earthwork in the appropriate bid item prices.

1.06 VALUE OF UNIT PRICES

- A. The number of units and quantities contained in the Bid Schedule are approximate only, and final payment will be made for the actual number of units and quantities incorporated in the work or made necessary to complete the project and measured in accordance with this Section.
- B. In the event that work and materials or equipment are required to be furnished to a greater or lesser extent than is indicated by the Contract Documents, such work and materials or equipment will be furnished in greater or lesser quantities.

1.07 REJECTED MATERIALS

- A. Quantities of material wasted or disposed in a manner not called for in the Technical Specifications; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Technical Specifications; material not unloaded from the transporting vehicle; material placed outside the limits indicated by the Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities will not be included in the final total quantities.
- B. No compensation will be permitted for loading, hauling, and disposing of rejected material.

PART 2. PRODUCTS (Not used)

PART 3. EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. Contractor shall submit a force account rate sheet for labor and equipment utilized on a time and materials (force account) basis under this contract.
 1. Provide labor rates, based on California prevailing wage rates that

are fully burdened including profit and represent the full hourly rate that will be invoiced to the Engineer.

2. Provide equipment rental rates, based on Caltrans equipment rental rates that represent the full hourly rate for each piece of equipment that will be invoiced to the Engineer and includes the cost of the operator, fuel, and profit.

PART 4. MEASUREMENT AND PAYMENT DESCRIPTIONS

4.01 FOR CONTRACT BASE BID ITEMS

Bid Item 1 – Supplemental Work

1. Supplemental Work is provided to compensate the Contractor for new and unforeseen work necessary to construct the project as designed and intended. Supplemental Work is not for design changes. Supplemental Work will be classed as extra work in accordance with the provisions of Section 4-1.03D, "Extra Work." of the 2010 Caltrans Standard Specifications. The amount shown in the Proposal shall be included in each Bidder's proposal.

Bid Item 2 – Mobilization/Demobilization

1. Work includes, but is not limited to mobilization and demobilization of all equipment, materials, and labor; preparing Health and Safety Plan and procedures; preparing Contractor staging and storage areas; providing temporary facilities and temporary controls (including but not limited to pollution control, dust control, safety control); protection of all utilities and features; and any other indirect services necessary or described in Division 1.
2. Basis of Measurement: Measurement for this item shall be by Lump Sum (LS). No separate measurement will be made.
3. Basis for Payment: Payment for this item will be for all direct and indirect costs associated with furnishing all labor, materials, equipment, and incidentals required to prepare for and complete the Work as indicated in the Contract Documents.

Bid Item 3 – Traffic Control

1. This bid item includes full compensation for furnishing all labor (including flagmen), materials (including signs), tools, equipment, and incidentals, and for performing all work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the Traffic Control system, and for furnishing and operating the pilot car (including driver, radios, other equipment, and labor needed), if required, in accordance with Section 10 of the Special Provisions.

2. Basis of Measurement: Lump Sum (LS). Separate measurement of Traffic Control will not be made.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide Traffic Control.
4. Payment during the agreed contract payment period will be based on a weekly amount as agreed by the Engineer, of work performed for that contract payment period for Traffic Control placed and used on the project, as described above.

Bid Item 4 – Construction Site Management

1. This bid item includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for performing all work involved in spill prevention and control, material management, stockpile management, waste management, non-stormwater management, dewatering, and identifying, sampling, testing, handling, and disposing of hazardous waste resulting from construction activities in accordance with Section 10 of the Special Provisions.
2. Basis of Measurement: Lump Sum (LS). Separate measurement of Construction Site Management will not be made.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide Construction Site Management.

Bid Item 5 – Grade Checking and Protection of Existing Facilities

1. Layout Work, as necessary, and as shown on Drawings using stakes and reference marks set by County.
2. Document as-constructed conditions and provide information to Engineer for preparation of record drawings depicting as-constructed conditions.
3. Protect existing above- and below-ground facilities that may be impacted by Work.
4. Basis of Measurement: Lump Sum (LS). Separate measurement of grade checking and protection of existing facilities will not be performed.
5. Basis for Payment: Payment for this item includes all labor, equipment and materials to perform surveying and layout, and to prepare record drawings.

Phase II Landfill Gas Collection System

Bid Item 6 – Landfill Gas Well Drilling (Sheets 4, 10)

1. Furnish all labor, materials, tools, equipment, and incidentals to drill LFG extraction wells at the locations and depths shown on the Project Drawings and to dispose of waste generated during drilling..
2. Basis of Measurement: Linear Feet (LF). Based on the total linear feet of completed vertical LFG well drilling.
3. Basis for Payment: Payment for this item shall be based on the linear feet of completed vertical LFG extraction well drilling.

Bid Item 7 – Single Landfill Gas Extraction Well Installation and Backfill (Sheet 6, Detail 2)

1. Furnish all labor, materials, tools, equipment, and incidentals to install single LFG extraction wells. This bid item includes, but is not limited to, all casing and perforated pipe, casing centralizer, pipe fittings, end cap, filter media, bentonite plug, gravel, excavation, hauling, and placement of soil for select soil backfill, and appurtenances.
2. Basis of Measurement: Linear Feet (LF). Based on the linear feet of complete and fully functional single LFG extraction wells installed.
3. Basis for Payment: Payment for this item is based on the linear feet of complete and fully functional single LFG extraction wells installed.

Bid Item 8 – Dual Landfill Gas Extraction Well Installation and Backfill (Sheet 6, Detail 3)

1. Furnish all labor, materials, tools, equipment, and incidentals to install dual LFG extraction wells. This bid item includes, but is not limited to, all casing and perforated pipe, casing centralizer, pipe fittings, end cap, filter media, bentonite plug, gravel, excavation, hauling, and placement of select soil backfill material, and appurtenances.
2. Basis of Measurement: Linear Feet (LF). Based on the linear feet of casing installed in complete and fully functional dual LFG extraction wells.
3. Basis for Payment: Payment for this item is based on the linear feet of casing installed in complete and fully functional dual LFG extraction wells.

Bid Item 9 – Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral (Sheet 6, Detail 1)

1. Furnish all labor, materials, tools, equipment, and incidentals to

install LFG extraction well wellheads and connect to laterals. This bid item includes, but is not limited to, all well caps, wellheads, flex hose, hose clamps, piping, and appurtenances.

2. Basis of Measurement: Each (EA). Based on the number of complete and fully functional LFG extraction well wellheads installed and connected to laterals.
3. Basis for Payment: Payment for this item is based on the number of complete and fully functional LFG extraction well wellheads installed and connected to laterals.

Bid Item 10 – Landfill Gas Extraction Well, Drill to Refusal and Backfill

1. Furnish all labor, materials, tools, equipment, and incidentals to abandon obstructed LFG extraction well borings in accordance with Specification Section 33 23 00, Part 3.01.C.5. This bid item includes, but is not limited to, granular fill material, bentonite plug, and excavation, hauling, and placement of select soil backfill material. Drilling equipment lost in an obstructed boring is incidental to this bid item.
2. The unit price for this item shall be applicable regardless of the total depth of obstructed borings abandoned.
3. Basis of Measurement: Linear Feet (LF). Based on the total depth of obstructed borings abandoned.
4. Basis for Payment: Payment for this item is based on the linear feet of obstructed LFG extraction well borings.

Bid Item 11 – Landfill Gas Extraction Well Decommissioning (Sheet 6, Detail 4)

1. Furnish all labor, materials, tools, equipment, and incidentals to decommission LFG extraction wells. This bid item includes, but is not limited to, removal of existing well casing(s), placing cement-bentonite grout in casing(s) and excavation, excavation, hauling and placing select soil backfill material, and removing and capping well lateral at the header.
2. Basis of Measurement: Each (EA). Based on the number of LFG extraction wells decommissioned. Dual extraction wells are considered a single unit for this item.
3. Basis of Payment: Each (EA). Based on number of LFG extraction wells decommissioned.

Bid Item 12 – Provide and Install 6-inch LFG Well Lateral Pipe, with Supports and Guides (Sheet 7, Details 1, 3, 5, 6, 7)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, guides, supports, and related materials to provide a complete and fully functional piping system connecting LFG well lateral pipes to sub-header or header pipe. This bid item includes, but is not limited to, all pipe, pipe supports, guides, and anchors, and appurtenances, and pipe leak testing.
2. Basis of Measurement: Linear Feet (LF) measured along the pipe centerline, not accounting for pipe snaking lengths, valve lengths, and other sections that are not 6-inch diameter HDPE pipe. Pipe snaking to account for pipe thermal changes is incidental to this bid item.
3. Basis for Payment: Payment for this item is based on the linear feet of 6-inch LFG lateral pipe installed, not accounting for pipe snaking lengths, fittings, valve lengths, and other sections that are not 6-inch LFG lateral pipe.

Bid Item 13 – Provide and Install 6-inch and 12-inch Fittings, Valves, and Other Appurtenances (Sheet 7, Details 3, 4, 5)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, fittings, valves, utility boxes, and related materials to provide a complete and fully functional piping system connecting LFG well lateral pipes to sub-header or header pipe. This bid item includes, but is not limited to, all pipe fittings, connections, and appurtenances.
2. Basis of Measurement: Lump Sum (LS). Separate measurement for providing and installing 6-inch and 12-inch fittings, valves, and other appurtenances will not be performed.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide and install 6-inch fittings, valves, and other appurtenances.

Bid Item 14 – Provide and Install 4-inch LFG Well Lateral Pipe, with Supports and Guides (Sheet 7, Details 1, 3, 5, 6, 7)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, guides, supports, and related materials to provide a complete and fully functional piping system connecting LFG well lateral pipes to sub-header or header pipe. This bid item includes, but is not limited to, all pipe, pipe supports, guides, anchors, and

appurtenances, and pipe leak testing.

2. Basis of Measurement: Linear Feet (LF) measured along the pipe centerline, not accounting for pipe snaking lengths, valve lengths, and other sections that are not either 4-inch diameter HDPE pipe. Pipe snaking to account for pipe thermal changes is incidental to this bid item.
3. Basis for Payment: Payment for this item is based on the linear feet of 4-inch LFG lateral pipe installed, not accounting for pipe snaking lengths, fittings, valve lengths, and other sections that are not 6-inch LFG lateral pipe.

Bid Item 15 – Provide and Install 4-inch Fittings, Valves, and Other Appurtenances (Sheet 7, Details 3, 4, 5)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, fittings, valves, utility boxes, and related materials to provide a complete and fully functional piping system connecting LFG well lateral pipes to sub-header or header pipe. This bid item includes, but is not limited to, all pipe fittings, connections, and appurtenances.
2. Basis of Measurement: Lump Sum (LS). Separate measurement for providing and installing 4-inch fittings, valves, and other appurtenances will not be performed.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide and install 4-inch fittings, valves, and other appurtenances.

Bid Item 16 – Provide and Install 12-inch Corrugated Metal Pipe (CMP) and Soil Berm Road Crossings (Sheet 7, Detail 2)

1. Furnish all labor, materials, tools, equipment, and incidentals to install 12-inch diameter CMP and soil berm road crossings. This bid item includes, but is not limited to, all CMP and CMP fittings, excavation, hauling and placing select soil backfill, and appurtenances.
2. Basis of Measurement: Linear Feet (LF) measured along the centerline of complete CMP and soil berm road crossings.
3. Basis for Payment: Payment for this item is based on the linear feet of CMP and soil berm road crossings installed.

Phase III Landfill Gas Collection System

Bid Item 17 – Landfill Gas Extraction Well Drilling (Sheets 5, 10)

1. Furnish all labor, materials, tools, equipment, and incidentals to drill LFG extraction wells at the locations and depths shown on the Project Drawings, and disposal of waste generated during drilling.
2. Basis of Measurement: Linear Feet (LF). Based on the total linear feet of completed vertical LFG well drilling.
3. Basis for Payment: Payment for this item shall be based on the linear feet of completed vertical LFG extraction well drilling.

Bid Item 18 – Single Landfill Gas Extraction Well Installation and Backfill (Sheet 6, Detail 2)

1. Furnish all labor, materials, tools, equipment, and incidentals to install single LFG extraction wells. This bid item includes, but is not limited to, all casing and perforated pipe, casing centralizer, pipe fittings, end cap, filter media, bentonite plug, gravel, excavating, hauling and placement of select soil backfill material, and appurtenances.
2. Basis of Measurement: Linear Feet (LF). Based on the linear feet of complete and fully functional single LFG extraction wells installed.
3. Basis for Payment: Payment for this item is based on the linear feet of complete and fully functional single LFG extraction wells installed.

Bid Item 19 – Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral (Sheet 6, Detail 1)

1. Furnish all labor, materials, tools, equipment, and incidentals to install LFG extraction well wellheads and connect to laterals. This bid item includes, but is not limited to, all well caps, wellheads, flex hose, hose clamps, piping, and appurtenances.
2. Basis of Measurement: Each (EA). Based on the number of complete and fully functional LFG extraction well wellheads installed and connected to laterals.
3. Basis for Payment: Payment for this item is based on the number of complete and fully functional LFG extraction well wellheads installed and connected to laterals.

Bid Item 20 – Landfill Gas Extraction Well, Drill to Refusal and Backfill

1. Furnish all labor, materials, tools, equipment, and incidentals to abandon obstructed LFG extraction well borings in accordance with Specification Section 33 23 00, Part 3.01.C.5. This bid item includes, but is not limited to, granular fill material, bentonite plug, and excavating, hauling and placing select soil backfill. Drilling equipment lost in an obstructed boring is incidental to this bid item.

2. The unit price for this item shall be applicable regardless of the total depth of obstructed borings abandoned.
3. Basis of Measurement: Linear Feet (LF). Based on the total depth of obstructed borings abandoned.
4. Basis for Payment: Payment for this item is based on the linear feet of obstructed LFG extraction well borings.

Bid Item 21 – Provide and Install 18-inch LFG Header Pipe, with Soil Berm, Supports and Guides (Sheet 7, Details 1, 5, 6, 7; Sheet 8, Detail 4)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, supports, guides, and related materials to provide a complete and fully functional header piping system. This bid item includes, but is not limited to, all pipe, appurtenances, tie-in connections to existing and new headers, supports, guides, anchors, drainage outlets, soil berm, and pipe leak testing.
2. Basis of Measurement: Measurement for this item shall be by Linear Feet (LF) along the pipe centerline, not accounting for pipe snaking lengths, valve lengths, and other sections that are not 18" diameter HDPE header pipe. Pipe snaking to account for pipe thermal changes is incidental to this bid item.
3. Basis for Payment: Payment for this item is based on the linear feet of LFG header pipe installed, not accounting for pipe snaking lengths, fittings, valve lengths, and other sections that are not LFG header pipe.

Bid Item 22 – Provide and Install 18-inch Fittings, Valves, and Other Appurtenances (Sheet 7, Details 3, 4, 5)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, fittings, valves, utility boxes, and related materials to provide a complete and fully functional header piping system. This bid item includes, but is not limited to, all valves, pipe fittings, connections, and appurtenances.
2. Basis of Measurement: Lump Sum (LS). Separate measurement for providing and installing 18-inch fittings, valves, and other appurtenances will not be performed.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide and install 18-inch fittings, valves, and other appurtenances.

Bid Item 23 – Provide and Install 12-inch CMP Drain Pipes below 18-inch LFG Header Pipe Soil Berm (Sheet 2, Table 2.2; Sheet 5)

1. Furnish all labor, materials, tools, equipment, and incidentals to install CMP drain pipes below 18-inch LFG header pipe soil berm at locations shown on Project Drawings. This bid item includes, but is not limited to, all pipe, fittings, trenching, excavation, hauling and placing backfill, and appurtenances.
2. Basis for Measurement: Linear Feet (LF) measured along the pipe centerline, including any fittings.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide and install the CMP drain pipes.

Bid Item 24 – Provide and Install 6-inch LFG Lateral Pipe, with Supports and Guides (Sheet 7, Details 1, 3, 5, 6, 7)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, guides, supports, and related materials to provide a complete and fully functional piping system connecting LFG well lateral pipes to sub-header or header pipe. This bid item includes, but is not limited to, all pipe, pipe supports and anchors, guides, and appurtenances, and pipe leak testing.
2. Basis of Measurement: Linear Feet (LF) measured along the pipe centerline, not accounting for pipe snaking lengths, valve lengths, and other sections that are not either 6-inch diameter HDPE pipe. Pipe snaking to account for pipe thermal changes is incidental to this bid item.
3. Basis for Payment: Payment for this item is based on the linear feet of 6-inch LFG lateral pipe installed, not accounting for pipe snaking lengths, fittings, valve lengths, and other sections that are not 6-inch LFG lateral pipe.

Bid Item 25 – Provide and Install 6-inch Fittings, Valves, and Other Appurtenances (Sheet 7, Details 3, 4, 5)

1. Furnish all labor, materials, tools, equipment, and incidentals to install all materials, fittings, valves, utility boxes, and related materials to provide a complete and fully functional piping system connecting LFG well lateral pipes to sub-header or header pipe. This bid item includes, but is not limited to, all pipe fittings, connections, and appurtenances.
2. Basis of Measurement: Lump Sum (LS). Separate measurement for providing and installing 6-inch fittings, valves, and other

appurtenances will not be performed.

3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment, and incidentals to provide and install 6-inch fittings, valves, and other appurtenances.

Bid Item 26 – Connect Existing Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Laterals to Header, with Wellhead, Fittings, and Other Appurtenances (Sheet 5, Sheet 8, Detail 1)

1. Furnish all labor, materials, tools, equipment, and incidentals to connect existing LCRS riser to LFG header. This bid item includes, but is not limited to, all pipe and pipe fittings, excavation, excavating, hauling, and placing backfill, tie-in connection to LFG header, wellhead, and appurtenances.
2. Basis of Measurement: Each (EA) Based on the number of complete, fully functional LCRS riser connection to the LFG header.
3. Basis for Payment: Payment for this item is based on the number of complete, fully functional existing LCRS connection to the LFG header.

Bid Item 27 – Provide and Connect New Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Lateral to Header, with Wellhead, Fittings, Valves, and other Appurtenances (Sheet 5, Sheet 8, Details 1, 3)

1. Furnish all labor, materials, tools, equipment, and incidentals to connect new LCRS riser to LFG header. This bid item includes, but is not limited to, all pipe and pipe fittings, excavation, excavating, hauling and placing backfill, tie-in connections to LCRS riser and LFG header, wellhead, valves, and appurtenances.
2. Basis of Measurement: Each (EA) based on the number of complete, fully functional LCRS riser connections to the LFG header.
3. Basis for Payment: Payment for this item is based on the number of complete, fully functional LCRS riser connections to the LFG header.

Bid Item 28 – Provide and Install New Condensate Sump (Sheet 9, Details 1, 2, 3, 4)

1. Furnish all labor, materials, tools, equipment, and incidentals to install a complete and fully functional LFG condensate sump. This bid item includes, but is not limited to, all pipe and pipe fittings, sump pump, excavation, backfill with controlled density fill, vault box, pipe leak testing, protective bollards, appurtenances start-up testing, and commissioning.

2. Basis of Measurement: Each (EA) based on the number of complete, fully functional condensate sumps installed.
3. Basis for Payment: Payment for this item is based on the number of fully complete and functional condensate sumps installed.

Bid Item 29 – Connect LFG Header Drain to Existing Condensate Sump (Sheet 9, Detail 5)

1. Furnish all labor, materials, tools, equipment, and incidentals to install a complete and fully functional LFG header drain and connection to existing condensate sump. This bid item includes, but is not limited to, LFG header fitting, all other pipe and pipe fittings, blind flange, excavation, excavating, hauling and placing backfill, connections to condensate sump, and appurtenances.
2. Basis of Measurement: Each (EA) based on the number of fully complete and functional LFG header drains installed.
3. Basis of Payment: Payment for this item is based on the number of fully complete and functional LFG header drains installed.

Bid Item 30 – Provide and Install 2-inch Condensate Force Main Pipe, Fittings, Valves, and Other Appurtenances (Sheet 5, Sheet 7, Details 1, 5, 7; Sheet 9, Details 1, 2)

1. Furnish all labor, materials, tools, equipment, and incidentals to install the LFG condensate force main. This bid item includes, but is not limited to, all pipe and pipe fittings, valves, connections and appurtenances, tie-in connections to existing lines, pipe straps, pipe leak testing, start-up testing, and commissioning.
2. Basis of Measurement: Measurement for this item shall be by Linear Feet (LF) along the pipe centerline, not accounting for pipe snaking lengths, and other sections that are not 2" diameter LFG condensate force main pipe. Pipe snaking to account for pipe thermal changes is incidental to this bid item.
3. Basis for Payment: Payment for this item is based on linear feet of LFG condensate force main installed, not accounting for pipe snaking lengths, fittings, valve lengths, and other sections that are not LFG condensate force main pipe.

Bid Item 31 – Provide and Install 2-inch Air Supply Pipe, Fittings, Valves, and Other Appurtenances (Sheet 7, Details 1, 5, 7; Sheet 9, Details 1, 2)

1. Furnish all labor, materials, tools, equipment, and incidentals to install the LFG condensate sump air supply. This bid item includes, but is not limited to, all pipe and pipe fittings, valves, connections and appurtenances, tie-in connections to existing lines, pipe leak testing,

start-up testing, and commissioning.

2. Basis of Measurement: Measurement for this item shall be by Linear Feet (LF) along the pipe centerline, not accounting for pipe snaking lengths, and other sections that are not 2" diameter HDPE condensate sump air supply pipe. Pipe snaking to account for pipe thermal changes is incidental to this bid item.
3. Basis for Payment: Payment for this item is based on linear feet of LFG condensate sump air supply pipe installed, not accounting for pipe snaking lengths, fittings, valve lengths, and other sections that are not LFG condensate sump air supply pipe.

Bid Item 32 – Provide and Install Leachate Metering Manifold Piping, Fittings, Valves, and Other Appurtenances (Sheet 5, Sheet 8, Detail 2)

1. Furnish all labor, materials, tools, equipment, and incidentals to install leachate meter manifolds. This bid item includes, but is not limited to, all pipe and pipe fittings, valves, trenching, excavating, hauling and placing backfill, tie-in connections to existing lines, concrete pad, supports, and appurtenances, pipe leak testing, start-up testing, and commissioning.
2. County shall furnish in-line mag flow transmitter, which will be installed by Contractor.
3. Basis for Measurement: Each (EA) based on the number of fully complete and functional leachate metering manifolds installed.
4. Basis for Payment: Payment for this item is based on the number of fully complete and functional leachate metering manifolds installed.

Bid Item 33 – Fabricate and Provide Leachate Sump and Lysimeter Pump Panels (Sheets 13, 14, 15, 16, 17)

1. Furnish all labor, materials, tools, equipment, and incidentals to fabricate and provide leachate sump and lysimeter pump panels. This bid item includes, but is not limited to, enclosures, control panels, programmable logic controllers, central processing units, radio modems, displays, wiring, masts and antennas, breakout boxes, and appurtenances.
2. Basis for Measurement: Each (EA) based on the number of fully complete and functional leachate sump and lysimeter pump panels, including appurtenances, provided. (Note: Two panels will be provided to County for future use.)
3. Basis for Payment: Payment for this item is based on the number of

fully complete and functional leachate sump and lysimeter pump panels provided.

Bid Item 34 – Modify and Extend Leachate Panel Electrical Supply (Sheets 11, 12, 18, 19)

1. Furnish all labor, materials, tools, equipment, and incidentals to modify and extend leachate panel electrical supply. This bid item includes, but is not limited to, providing and pulling all new conductors in existing conduit, splices, replacing the existing main circuit breaker, appurtenances, start-up testing, and commissioning.
2. Basis of Measurement: Measurement for this item shall be by Linear Feet (LF) along the electrical supply conduit centerline, including pull boxes. Separate measurement will not be made of conductor lengths, or for replacing main circuit breaker.
3. Basis for Payment: Payment for this item is based on linear feet of conduit in which all specified new conductors are installed and complete.

Bid Item 35 – Install and Connect Leachate Sump and Lysimeter Pump Panels (Sheets 11, 12, 15)

1. Furnish all labor, materials, tools, equipment, and incidentals to install leachate sump and lysimeter pump panels. This bid item includes, but is not limited to, wiring, electrical and communication, connections to leachate metering manifolds, connections to power supply, trenching and backfill, antennas, concrete footings, supports, and appurtenances, start-up testing, and commissioning.
2. County shall furnish leachate sump and lysimeter pumps, motors and motor leads, which will be installed and connected by Contractor.
3. Basis for Measurement: Each (EA) based on the number of fully complete and functional leachate sump and lysimeter pump panels installed.
4. Basis for Payment: Payment for this item is based on the number of fully complete and functional leachate sump and lysimeter pump panels installed.

Bid Item 36 – Program / Start-up / Integrate New Leachate Sump and Lysimeter Pump Panels

1. Furnish all labor, materials, tools, equipment, and incidentals to program, start-up, and integrate new leachate sump and lysimeter pump panels. This bid item includes, but is not limited to, demonstrating that the new panels have identical operational

characteristics and functionality as the existing system.

2. Basis of Measurement: Lump Sum (LS). Separate measurement of program, start-up, and integration of new leachate sump and lysimeter pump panels will not be performed.
3. Basis for Payment: Payment for this item includes all labor, materials, tools, equipment and incidentals to perform programming, start-up, and integration.

END OF SECTION

SECTION 01 31 13
PROJECT COORDINATION

PART 1. GENERAL

1.01 SUBMITTALS

A. Action Submittals:

1. Contractor's Phasing Work Plan.
2. Traffic Control Plan.

B. Informational Submittals:

Photographs: Digital Images: Submit on disc within 5 business days of being taken

1.02 GENERAL

- A. Refer to Section 01 35 29, Health and Safety, and 01 50 00, Temporary Facilities and Controls.
- B. Include sequencing constraints as specified herein as a part of Progress Schedule.
- C. Refer to Caltrans Standard Specifications Section 12, Temporary Traffic Control and these Special Provisions.

1.03 COUNTY-FURNISHED SERVICES/MATERIALS

- A. Surveying to be provided by County.
 1. Engineer will set and mark survey control points, including, but not limited to staking the locations of the LFG extraction wells according to the Construction Plans. Submit your request for Engineer-furnished stakes as stated in Section 5-1.26 of these Specifications.
 2. The Contractor is responsible for maintaining survey control points and correctly applying offsets and grades as marked on the stakes for construction control and layout.
 3. The Contractor is liable for any error resulting from failing to use the County-provided survey control points, incorrectly using the points, building without requesting Engineer surveying to set control points, or requesting an inadequate amount of points to

control construction.

4. The Contractor shall provide Engineer a minimum of 48-hour notice prior to performance by the Engineer of any Contractor surveying requests, staking requests, or grade verifications, unless otherwise specified in these Special Provisions.
5. Engineer will also provide surveying for record drawings for the Project.

B. Materials testing to be provided by County.

1. The Engineer will provide compaction testing and other material testing, as required.
2. The Contractor shall provide Engineer a minimum of 48-hour notice prior to performance by the Engineer of any Contractor materials testing requests, unless otherwise specified in the Special Provisions.
3. The Engineer will provide Contractor test results in a timely manner in order for Contractor to continue work, or correct work if there are any out of conformance test results.

C. Materials to be provided by County.

1. Trench backfill, soil berm material, and select backfill to be obtained by Contractor from a location designated by Engineer.
2. In-line mag flow meters to be provided by County and to be installed by Contractor as part of leachate metering manifold.

1.04 SURVEYING

- A. Contractor shall be responsible for surveying, as required, of actual units installed or neat line dimensions of work completed to determine quantities for payment. The Engineer may perform an independent survey to verify Contractor's quantities for payment.
- B. Contractor shall be responsible for surveying for locating and construction staking of all proposed piping (headers, laterals, conduits, etc.), and all existing facilities (piping, conduits, liners, etc.) in the areas of work.

1.05 UTILITY NOTIFICATION AND COORDINATION

- A. Coordinate the Work with the Engineer and various utilities within Project limits. Call USA for utilities to the point of connection and perform other notifications (refer to Drawings) to applicable utilities prior to commencing Work. Contractor to field verify all utilities and other underground facilities.

Contractor to pothole, as needed, to verify locations and depths of all utilities and other facilities within area of Work. The Contractor shall provide Engineer a minimum of 48 hours notice prior to any investigation or potholing for underground facilities.

1.06 WORK SEQUENCING/CONSTRAINTS

A. Include the following work sequences in the Progress Schedule:

1. General: The American Avenue Disposal Site (AADS) is a regional landfill for the County of Fresno. As such, the landfill needs to be able to operate in full-time mode whereby the County of Fresno will occupy the premises during the entire construction period to conduct normal business. Contractor may conduct Work from 7:00 a.m. to 5:00 p.m., Monday - Friday. The Contractor shall obtain approval of the Engineer before working Saturdays. The Contractor must schedule and conduct activities to enable the facility to operate continuously without obstruction, unless otherwise noted and approved. This includes all access roads, landfill gas system, leachate systems, condensate systems, and all other landfill-related operations. Two-way access roads may be reduced to one travel lane but will require traffic control (flaggers, cones, and other traffic control devices) in accordance to the Contractor's Traffic Control Plan (as approved by the Engineer). The Contractor shall be responsible for providing all necessary traffic control.

B. Existing Landfill Gas System:

1. The Contractor shall coordinate and schedule all Work affecting the existing landfill gas collection and control system (GCCS) at the landfill facility. Contractor shall include in their Phasing Work Plan (and Traffic Control Plan) all landfill gas system construction work, testing, switch-over, and commissioning.
2. Work Responsibilities:
 - a. The Engineer will take responsibility for the following Work:
 - 1) Deactivating and reactivating, and oversight of the active GCCS components and condensate system.
 - 2) Operating of GCCS valves and other system components.
 - b. The Contractor shall be responsible for:
 - 1) Coordinating with Engineer on all Work, and installing and commissioning County-furnished equipment.

2) Providing to the Engineer the Contractor's Phasing Work Plan for installation, connection, and tie-in to the active GCCS. No active system piping shall be disconnected until after 8:00 a.m.; reconnected GCCS piping shall be done and in stable operation during normal facility work hours, unless otherwise approved by Engineer.

3) No more than five existing landfill gas collection wells shall be shut down at any one time. Dual collection wells shall be counted as two wells. All landfill gas collection wells shut down during the working day shall be reactivated before the end of the working day.

4) Provide minimum 48 hours written notice to Engineer for any Work required by the Engineer's forces or representatives, or any work that impacts the facility's operations unless otherwise specified in these Special Provisions.

5) The LFG combustion flare may only be shut down for a total of 96 hours during the Work. The LFG combustion flare may not be shut down beyond the end of the work day. The Contractor shall be responsible for any fines and/or penalties associated with excess emissions of LFG and/or Notices of Violation as a result of the Contractor's work.

1.07 FACILITY OPERATIONS

- A. Continuous operation of the landfill facility is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
- B. Perform Work continuously during critical connections and changeovers, and as required to prevent interruption to facility operations. All Work shall be conducted during normal operating hours for the facility, Monday - Friday. No Work will be permitted outside of normal operating hours, unless approved in advance and in writing by Engineer.
- C. When necessary, plan, design, and provide various temporary services, utilities, connections, temporary piping and heating, access, and similar items to maintain continuous operations of the facility.
- D. Only landfill personnel are authorized to operate any landfill facilities. Contractor is to coordinate with the Engineer to disconnect any existing facilities.
- E. Do not close lines, open or close valves, or take other action that could affect the operation of existing systems, except as specifically required to do Work

and after authorization by Engineer. Such authorization will be considered within 48 hours after receipt of Contractor's written request, unless otherwise specified in these Special Provisions.

- F. Refer to Article Work Sequencing/Constraints. Construct work in phases in order to minimize impact to facility operations.
- G. Process or Facility Shutdown:
 - 1. The following will require shutdown at some time during the Work (limit downtime):
 - a. Existing landfill gas collection and control system and associate condensate pumping and conveyance system.
 - 2. Provide 5 business days advance written request to Engineer for approval for need to shut down a process or facility unless otherwise specified in the Special Provisions.
 - 3. Power outages will be considered upon 48 hours written request to Engineer. Describe the reason, anticipated length of time, and areas affected by the outage. Provide temporary provisions for continuous power supply to critical facility components.
- H. Install and maintain bypass facilities and temporary connections required to keep facility operations on-line. Sequences other than those specified will be considered upon written request to Engineer, provided they afford equivalent continuity of operations. Flare downtime shall not exceed 96 hours during the Work. The LFG combustion flare shall not be shut down beyond the end of the work day. Contractor shall pay all fines associated with excess air emissions of landfill gas and/or Notices of Violations (NOVs) as a result of the Contractor's work.
- I. Do not proceed with Work affecting a facility's operation without obtaining Engineer's advance approval of the need for and duration of such Work.
- J. Relocation of Existing Facilities:
 - 1. During construction, it is expected that minor relocations of facilities will be necessary.
 - 2. Provide complete relocation of existing structures and facilities, including piping, utilities, equipment, structures, electrical conduit wiring, electrical duct bank, and other necessary items.
 - 3. Use only new materials for relocated facility. Match materials of existing facility, unless otherwise shown or specified.
 - 4. Perform relocations to minimize downtime of existing facilities.

5. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by Engineer.

1.08 ADJACENT FACILITIES AND PROPERTIES

A. Examination:

1. Before Work at Site is started, Contractor, Engineer, and affected utility purveyors shall make a thorough examination of pre-existing conditions including existing buildings, structures, and other improvements in vicinity of Work, as applicable, which could be damaged by construction operations.
2. Periodic reexamination shall be jointly performed to include, but not limited to, cracks in structures, settlement, leakage, and similar conditions.

B. Documentation:

1. Record and submit documentation of observations made on examination inspections in accordance with Paragraph 1.08 of this Section.
2. Upon receipt, Engineer will review, sign, and return one record copy of documentation to Contractor to be kept on file in field office.
3. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Contractor's operations, and is for the protection of adjacent property, Contractor, and Engineer.

1.09 CONSTRUCTION PHOTOGRAPHS

- A. Photographically document all phases of the project including preconstruction, construction progress, and post-construction.
- B. Engineer will have the right to select the subject matter and vantage point from which photographs are to be taken.
- C. Preconstruction and Post-Construction:
 1. Before Work at Site is started, and again upon issuance of Substantial Completion, take a minimum of 48 digital photographs of construction areas and areas adjacent to perimeter of construction areas.
 2. Particular emphasis shall be directed to structures both inside and outside the construction work areas.

3. Format: Digital, minimum resolution of 1152 by 864 pixels and 24 bit.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION

3.01 CUTTING, FITTING, AND PATCHING

- A. Cut, fit, adjust, or patch Work and work of others, including excavation and backfill as required, to make Work complete.
- B. Obtain prior written authorization of Engineer before commencing Work to cut or otherwise alter:
 1. Structural or reinforcing steel, structural column or beam, elevated slab, trusses, or other structural member.
 2. Weather- or moisture-resistant elements.
 3. Efficiency, maintenance, or safety of element.
 4. Work of others.
- C. Refinish surfaces to provide an even finish.
 1. Refinish continuous surfaces to nearest intersection.
 2. Refinish entire assemblies.
 3. Finish restored surfaces to such planes, shapes, and textures that no transition between existing work and Work is evident in finished surfaces.
- D. Restore existing work, underground facilities, and surfaces that are to remain in completed Work including concrete-embedded piping, conduit, and other utilities as specified and as shown.
- E. Make restorations with new materials and appropriate methods as specified for new Work of similar nature; if not specified, use recommended practice of manufacturer or appropriate trade association.
- F. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces and fill voids.
- G. Remove specimens of installed Work for testing when requested by Engineer.

END OF SECTION

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SECTION 01 31 19
PROJECT MEETINGS

PART 1. GENERAL

1.01 RELATED DOCUMENTS

- A. Construction Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

This Section specifies administrative and procedural requirements for project meetings including but not limited to:

- A. Pre-Construction Conference
- B. Progress Meetings
- C. Coordination Meetings

1.03 DESCRIPTION

- A. Engineer will schedule and administer a pre-construction conference, construction progress meetings, and specially called meetings throughout the progress of the Work. Engineer will be responsible for preparing the agenda, making arrangements, preparing the meeting minutes and presiding at these meetings.
- B. Representatives of Contractor, sub-contractor(s), and suppliers attending these meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

1.04 PRECONSTRUCTION CONFERENCE

- A. Within five (5) days after the Notice to Proceed and before starting the Work, a joint meeting shall be held with representatives of the Engineer, Contractor and his superintendent, and other invited parties or government agencies which may be affected by or have jurisdiction over the project. This meeting is intended to introduce the various key personnel from each organization and to discuss the Contract Documents, the start of construction, order of work, labor and legal requirements, approved insurance requirements, names of the major sub-contractors, method of payment, shop drawing submittal schedule, protection of existing facilities and other pertinent items associated with the project. The Contractor shall bring five (5) copies of a construction schedule to this meeting.

- B. The suggested agenda for the preconstruction meeting:
1. Introduction of key personnel and roles
 2. Overview of project
 3. Project summary
 4. Contract completion time
 5. Liquidated damages
 6. Guarantee of work
 7. Project schedule
 8. Critical work sequencing
 9. Labor requirements
 10. Relationship and coordination with:
 - a. Other contracts
 - b. On-going manufacturing operations
 11. Use of premises and standard operating procedures
 - a. Right-of-ways and easements
 - b. Access and traffic control
 - c. Office, work and storage areas
 - d. Temporary facilities/utilities
 - e. Safety and first aid procedures
 - f. Security procedures
 - g. Posting of signs
 - h. Clean-up procedures
 - i. County requirements
 12. Procedures and processing of:
 - a. Field decisions

- b. Change orders
 - c. Applications for payment
 - d. Partial payments
 - e. Record documents
 - f. Shop drawings
 - g. Request for extension of Contract time
- 13. Construction facilities, controls and aids
 - 14. Staking of work
 - 15. Equipment to be used
 - 16. Material/manufacturers/suppliers to be used
 - 17. Major equipment/material deliveries
 - 18. On-site material storage requirements
 - 19. Laboratory testing of materials
 - 20. Project inspections
 - 21. Permit requirements

1.05 PROGRESS MEETINGS

- A. During the course of the Work, progress meetings will be organized and conducted by Engineer to discuss the progress of the Work weekly. The Contractor and his construction superintendent shall attend these meetings. The progress meetings will be held at the Contractor's field office or other onsite location as determined by Engineer.
- B. The suggested agenda for these meetings:
 - 1. Review minutes of previous meeting.
 - 2. Review of work progress since previous meeting.
 - 3. Discussions on field observations, problems, conflicts.
 - 4. Problems which impede the construction schedule.
 - 5. Review of off-site fabrication and delivery schedules.

6. Corrective measures and procedures to regain projected schedule.
7. Revisions to construction schedule.
8. Progress schedule during next work period.
9. Coordination of schedule.
10. Shop drawing submittals.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
 - a. Effect on construction schedule and on completion date.
 - b. Effect on other Contracts of the project.
14. Other business.
15. Construction schedule.
16. Critical/long-lead items.

PART 2. PRODUCTS (Not Applicable)

PART 3. EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 33 00
CONTRACTOR SUBMITTALS

PART 1. GENERAL

1.01 RELATED DOCUMENTS

- A. Special Provisions Section 8-1.04(C)(1), First Order of Work, Submittals
- B. Technical Specifications, and Project Drawings

1.02 SUMMARY

- A. Unless otherwise specified, four copies of submittal information will be provided by the Contractor to Engineer in accordance with specified time frames.

It is the Contractor's responsibility to review the Special Provisions and Technical Specifications to identify the specific requirements for each submittal category.

- B. The review process shall be as follows:
 - 1. Contractor submits four copies of submittal information to Engineer.
 - 2. Two copies are forwarded to the approver (if different than Engineer), and Engineer will keep two copies.
 - 3. The Engineer will review the submittal and conduct telephone discussions, if needed.
 - 4. The approver stamps the two submittal copies and checks one of the following actions:
 - Approved
 - Approved as Noted
 - Revise & Resubmit
 - Disapproved
 - 5. Engineer will return one stamped copy to the Contractor for appropriate action. Approved submittals will be maintained by the Contractor and submitted to Engineer with other required documentation upon project completion.
 - 6. Delays in the submittal review and approval process by parties other than the Contractor do not automatically qualify for time extensions to the project. Any such claim by the Contractor must clearly demonstrate how the construction schedule has been impacted to the satisfaction of Engineer before a time extension will be granted.

C. Re-submittal of Information

1. Re-submitted information shall be reviewed within 5 business days.

END OF SECTION

SECTION 01 35 29
HEALTH AND SAFETY

PART 1. GENERAL

1.01 SCOPE

- A. The Contractor shall submit to Engineer prior to beginning the Work a written "Health and Safety Plan for the Work. This shall be accomplished within five (5) business days of receiving a Notice of Award.

1.02 DESCRIPTION

- A. The Health and Safety Plan shall, as a minimum, address the following.
 - 1. Description of work to be completed.
 - 2. Chemical exposure hazards related to landfill gases, landfill leachate, landfill waste, conveyed or stored in the area of the Work:
 - 3. Explosive hazards.
 - 4. Site procedures and safety guidelines.
 - 5. Local, State and federal safety requirements.
 - 6. Emergency procedures.
 - 7. Organizational structure and responsibilities (Health and safety manager, Site safety officer).
 - 8. Location of medical services.
 - 9. Sub-contractor requirements.
 - 10. Site control.
 - 11. Work zones.
 - 12. Decontamination.
 - 13. Contingency Plan.
 - 14. Record keeping.
- B. The Health and Safety Plan shall at a minimum be consistent with the following requirements.

1. Comply with all applicable State of California and OSHA regulations.
2. Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29, Code of Federal Regulations, Parts 1910 and 1926 (29 CFR 1910 and 1926), including amendments, or current amendments at the time of contract performance as stated in Fed. Reg. December 19, 1986: 45654-45675 (Interim Final Rule, 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response").
3. United States Environmental Protection Agency (USEPA) Standard Operating Safety Guidelines, Office of Emergency and Remedial Response, Hazardous Response Support Division, Edison, New Jersey.
4. NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Site Activities, October 1985, DHHS (NIOSH) Publ. No. 85-115.
5. Health and Safety Section of A Compilation of Landfill Gas Field Practices and Procedures (March 1992), as prepared by the Solid Waste Association of North America (SWANA) Landfill Gas Division. Copies may be obtained by writing to SWANA, 8750 Georgia Avenue, Suite 140, Silver Spring, Maryland 20910, telephone number (301) 585-2898.
6. All applicable trench safety and confined space entry procedures.

1.03 QUALITY ASSURANCE

- A. Nothing in this Section shall preclude the Contractor from complying with the more stringent requirements of the applicable Federal, State, County, and Industry Standards, rules, and regulations.

1.04 HAZARDOUS SITE CONDITIONS

- A. The Contractor is advised that the construction of this project is being performed on and adjacent to buried wastes and refuse. As these buried materials decompose anaerobically, they generate landfill gas (LFG), which normally consists of carbon dioxide (CO₂); methane (CH₄), and occasionally hydrogen sulfide (H₂S) and other gases, depending on the composition of the buried materials. These gases usually vent to the atmosphere through the cover soil, but may migrate laterally over 1,000 feet to adjacent areas depending on site conditions. Additionally, trace volatile organic compounds may be encountered.
- B. The following landfill and LFG related information is included to assist

the Contractor in developing his Health and Safety Program and is not intended to encompass all steps that may be necessary to protect the workers or to comply with applicable regulations. A copy of the Health and Safety Program shall be submitted to Engineer for their information five (5) business days after of receiving a Notice of Award.

1. Landfill and other gases usually vent to the atmosphere through the cover soils, but may migrate laterally to adjacent areas depending on site conditions.
2. Landfills have the potential to create hazardous conditions if working conditions are not controlled or recognized. Some of the hazards are:
 - a. Fires may start spontaneously from exposed and/or decomposing waste.
 - b. Fires and explosions may occur from the presence of methane gas.
 - c. Landfill and other gases may cause an oxygen deficiency in underground trenches, vaults, conduits, and structures.
 - d. Hydrogen sulfide, a highly toxic and flammable gas, or other toxic gas may be present.
 - e. Possible caving of trenches and excavations when working over or in waste fills.
 - f. Splash hazards associated with LFG condensate, leachate.

1.05 SAFETY MONITOR

- A. The Contractor shall provide a person who will be designated as the Safety Monitor. The Safety Monitor shall be thoroughly trained in rescue procedures, and in the use of safety equipment and gas detectors. Work area monitoring for applicable gases shall be conducted whenever open trenches or excavations are greater than 2 feet in depth, when waste is exposed, or when LFG or other gases are likely to be present.
- B. The Safety Monitor shall have appropriate instruments (detector[s]) as designated in the Health and Safety Plan. At a minimum, there shall be instruments to test for oxygen deficiency and for the presence of methane gas, and hydrogen sulfide gas. Contractor shall coordinate monitoring requirements for these and other site hazards with Engineer. The Safety Monitor shall periodically calibrate his instruments in

accordance with manufacturer's recommendations and regularly test the excavation areas and other workspace for safe working conditions and ensure that appropriate safety equipment is available at the site.

- C. The Safety Monitor shall have the delegated authority to order workers on the project site to comply with the LFG safety requirements. Failure to observe his order shall be cause for removal of the worker from the project.
- D. The Safety Monitor will evacuate or not permit any worker to enter any work area where there is less than 19.5 percent oxygen, greater than 0.5 percent (10 percent of the lower explosive limit) of methane, greater than 10 parts per million (ppm) of volatile organic compounds, or greater than 10 ppm of hydrogen sulfide.

PART 2. PRODUCTS

2.01 HEALTH AND SAFETY PLAN

- A. Plan preparation and submittal shall be compensated under the Mobilization pay item. Implementation of the program to conform to the requirements of this section shall be considered as included in the contract prices paid for the various items of work involved and no separate payment will be made.

PART 3. EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 45 13
QUALITY CONTROL

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Construction quality assurance (CQA) and control of Work
- B. References
- C. Inspections

1.02 DEFINITIONS

- A. Quality Assurance: A planned and systematic pattern of procedures and documentation designed to provide confidence that items of work or services meet the requirements of the Construction Documents. Quality assurance shall be performed by the Engineer.
- B. Quality Control: Those actions that provide a means of measuring and regulating the characteristics of an item or service to comply with the requirements of the Construction Documents. Quality control shall be performed by the Contractor, manufacturers, suppliers, and subcontractors.

1.03 QUALITY CONTROL AND CONTROL OF WORK

- A. Contractor is responsible for quality control of suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Perform work with persons qualified to produce workmanship of specified quality.
- E. Coordinate with Engineer for material sampling and testing. Verify that control measures are adequate to provide a product that conforms to the Contract Document requirements.

1.04 REFERENCES

- A. Contractor shall conform to reference standards' latest editions or

issues.

- B. If reference standards conflict with the Contract Documents, Contractor shall request clarification from Engineer.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 COUNTY'S QUALITY ASSURANCE

- A. All Work is subject to Engineer's inspection and testing at all locations and at all reasonable times before acceptance to ensure strict compliance with the Contract Documents. The Engineer may contract a CQA consultant to perform quality assurance monitoring of the Work.
- B. Contractor shall coordinate Work to allow Engineer to perform inspections and testing.
 - 1. Notify Engineer at least 48 hours in advance prior to expected time for operations requiring inspection or testing.
 - 2. Allow time for CQA inspection and testing to be performed. No compensation or contract time extension shall be provided due to delays caused by CQA testing.
- C. Contractor shall provide Engineer with samples of materials and assist as requested in the performance of CQA inspections and testing.
- D. Retesting that is required because the materials or Work are not in conformance with the specified requirements shall be performed by the Engineer. Contractor will be responsible for paying for inspection and testing charges associated with retesting.
- E. Engineer's quality assurance inspections and testing are for the sole benefit of Engineer and do not:
 - 1. Relieve Contractor of responsibility for providing adequate construction quality control measures.
 - 2. Relieve Contractor of responsibility for damage to or loss of the material before acceptance.
 - 3. Constitute or imply acceptance
 - 4. Affect the continuing rights of Engineer after acceptance of the completed Work

- F. The presence or absence of a quality assurance inspector does not relieve Contractor from any requirements of the Contract Documents.
- G. Promptly furnish all facilities, labor, and material reasonably needed for performing safe and convenient inspections and testing as may be required by Engineer.
- H. Engineer may charge Contractor for any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes re-inspection or retesting necessary. Quality assurance inspections and testing will be performed in a manner that will not unnecessarily delay the Work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1. GENERAL

1.01 SUMMARY

The requirements of this Section apply to, and are a component of, each section of the Specifications. The Contractor is responsible for furnishing all labor, equipment, materials, and provisions to provide temporary facilities and controls, including but, not limited to the Contractor's field office, Contractor's storage area(s), utility connections/hookups and permits for water service, electrical service, telephone service, maintenance of traffic, barricades, fences, damage to existing property, security, access roads, drainage, erosion and sediment control measures, parking, and emergencies.

1.02 REFERENCES

- A. The Project Drawings, Special Provisions and Technical Specifications apply to this Section.
- B. Caltrans Standard Specifications Section 12, Temporary Traffic Control

1.03 FIELD OFFICE

A. UTILITIES

1. A Field Office is optional for this Project. The Contractor shall, however, maintain on the project site a protected area in which copies of the Contract Documents, project progress records, project schedule, shop drawings, red lined drawings and other relevant documents shall be kept and shall be accessible to Engineer during working hours.
2. A construction water supply (non-potable) is available on-site as described in the Special Provisions.
3. If required by the Contractor, the Contractor shall install telephone and fax services to his office. The Contractor shall be responsible for paying all connection fees, extension of lines, and services charges for telephone service for the office.
4. If required by the Contractor, the Contractor shall install temporary electric power to his office. The Contractor shall be responsible for paying all connection fees and service charges for temporary power for the office.
5. Sanitary sewer service hook up is not available at this location.

1.04 CONTRACTOR'S STORAGE AREAS

- A. A storage area will be provided on the project site for use by the Contractor for storage of his materials, tools, equipment, office and other items necessary for construction. The limits and the location of the storage area will be assigned by Engineer at the preconstruction meeting. The Contractor shall be fully responsible for the security of this area, including fencing, watchmen, and other means of security. Under no circumstances will County be responsible for the security of any property belonging to the Contractor, his subcontractors, or any of his work forces.
- B. Hazardous Materials: Contractor shall handle and/or store flammable or hazardous materials in accordance with all applicable Federal, State and local regulations. Contractor shall store flammable or hazardous materials with written permission of Engineer.
- C. Contractor shall provide Safety Data Sheets (SDS) for all hazardous materials to be handled or stored on site. In addition, all Contractor's handling and storage procedures shall comply with manufacturers' instructions, SDS and NIOSH requirements.

1.05 SANITARY FACILITIES

- A. Contractor shall furnish temporary sanitary facilities at work locations, as provided herein, for the needs of all construction workers and others performing work or furnishing services in connection with this Contract.
- B. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 10 workers. Contractor shall enforce the use of such sanitary facilities by all personnel at the site. Contractor personnel shall not use existing onsite toilet facilities.

1.06 TRAFFIC PROVISIONS

- A. Maintenance of Traffic: The Contractor shall conduct his operations in a manner that will not close any thoroughfare or interfere in any way with site traffic. Contractor shall prepare and submit a Traffic Control Plan for Engineer's approval.

1.07 FENCES

- A. Fences which interfere with construction operations shall not be relocated or dismantled until permission is obtained from Engineer and the period the fence may be left relocated or dismantled has been agreed upon. Temporary fences shall be provided and shall be in-place during non-work hours and in all areas where Work activities are

not occurring.

- B. On completion of the Work, Contractor shall restore all fences to their original location and to their original condition, or better.

1.08 DAMAGE TO EXISTING PROPERTY

- A. Contractor will be held responsible for any damage to existing structures, facilities, work, materials or equipment because of his operations and shall repair or replace any damaged structures, facilities, work, materials or equipment to the satisfaction of, and at no additional cost to County.
- B. Contractor shall protect all existing structures and property from damage and shall provide signs, barricades, bracing, shoring, or other work necessary for such protection.
- C. Contractor shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges or other public or private property, which may be caused by transporting equipment, materials, or men to or from the work. Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

1.09 SECURITY

- A. Contractor shall be responsible for protection of the site, and all work, materials, equipment and existing facilities thereon, against vandals and other unauthorized persons.
- B. No claim shall be made against County by reason of any act of an employee or trespasser, and Contractor shall make good all damage to landfill property resulting from his failure to provide security measures as specified.
- C. Security measures shall be at least equal to those usually provided by County to protect its existing facilities during normal operation (i.e. facility check-in and out, fencing), but shall also include such additional security fencing, barricades, lighting and other measures as required to protect the site facilities and contents.

1.10 ACCESS ROADS

- A. Contractor shall protect existing roads from overload damage and is responsible for repair of all roads damaged by any equipment used in the Work.

1.11 DRAINAGE

- A. The Contractor shall keep all natural drainage and water courses unobstructed or provide equal courses effectively placed, and prevent accumulations of surface water.

1.12 SEDIMENT CONTROL MEASURES

- A. Contractor is responsible for control of sediment and siltation for areas disturbed by the Work specified in this Section in accordance with the site's General Permit and Stormwater Pollution Prevention Plan, if available. All temporary sediment control, temporary drainage pipes, slope drains, and gutters will be installed and maintained by the Contractor at his expense.

1.13 PARKING

- A. Contractor to provide suitable parking areas for the use of construction workers and others performing work or furnishing services in connection with the project.
- B. Contractor shall clean and maintain designated parking areas daily, including driveways, other accesses, and adjacent public roads for the full duration of the project.
- C. Contractor's personnel shall avoid parking vehicles where they may interfere with public traffic, emergency access, site operations, or construction activities, whether part of this Work or by others.

1.14 EMERGENCIES

- A. The Contractor shall display and update phone numbers of the local police, fire department, hospital, and emergency squad at all times and at all phones on site during the project.

PART 2. PRODUCTS (Not Applicable)

PART 3. EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 56 37

STORAGE AND PROTECTION OF MATERIAL

PART 1. GENERAL

1.01 GENERAL

- A. Store and protect materials in accordance with Manufacturer's recommendations and requirements of Specifications.
- B. The Contractor shall make all arrangements and provisions necessary for the storage of materials and equipment. All excavated materials, construction equipment, and materials and equipment to be incorporated into the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly and compactly stored in locations that will cause a minimum of inconvenience to other contractors, public travel, adjoining authorities, tenants and occupants. Arrange storage in a manner to provide easy access for inspection.
- C. Areas available on the construction-site for storage of material and equipment shall be approved by Engineer. Storage sheds and/or trailers shall be located within the property at locations designated by Engineer during the pre-construction meeting.
- D. Hazardous Materials: Contractor shall handle and/or store flammable or hazardous materials in accordance with all applicable Federal, State and local regulations. Contractor shall store flammable or hazardous materials in locations designated by Engineer authorized personnel.
- E. Materials and equipment which are to become the property of County shall be stored to facilitate their inspection and insure preservation of the quality and fitness of the work, including proper prevention against damage by freezing and moisture. They shall be placed inside storage areas unless otherwise acceptable to Engineer.
- F. Private property, landscape areas, shall not be used for storage purposes without written permission of Engineer or other person in possession or control of such premises.
- G. The Contractor shall be fully responsible for loss or damage to stored materials and equipment.
- H. Do not open manufacturers' containers or packaging until time of installation unless recommended by the manufacturer or otherwise specified. Contractor shall cover and protect all open containers or

packages of materials that are not being used.

- I. Do not store products in structures being constructed unless approved in writing by Engineer.

1.02 UNCOVERED STORAGE

- A. The following types of materials may be stored out-of-doors without cover:
 1. Piping
 2. Concrete reinforcement steel
 3. Precast concrete items
 4. Castings
- B. Store the above materials on wood blocking so there is no contact with the ground.
- C. Cover all openings to prevent entry by animals, water, or foreign objects during storage.

1.03 COVERED STORAGE

- A. The following types of materials may be stored out-of-doors with weather-protective covers:
 1. Large mechanical equipment packages.
 2. Building materials sensitive to moisture (e.g. bentonite).
- B. Tie down covers with rope and slope to prevent accumulation of water on covers. Maintain covers to provide continuous protection from damage. Seal all openings to prevent entry by animals, water, or foreign objects during storage.
- C. Store roll materials on wood blocking in a manner to prevent damage to roll ends.
- D. Store sack materials on wood blocking to prevent contact with run-off or standing water.

1.04 FULLY PROTECTED STORAGE

- A. Store all products not named above in temporary buildings or trailers that have a sealed floor, a roof, and fully closed walls on all sides.
- B. Provide heating or cooling for storage spaces for materials that would

be damaged by extreme ambient temperatures.

- C. Protect mechanical and electrical equipment from contact with dust, dirt and moisture.

1.05 MAINTENANCE OF STORAGE

- A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:
 - 1. State of storage facilities is adequate to provide required conditions.
 - 2. Required environmental conditions are maintained on continuing basis.
 - 3. Products exposed to elements are not adversely affected.

1.06 PROTECTION AFTER INSTALLATION

- A. Provide protection of installed products to prevent entry by foreign objects or damage from subsequent operations. Remove protection when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment, materials, and surfaces.

1.07 SECURITY

- A. County assumes no responsibility for security of the Contractor's trailers, sheds, materials or equipment on the property at any time.

PART 2. PRODUCTS (Not applicable)

PART 3. EXECUTION (Not applicable)

END OF SECTION

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SECTION 01 60 00

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1. GENERAL

1.01 SUMMARY

- A. This section supplements the requirements specified in the Special Provisions. If the requirements of this section and conditions noted above conflict, the Contractor shall adhere to the more stringent requirement as determined by Engineer.
- B. Section includes procedures for submission of requests for substitutions of products.
- C. Related Sections:
 - 1. Section 01 33 00 – Contractor Submittals

1.02 SOLE SOURCE PRODUCTS

- A. The following sole source items have been approved for the Work. Substitutions will not be allowed.
 - 1. 2-inch QED wellhead, Model ORP 215
 - 2. 6-inch QED Stabilizer™ well cap
 - 3. 2-inch QED Solarguard™ flex hose
 - 4. QED high strength stainless steel hose bands
 - 5. Real Environmental Products Auto Sump 7000-R-18/24-DC with QED AP4-BL pump
 - 6. MOXA-AWK-3121 US-T Ethernet Wi-Fi radio modem (for high temperature range)
 - 7. Automation Direct Kayo 9-slot programmable logic controller (PLC)
 - 8. Automation Direct D2-250-1-CPU (replacement for D2-250-CPU)
 - 9. Automation Direct H2-ECOM-100 ethernet interface module
 - 10. Automation Direct EA7-T6CL HMI display
- B. Any amount of the above items in excess of the amount installed shall be delivered to County.

1.03 SUBSTITUTIONS

- A. The Contractor shall submit to Engineer for review a complete list of all materials and equipment that differ in any respect from materials and equipment specified in these Specifications or on the Drawings. Include with this list all materials that are proposed by subcontractors for use in the Work of this Contract and also materials that are not specifically mentioned in the Specifications. Substitutions for the sole source items listed in Section 1.02.A shall not be allowed.
- B. Whenever the name, brand, or model of a manufacturer's article, product, item of equipment, or system is specified, it is used as a measure of quality and utility, or as standard. No intent to limit competition is inferred or implied. Where more than one manufacturer's name is specified, the first named manufacturer is the basis of design. Second, third, and subsequent named manufacturers shall be considered substitutions, but requests for their substitutions are not required.
- C. If the Contractor desires to use any other brand or manufacture of equal quality, appearance, and utility to the product specified, the Contractor shall request substitution as provided herein. Engineer will accept as satisfactory or reject the request for substitution, and the Engineer's decision shall be final. Unless substitutions are requested as provided herein, no such deviations from the Drawings and Specifications will be permitted.
- D. Requests for substitutions will be considered only when offered by the Contractor as follows:
 - 1. Submit complete technical data, including drawings; complete performance specifications, provide test data and perform tests as may be required by the Engineer; submit samples of the article proposed for substitution, as applicable.
 - 2. Submit comparative data of material, equipment, or system to be replaced by proposed substitution.
 - 3. If value engineering is involved in the Contractor's request or proposal for substitution, the amount to be credited to County or deducted from the Contract Price, if the proposed substitution is accepted, shall be submitted along with a comparative cost breakdown.
 - 4. Include a statement in the transmittal letter, signed by the Contractor, that the proposed substitution is in full conformance with the Contract Documents.

5. All requests for substitutions, along with required information and exhibits, shall be submitted to the Engineer in accordance with Section 01 33 00.
6. Requests for substitutions shall contain not less than the following information in the heading or subject to the transmittal letter:
 - a. Project Title or Number.
 - b. Subject (Unit or Division of Work).
 - c. Drawings and Specification references: Drawing Number and Detail; Specification Section, Article, Paragraph, Subparagraph.
- E. In the analysis of a proposed substitution for conformance with Specifications, Drawings, and design factors of the project, consideration will be given to the service, performance, and maintenance experience of all elements of the proposed substitution. To this end, Engineer may require prompt advice or not less than three (3) readily accessible, comparable installations of the item proposed for substitution, made within the past 5 years.
- F. Engineer may require the Contractor to furnish a written warranty, with adequate safeguards to Engineer assuring satisfactory performance of a proposed substitute item or system for a stated minimum period of time, usually 1 year.
- G. If a proposed substitution requires changes in related work, which, in the opinion of the Engineer, constitute a deviation from Contract requirements or aspects of design, it may be rejected.
- H. Contractor shall be responsible for the execution of any changes in other parts of his own work or the work of subcontractors or other Contractors, caused by a substitution, at no additional cost to County.
- I. Contractor shall not proceed with any substitution until Engineer has accepted the substitution as satisfactory, in writing. Such acceptance shall not relieve the Contractor from complying with the requirements of the Drawings and Specifications.
- J. Failure to propose the substitution of any product a minimum of fifteen (15) business days in advance of the proposed shipping date may be deemed sufficient cause for the denial of the request for substitution. Engineer shall typically render a decision on the suitability of the proposed substitution within ten (10) business days of receipt of the request.
- K. Any substitutions submitted to the Engineer that do not comply with

the above requirements will be returned to the Contractor without Engineer's review.

- L. Originally, specified items shall be furnished, unless a request for substitution is submitted and accepted in accordance with the foregoing requirements.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 71 13

MOBILIZATION AND DEMOBILIZATION

PART 1. GENERAL

1.01 SUMMARY

- A. This section supplements the requirements specified in the Special Provisions. If the requirements of this section and conditions noted above conflict, the Contractor shall adhere to the more stringent requirement as determined by Engineer.
- B. Section includes mobilization and demobilization.
- C. Related Sections:
 - 1. Section 01 20 00 - Measurement and Payment

1.02 DEFINITIONS

- A. Mobilization: Mobilization of all construction equipment, materials, supplies, appurtenances, and the like, manned and ready for commencing and performing the Work; assembly and delivery to the site of plant, equipment, materials, and supplies necessary for the performance of the Work but, which are not intended to be incorporated in the Work; preparation of the Contractor's work area; complete assembly, and in working order, of equipment necessary to perform the Work; personnel services preparatory to commencing the Work; and all other preparatory work required to permit commencement of the Work on construction items for which payment is provided under the Contract.
- B. Demobilization: Subsequent removal from the site of all equipment, materials (excluding surplus materials specified to remain on site), supplies and appurtenances, and the like; and cleaning and restoration of the site upon completion of the Work to the satisfaction of Engineer.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

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**SECTION 01 77 00
CONTRACT CLOSEOUT**

PART 1. GENERAL

1.01 SECTION INCLUDES

- A. Quality Assurance
- B. Final Cleaning
- C. Closeout Procedure
- D. Project Record Documents
- E. Operation and Maintenance Instructions
- F. Warranties
- G. Maintenance materials
- H. Equipment Adjustment
- I. Operational Instructions

1.02 RELATED WORK DESCRIBED ELSEWHERE

- A. General Conditions
- B. Individual specification sections delineating closeout requirements.

1.03 QUALITY ASSURANCE

- A. Prior to requesting inspection by Engineer, use adequate means to assure that the work is completed in accordance with the specified requirements and is ready for the requested inspection.

1.04 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 CLOSEOUT PROCEDURE

- A. Substantial Completion:
The process of Substantial Completion shall be performed in accordance with the Contract Documents.

B. Final Completion:

1. The process of Final Completion shall be performed in accordance with Contract Documents.
2. Closeout submittals include, but are not necessarily limited to:
 - a. Project record documents
 - b. Operation and maintenance instructions for items so listed in other pertinent sections of these specifications, and for other items when so directed by Engineer
 - c. Warranties and bonds
 - d. Evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
 1. Certificates of Inspection
 2. Certificates of Occupancy
 3. Approved Performance Test Reports
 - e. Certificates of Insurance for products and completed operations
 - f. Evidence of payment and release of liens
 - g. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
3. Prepare and submit a written notice to Engineer certifying that:
 - a. Contract documents have been reviewed
 - b. Work has been inspected for compliance with the Contract Documents
 - c. Work has been completed in accordance with the Contract Documents
 - d. Equipment and systems have been tested, as required, and are operational
 - e. Work is completed and ready for final inspection and acceptance
 - f. Payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which County's property might be responsible or encumbered

(less amounts withheld by the County) have been paid or otherwise satisfied

- g. Insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to County
 - h. The Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents
 - i. Payment or satisfaction of obligations such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract have been satisfied, to the extent and in such form as may be designated by County.
- 4. Engineer will make an inspection to verify status of completion.
- 5. Should the Engineer determine that the Work is incomplete or defective:
 - a. Engineer will promptly so notify the Contractor, in writing, listing the incomplete or defective work.
 - b. The Contractor will remedy the deficiencies promptly, and notify Engineer when ready for re-inspection.
- 6. When Engineer determines that the Work is acceptable under the Contract Documents, Engineer will then request the Contractor to make closeout submittals.
- 7. Engineer will file the Notice of Substantial Completion upon completion of the above closeout procedures.
- C. Final adjustment of accounts:
 - 1. Submit a final statement of accounting to Engineer, showing all adjustments to the Contract Sum.
 - 2. If so required, Engineer will prepare a final Change Order showing adjustments to the Contract Sum that were not made previously by Change Orders.

1.06 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Submit two sets prior to final inspection, bound in 8-1/2 x 11 inch text pages, three D-side ring capacity expansion binders with durable plastic covers. Three additional sets will be required after the final

inspection revised as required by Engineer. Submit five DVD's each containing the complete PDF copies of the Engineer-approved final revision of all Operation and Maintenance Instructions.

- B. Prepare binder covers with printed title, "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder.
- C. Internally subdivide the binder contents with permanent page dividers logically organized, as described below, with tab titling clearly printed under reinforced laminated plastic tabs:
 - 1. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 30-pound white paper.
 - 2. Part 1: Directory listing names, addresses, and telephone numbers of Contractor, Subcontractors, Sub-subcontractors and major equipment suppliers.
 - 3. Part 2: Operation and maintenance instructions arranged by system and subdivided by specifications section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
 - g. Comprehensive checklist of activation settings and set point values for all instrumentation, controls and alarms.
 - h. Print out copy of all control programs, including ladder logic and all input/output lists.
 - i. Digital copy of final control program, if modifiable by user or trained third-party consultant.

4. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Certificates.
 - c. Photocopies of warranties.
- D. Submit two copies of completed volumes in final form fifteen (15) days prior to final inspection. These copies will be returned as needed, after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.
- E. Submit three (3) final volumes revised, within ten days after final inspection.

1.07 WARRANTIES

- A. Provide originals or notarized copies of all warranties.
- B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three-D side ring binder with durable plastic cover. Provide complete information as listed below, for each warranted item:
 1. Product or work item
 2. Firm, with name of principle
 3. Scope of warranty
 4. Date of beginning of warranty, bond or service and maintenance contract. This date shall not be prior to the date of the Notice of Completion or date otherwise provided in the Certificate of Substantial Completion.
 5. Duration of warranty, bond or service and maintenance contract. A minimum one (1) year from the date of the Notice of Completion or date otherwise provided in the Certificate of Substantial Completion or as specified by the supplier or manufacturer if a warranty or guarantee exceeds Contractor's one year from the date of the Notice of Completion.
 6. Provide the following information for Engineer's personnel:
 - a. Provide information in case of failure.

- b. Instances that might affect the validity of the warranty.
- 7. Contractor, name of responsible principle, address and telephone number.
- D. Submit 10 days prior to final Application for Payment.
- E. For items of work delayed beyond date of Certificate of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

1.08 EQUIPMENT ADJUSTMENT

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.09 OPERATIONAL INSTRUCTION / TRAINING

- A. Instruct County's personnel in proper operation and maintenance of systems, equipment, and similar items, which were provided as part of the Work, or as specified in individual specification sections.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 78 02
PROJECT RECORD DOCUMENTS

PART 1: GENERAL

1.01 SUMMARY

- A. This section supplements the requirements specified in the Special Provisions. If the requirements of this section and conditions noted above conflict, the Contractor shall adhere to the more stringent requirement as determined by Engineer.
- B. Section includes preparation, maintenance, completion, and submission of all project record drawings, specifications and related documents.
- C. The requirements specified herein are in addition to any requirements for record documents specified elsewhere in these Specifications.
- D. Related Sections:
 - 1. Section 01 33 00 – Contractor Submittals
 - 2. Section 01 77 00 – Project Closeout

1.02 MAINTENANCE OF RECORD DOCUMENTS

- A. The Contractor shall maintain at the job site one copy of the following Project or Contract Documents for record purposes:
 - 1. Construction Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders
 - 5. Engineer's Field Orders
 - 6. Reviewed Shop Drawings
 - 7. Clarifications or Explanatory Drawings and Specifications
 - 8. Inspection Reports
 - 9. Laboratory Test Records
 - 10. Field Test Records
- B. Store documents used for record purposes in the field office or other

approved location, apart from documents used for construction.

- C. File documents in accordance with these Specifications.
- D. Maintain documents in clean, dry, legible conditions.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and his authorized representatives.

1.03 **RECORD DRAWINGS**

A. Project Drawings:

1. Contractor shall maintain "as-built" or Record Drawings of all Work continuously as the job progresses. A separate set of prints, for this purpose only, shall be kept at the job site at all times.
2. These Record Drawings shall be kept up-to-date and may be reviewed and approved by Engineer prior to approval of monthly progress payments.
3. Engineer will furnish the Contractor with a complete set of Drawings in PDF format for the purpose of obtaining copies for Record Drawings.
4. All deviations from the Drawings, exact locations of permanent property markers or monuments, all utilities and services, mechanical and electrical lines, details, and other work shall be finally incorporated on this reproducible set by the Contractor.
5. During the course of construction, actual locations to scale shall be identified on the Record Drawings for all runs of mechanical and electrical work, including all site utilities and services, installed underground, in walls, or otherwise concealed. Deviations from the Drawings shall be shown in detail. All main runs, whether piping, conduit, ductwork, or drain lines shall be located, in addition, by dimension and elevation.
6. No work shall be permanently concealed until the required information has been recorded.
7. Where Project Drawings are not of sufficient size, scale, or detail, the Contractor shall furnish his own drawings for incorporation of details and dimensions.
8. The Contractor shall submit the Record Drawings to Engineer before Engineer's acceptance of the Work.

B. Addenda and Change Orders:

1. Changes to the Drawings affected by Addenda, Change Orders, or Engineer's Field Orders shall be incorporated on the reproducible set, and these changes shall be identified by Addendum, Change Order or Engineer's Field Order number, and effective date.
2. When revised drawings are issued as the basis of or along with addenda, these revised drawings shall be incorporated into the Record Drawings with appropriate annotation. Engineer will furnish the Contractor with both a printed and electronic version of such revised drawings.

C. Shop Drawings:

1. One complete set of reviewed shop drawings, including manufacturers printed catalog cuts and data, shall be collected and maintained for record purposes.
2. Shop drawings shall be filed and maintained separate from project drawings. Shop drawings shall be filed in 3-ring binders with drawings folded to fit heavy-duty top loading clear view sheet protectors to the greatest extent possible and shall be indexed in accordance with the Specification Division Format.
3. Shop drawings shall be delivered in new paperboard boxes manufactured specifically for the storage of file folders. Boxes shall have covers and cutout handles and shall be accurately identified as to the contents.

D. Record Drawings

1. Contractor shall prepare and submit, for review and approval by Engineer, the complete record drawing mark-ups.

1.04 RECORD SPECIFICATIONS

A. Project Specifications:

1. The specifications book for record purposes shall be filed in a large-ring, 3-ring binder or binders.
2. Information, changes, and notes shall be recorded in the Specifications in blank areas, such as page margins, or on separate sheets inserted in the binder. All such information, changes, and notes shall be recorded with red pen or red type.
3. In each Section, in an appropriate location, record the manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

4. The record specifications book shall be complete and shall include all documents and forms listed under Bidding Requirements, Contract Forms, and Terms and Conditions.
- B. Addenda, Change Orders, and Field Orders:
1. All Addenda, Change Orders, and Engineer's Field Orders shall be incorporated into the front of the specifications book in reverse chronological order. Use appropriate page dividers to identify addenda and change orders and to separate Addenda from the Specifications.
 2. In addition, the changes to the specifications effected by Addenda, Change Order, or Field Order shall be annotated on the affected page or pages of the Specifications or adjacent thereto.

1.05 SUBMISSION OF DOCUMENTS

- A. At completion of the project, and before submitting an invoice for final payment, deliver record documents to Engineer.
- B. For project drawings, include the reproducible set along with one blueline or blackline print.
- C. Record documents shall be delivered neatly and efficiently packaged.
- D. Submission of record documents shall be accompanied with a transmittal letter, in triplicate, containing the following information:
 1. Date of submission
 2. Project title and number
 3. Contractor's name and address
 4. Title and number of each record document (shop drawings may be grouped in basic categories or divisions of work)
 5. Certification that each document as submitted is complete and accurate
 6. Signature of Contractor or his authorized representative

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 91 14

EQUIPMENT TESTING AND SYSTEM STARTUP

PART 1. GENERAL

1.01 DEFINITIONS

- A. Functional Test: Test or tests in presence of Engineer to demonstrate that installed equipment meets manufacturer's installation, calibration, and adjustment requirements and other requirements, as specified.
- B. Performance Test: Test or tests performed after any required functional test in presence of Engineer to demonstrate and confirm individual equipment meets performance requirements specified in individual sections.
- C. Unit Process: As used in this section, a unit process is a portion of the Project that performs a specific process function, such as a pump station.
- D. System Performance Demonstration:
 - 1. A demonstration, conducted by Contractor, in direct collaboration with Engineer (and Contractor's supplier "seller"), to demonstrate and document the performance of the entire operating system, both manually and automatically (if required), based on criteria developed in conjunction with Engineer
 - 2. Such demonstration is for the purposes of:
 - a. Verifying to the Engineer that the entire system performs as a whole, and
 - b. Documenting performance characteristics of the completed system for Engineer's records.
- E. Final Acceptance: Determination by the Engineer that installed equipment functions as designed and intended following testing, and operation, as required by these Specifications.

1.02 APPLICATION

- A. Equipment Testing and System Startup includes:
 - 1. Pumping systems, including full operation of the system (pumps, electrical, instrumentation, and control)
 - 2. Conveyance (piping, valving, etc.) systems
 - 3. Power systems

1.03 SUBMITTALS

- A. Action Submittals:
 - 1. System Startup and Performance Demonstration Plan
- B. Informational Submittals
 - 1. Functional and performance test results
 - 2. Completed Unit Process Startup Form for each unit process
 - 3. Completed System Performance Demonstration/Certification Form

1.04 SYSTEM STARTUP AND PERFORMANCE DEMONSTRATION PLAN

- A. Develop a written plan, in conjunction with Engineer's operations personnel; to include the following:
 - 1. Step-by-step instructions for startup of each unit process and the complete system
 - 2. Unit Process Startup Form (sample follows) to minimally include the following:
 - a. Description of the unit process, including equipment numbers/nomenclature of each item of equipment and all included devices
 - b. Detailed procedures for startup of the unit process, including valves to be opened/closed, order of equipment startup, etc.
 - c. Startup requirements for each unit process, including water, power, chemicals, etc.
 - d. Space for evaluation comments
 - 3. System Performance Demonstration/Certification Form (sample follows) to minimally include the following:
 - a. Description of unit processes included in the system startup
 - b. Sequence of unit process startup to achieve system startup
 - c. Description of computerized operations, if any, included in the system
 - d. Contractor certification that system is capable of performing its intended function(s), including fully automatic operation
 - e. Signature spaces for Contractor and Engineer

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION

3.01 GENERAL

- A. System Startup Meetings: Schedule in accordance with requirements of Section 01 31 19, Project Meetings, to discuss test schedule, test methods, materials, chemicals and liquids required, system operations interface, and Engineer involvement.
- B. Contractor's Testing and Startup Representative:
 - 1. Designate and furnish one or more personnel to coordinate and expedite testing and system startup
 - 2. Representative(s) shall be present during startup meetings and shall be available at all times during testing and startup
- C. Provide temporary valves, gauges, piping, test equipment, and other materials and equipment required for testing and startup.
- D. Schedule ongoing work so as not to interfere with or delay testing and startup.
- E. Provide water, power, and other items as required for startup.
- F. Operate process units and system.

3.02 EQUIPMENT TESTING

- A. Preparation:
 - 1. Complete installation before testing
 - 2. Furnish qualified manufacturer's representatives, when required by these Specifications. Engineer will furnish Engineer-furnished equipment manufacturer's representative(s), as necessary.
 - 3. Equipment Test Report Form: Provide written test report for each item of equipment to be tested, to include the following minimum information:
 - a. Project name
 - b. Equipment or item tested
 - c. Date and time of test
 - d. Type of test performed (Functional or Performance)
 - e. Test method
 - f. Test conditions

- g. Test results
 - h. Signature spaces for Contractor and Engineer as witness
- 4. Cleaning and Checking: Prior to beginning functional testing:
 - a. Calibrate testing equipment in accordance with manufacturer's instructions
 - b. Inspect and clean equipment, devices, connected piping, and structures to ensure they are free of foreign material
 - c. Lubricate equipment in accordance with manufacturer's instructions
 - d. Turn rotating equipment by hand when possible to confirm that equipment is not bound
 - e. Open and close valves by hand and operate other devices to check for binding, interferences, or improper functioning
 - f. Check power supply to electric-powered equipment for correct voltage
 - g. Adjust clearances and torque
 - h. Test piping for leaks
- 5. Ready-to-test determination will be made by Contractor with Engineer's concurrence, based on the following minimum factors:
 - a. Acceptable Operation and Maintenance Data
 - b. Notification by Contractor of equipment readiness for testing
 - c. Receipt of manufacturer's Certificate of Proper Installation, if required
 - d. Adequate completion of work adjacent to, or interfacing with, equipment to be tested
 - e. Availability and acceptability of manufacturer's representative, when specified, to assist in testing of respective equipment
 - f. Satisfactory fulfillment of other specified manufacturer's responsibilities
 - g. Equipment and electrical tagging complete
 - h. Delivery of all spare parts and special tools

B. Functional Testing

- 1. Conduct as required in these Specifications
- 2. Notify Engineer in writing at least 10 business days before scheduled date of testing

3. Prepare Equipment Test Report summarizing test methods and results
4. When, in Engineer's opinion, equipment meets functional requirements specified, such equipment will be accepted for purposes of advancing to performance testing phase, if so required by these Specifications. Such acceptance will be evidenced by Engineer's signature as witness on Equipment Test Report.

C. Performance Testing

1. Conduct as required by these Specifications
2. Notify Engineer in writing at least 10 business days prior to scheduled date of test
3. Performance testing shall not commence until equipment has been accepted by Engineer as having satisfied functional test requirements specified
4. Type of fluid, gas, or solid for testing shall be as specified
5. Unless otherwise indicated, furnish labor, materials, and supplies for conducting the test and taking samples and performance measurements
6. Prepare Equipment Test Report summarizing test methods and results.
7. When, in Engineer's opinion, equipment meets performance requirements specified, such equipment will be accepted as to conforming to Contract requirements. Such acceptance will be evidenced by Engineer's signature on the Equipment Test Report.

3.03 STARTUP OF UNIT PROCESSES

- A. Prior to unit process startup, equipment within the unit process shall be accepted by Engineer as having met functional and performance testing requirements specified
- B. Startup sequencing of unit processes shall be as determined by Contractor to meet schedule requirements
- C. Make adjustments, repairs, and corrections necessary to complete unit process startup
- D. Startup shall be considered complete when, in opinion of Engineer, unit process has operated in manner intended for 5 continuous days without significant interruption. This period is in addition to functional or performance test periods specified elsewhere.
- E. Significant Interruption: May include any of the following events:

1. Failure of Contractor to provide and maintain qualified onsite startup personnel as scheduled
2. Failure to meet specified functional operation for more than 2 consecutive hours
3. Failure of any critical equipment or unit process that is not satisfactorily corrected within 5 hours of failure
4. Failure of any noncritical equipment or unit process that is not satisfactorily corrected within 8 hours after failure
5. As determined by Engineer

3.04 SYSTEM PERFORMANCE DEMONSTRATION

- A. When, in the opinion of the Engineer, startup of all unit processes has been achieved, sequence each unit process to the point that system is operational
- B. Demonstrate proper operation of required interfaces within and between individual unit processes
- C. After system is operating, complete performance testing of equipment and systems not previously tested
- D. Document, as defined in System Startup and Performance Demonstration Plan, the performance of the system
- E. Certify, on the System Performance Demonstration/Certification Form, that system is capable of performing its intended function(s), including fully automatic operation

3.05 SUPPLEMENTS

- A. Supplements listed below, following "End of Section," are a part of this Specification:
 1. Unit Process Startup Form
 2. System Performance Demonstration/Certification Form

END OF SECTION

UNIT PROCESS STARTUP FORM

County of Fresno Landfill Gas and Leachate Collection System
Project: Expansion, Contract 16-16-SW

Unit Process Description (Include description and equipment number of all equipment and devices):

Startup Procedure (Describe procedure for sequential startup and evaluation, including valves to be opened/closed, order of equipment startup, etc.):

Startup Requirements (water, power, chemicals, etc.):

Evaluation Comments:

SYSTEM PERFORMANCE DEMONSTRATION/CERTIFICATION FORM

County of Fresno Project: Landfill Gas and Leachate Collection System
Expansion, Contract 16-16-SW

Unit Process Description (List unit processes involved in startup):

Unit Processes Startup Sequence (Describe sequence for startup, including computerized operations, if any):

Contractor Certification that system is capable of performing its intended function(s), including fully automatic operation:

Contractor: _____ Date: _____

Engineer _____ Date: _____
(Authorized Signature)

DIVISION 22

MECHANICAL

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SECTION 22 10 00

PVC PLASTIC PIPE

PART 1: GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all PVC pipe and fittings, labor, materials, tools, supervision, transportation, equipment and incidentals necessary to install PVC plastic pipe as shown on the Project Drawings and as needed for a complete and proper operation including, but not necessarily limited to, the following:
 - 1. Landfill gas extraction wellhead and manifolds
 - 2. Leachate metering manifolds
- B. For PVC plastic pipe requirements associated with electrical conduit refer to Section 26 05 33.

1.02 RELATED SECTIONS

- A. Related sections include but are not necessarily limited to:
 - 1. Section 33 23 00 – Landfill Gas Extraction Wells
 - 2. Section 23 09 13 – Valves and Valve Boxes
 - 3. Section 22 10 10 – HDPE Pipe

1.03 REFERENCES:

- A. Standards (polyvinyl chloride [PVC] materials).
 - 1. ANSI B 1.20.1, Pipe Threads, General Purpose (Inch)
 - 2. ANSI B 16.5, Pipe Flanges and Flanged Fittings
 - 3. ASTM D-1784, Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds.
 - 4. ASTM D-1785, Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - 5. ASTM D-2464, Standard Specification for Threaded Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.
 - 6. ASTM D-2466, Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.
 - 7. ASTM D-2467, Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.

8. ASTM D-2564, Standard Specification for Solvent Cements for Poly Vinyl Chloride (PVC) Plastic Piping System.
 9. ASTM D-2855, Standard Practice for making Solvent Cemented Joints with Poly Vinyl Chloride (PVC) Pipe and Fittings.
 10. ASTM D-4396, Specification for Rigid Poly Vinyl Chloride (PVC) and related Compounds for Non-Pressure Piping Products.
 11. ASTM F-402, Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings.
 12. ASTM F-656, Standard Specifications for Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings
 13. ASTM F-891, Coextruded Poly Vinyl Chloride (PVC) Plastic Pipe.
- B. U. S. Department of Transportation (DOT): Title 49, Section 191-192, Minimum Federal Safety Standards for Gas Lines.

1.04 SUBMITTALS

- A. Product Data: The Contractor shall submit:
1. Materials list of items proposed to be provided under this Section.
 2. Manufacturer's Specifications, catalog cuts, and other data needed to prove compliance with the specified requirements.
 3. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.
- B. Material Certification: As the basis of the acceptance of the PVC piping and 15 days prior to shipment, the Contractor will furnish a certificate of conformance to these specifications, which is to be provided by the material manufacturer.
- C. If materials proposed to be provided under this Section are shipped prior to Engineer's conditional approval or approval, it will be at the Contractor's risk.

PART 2: PRODUCTS

2.01 PIPING & FITTINGS

- A. All PVC piping used in the Work shall be Schedule 80, unless noted otherwise. PVC piping used in the Work shall meet the standardized dimensional requirements of ASTM D-1785 for Schedule 40, 80, and 120 PVC pipe.
- B. PVC fittings used in the Work shall meet the requirements of ASTM D-2464, ASTM D-2466, and ASTM D-2467 for PVC fittings.
- C. PVC pipe made in accordance with ASTM D-1785, Schedule 40, 80, and 120, shall have an ASTM D-1784 Cell Classification of 12454.
- D. PVC Pipe shall meet Dimensions and Tolerances (IPS Schedule 40 Series), Pipe Flattening, and Impact Strength requirements of ASTM F-891.
- E. The following information shall be clearly marked on the fittings and pipe, at regular intervals:
 - 1. Name and/or trademark of the pipe manufacturer.
 - 2. Nominal pipe size.
 - 3. Pipe Schedule.
 - 4. Material designation (e.g. PE 3408).
 - 5. Production code for which date and place of manufacture can be determined.
- F. PVC Fittings
 - 1. All PVC fittings used in the work shall be Schedule 80, unless noted otherwise. Fitting components that use socket type solvent welded connections shall have socket diameters, lengths, and wall thickness as required by ASTM D-2466 for SCH 40 or ASTM D-2467 for SCH 80.
 - 2. Schedule 80 components using taper pipe thread connections shall have thread lengths, diameters, and configurations in conformance with ASTM D-2464 and ANSI B 1.20.1.
 - 3. Fittings shall be industrial, heavy duty, hub style.
 - 4. Unions shall be O-Ring seal type having interchangeable components with true union valves for maximum system versatility.
 - 5. Unions intended for joining dissimilar materials shall be the

transition type, which utilize components of the two dissimilar materials, joined with an O-Ring or flex hose to absorb the thermal expansion differential.

6. Socket fittings shall be pressure rated the same as the corresponding size pipe prescribed by ASTM D-1785. Threaded fittings shall be pressure rated at 50% of the rating for socket fittings.
7. Valves, unions, and flanges shall be pressure rated at 150 psi for water service at 73 F, non-shock and have a minimum burst requirement 3.3 times the rated pressure.

G. PVC Flanges:

1. Provide 150-pound, flat-face, socket-type Schedule 80 PVC flanges. Diameter and drilling of flanges shall comply with ANSI B16.5 for Class 150.
2. Provide full-face, neoprene flange gaskets, 1/16-inch thick with "A" scale hardness of 45 to 60 durometer.
3. Provide correct number and sizes of hexagon bolts, washers, and hexagon nuts, electrogalvanized with zinc or cadmium.

2.02 Pipe Perforations

- A. Pipe shall be perforated with round holes (not slots), as shown on the Project Drawings.
- B. Perforations shall be factory fabricated.

2.03 Solvent Cement and Primer

- A. PVC Solvent Primer: Provide solvent primer as recommended by PVC product supplier and complying with ASTM F 656.
- B. PVC Solvent Cement: Provide medium-bodied solvent cement as recommended by PVC product supplier and complying with ASTM D 2564.

PART 3: EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall handle pipe, fittings, valves and accessories in a manner that will ensure installation in sound, undamaged condition; equipment, tools, and methods used in unloading, reloading, hauling and laying pipe and fittings shall be such that the materials are not damaged and in a manner as to avoid shock. Pipe and fittings shall not be dropped or dumped.

- B. The Contractor shall provide slings with protective sleeves in order to protect the pipe surface; hooks inserted in ends of pipe shall have broad, well-padded contact surface.
- C. The Contractor shall provide adequate storage for all materials and equipment delivered to the job site. Pipe, fittings and appurtenances shall be stored in a flat, horizontal position and/or per Manufacturer's instructions, until ready for installation. Protect from direct sunlight for extended periods of time.

3.02 INSTALLATION

- A. Joining, laying, suspending, and pulling of pipe shall be accomplished by personnel experienced in working with the specified pipe.
- B. Installation shall be as specified by the manufacturer's recommended installation procedures.
- C. The pipe couplings and fittings shall be cleaned of all foreign material such as dirt, grease, oil, or moisture prior to placement.
- D. The pipe shall be laid and suspended in a manner that does not damage pipe.

3.03 JOINING PIPE SECTIONS

- A. Adjoining sections of PVC pipe shall be solvent cement welded.
- B. Solvent cemented joints shall be prepared in accordance with ASTM D-2855.
- C. All contraction of solvent weld pipe and fittings shall be performed in accordance with ASTM F-402.

3.04 TESTING

- A. Perform pressure leak tests on the leachate and lysimeter pump manifold piping in accordance with Specification section 22 10 00-3.06.

END OF SECTION

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SECTION 22 10 10

HDPE PIPE

PART 1: GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all HDPE pipe and fittings, labor, materials, tools, supervision, transportation, equipment and incidentals necessary to install HDPE piping as shown on the Project Drawings and as needed for a complete and proper operation including, but not necessarily limited to, the following:
 - 1. Landfill gas extraction well casing.
 - 2. Landfill gas lateral, subheader, and header piping.
 - 3. Landfill gas condensate piping.
 - 4. Air supply piping.
 - 5. Leachate piping (buried).
- B. The work shall be carried out in accordance with these Specifications and with the Project Drawings.
- C. Piping work shown on the Project Drawings is intended to be a depiction and may not be an exact and complete representation of the actual finished work. The Contractor shall include fittings, pipe supports, nuts, bolts, and other accessories required to provide a complete and satisfactory piping system, as specified, even though some items may not be specifically shown on the Project Drawings.

1.02 RELATED SECTIONS

- A. Section 31 23 16 - Trenching
- B. Section 44 42 53 - Landfill Gas Condensate Sump
- C. Section 23 09 13 – Valves and Valve Boxes

1.03 REFERENCES

- A. ANSI B 16.1, Cast Iron Pipe Flanges and Flanged Fittings
- B. ANSI B18.2.2, Square and Hex Nuts (Inch Series)
- C. ASTM A-193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature of High Pressure Service and Other Special Purpose Applications
- D. ASTM A-194, Standard Specification for Carbon Steel, Alloy

Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both

- E. ASTM A-240, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- F. ASTM A-420, Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service
- G. ASTM D-638, Standard Test Method for Tensile Properties of Plastics
- H. ASTM D-696, Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer
- I. ASTM D-746, Standard Test Method for Brittleness Temperatures of Plastics and Elastomers by Impact
- J. ASTM D-790, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- K. ASTM D-1238, Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
- L. ASTM D-1248, Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable
- M. ASTM D-1505, Standard Test Method for Density of Plastics by the Density-Gradient Technique
- N. ASTM D-1525, Standard Test Method for Vicat Softening Temperature of Plastics
- O. ASTM D-1603, Standard Test Method for Carbon Black in Olefin Plastics
- P. ASTM D-1693, Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics
- Q. ASTM D-2240, Standard Test Method for Rubber Property—Durometer Hardness
- R. ASTM D-2837, Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials
- S. ASTM D-3035, Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
- T. ASTM D-3261, Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing

- U. ASTM D-3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

1.04 SUBMITTALS

- A. The Contractor shall submit a welding certification for each individual intended to be used for pipe welding demonstrating that they meet the requirements of Article 1.05 Paragraph A of this Section.
- B. The Contractor shall submit, prior to pipe shipment, Manufacturer's specifications, Manufacturer's recommended installation, welding and testing procedures, and Manufacturer's laboratory certification demonstrating that the pipe and fittings meets or exceeds the requirements presented in this in Table 22 10 10-1 of this Section and as shown on the Project Drawings.
- C. If materials proposed to be provided under this Section are shipped prior to Engineer's conditional approval or approval, it will be at the Contractor's risk.

1.05 QUALIFICATIONS

- A. Pipe Manufacturer: Listed with the Plastic Pipe Institute as meeting recipe and mixing requirements of resin manufacturer for resin used in the manufacture of pipe for this Project.
- B. Pipe Welding Technician: HDPE pipe fusion technicians shall have a minimum of 5 years of experience welding HDPE pipe utilizing the equipment and/or procedure proposed for use by the Installer or Manufacturer. The HDPE pipe fusion technician shall be certified under 49 CFR 192.285.

1.06 QUALITY CONTROL

- A. Use adequate numbers of skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Render assistance as necessary for Engineer to collect product samples for Quality Assurance testing.

PART 2: PRODUCTS

2.01 PIPE

- A. HDPE pipe shall conform to the requirements of ASTM D3261 and ASTM D3035.
- B. HDPE pipe shall be homogeneous throughout, uniform in color,

and free of cracks, holes (except where specified), foreign materials, blisters, or deleterious faults.

- C. Provide HDPE of SDR listed below for each application, unless noted otherwise.

**Table 22 10 10-1
HDPE Pipe SDR by Application**

Application	Nominal Pipe Diameter (in, IPS)	SDR
LFG Extraction Well Casing	6" or 8"	SDR 11
LFG Conveyance Piping	12" and smaller	SDR 17
LFG Conveyance Piping	12" and larger	SDR 17
Condensate Force Main Piping	2" and smaller	SDR 11
Compressed Air Supply Piping	2" and smaller	SDR 9
Leachate Force Main Piping	3"	SDR 11

2.02 MANUFACTURER SOURCE QUALITY CONTROL

- A. The delivered pipe shall be HDPE and shall meet the requirements presented in Table 22 10 10-1 and those presented on the Project Drawings.

**Table 22 10 10-1
Properties for HDPE Pipe**

Property	Test Designation	Test Requirement
Material Designation	PPI	PE 3408, 4710, or better
Material Classification	ASTM D1248	III C 5 P34 or better
Cell Classification	ASTM D3350	345434C or better
Density	ASTM D1505	≥ 0.955 g/cm ³
Melt Index	ASTM D1238	≤ 0.41 g/10 min.
Flexural Modulus	ASTM D790	$\geq 133,000$ psi
Tensile Strength	ASTM D638	$\geq 3,200$ psi
Environmental Stress Crack	ASTM D1693	$F_0 \geq 5,000$ hrs
Hydrostatic Design Basis	ASTM D2837	$\geq 1,600$ psi
UV Stabilizer (carbon black content)	ASTM D1603	2 – 3 %
Elastic Modulus	ASTM D638	$\geq 105,000$ psi
Brittleness Temperature	ASTM D746	< -180 °F
Vicat Softening Temperature	ASTM D1525	≥ 255 °F
Thermal Expansion	ASTM D696	$\leq 1.2 \times 10^{-4}$ in/in/°F

Property	Test Designation	Test Requirement
Shore D Hardness	ASTM D2240	≥64
PPI – Plastic Pipe Institute		

- B. Provide HDPE pipe to the dimensions and standard dimension ratios (SDR) shown on the Project Drawings.
- C. Provide HDPE pipe with holes formed in locations and dimensioned as shown on Project Drawings.
- D. HDPE pipe shall be marked at 10-foot intervals or less with a coded number that identifies the manufacturer, SDR size, material, machine, date, and shift on which the HDPE pipe was extruded.

2.03 PIPE COUPLINGS AND FITTINGS

- A. HDPE couplings and fittings shall conform to the Project Drawings and ASTM D3261.
- B. Field fabricated fittings (e.g., mitred bends) shall be used only when factory molded or pre-fabricated fittings are not available, and only with approval of the Engineer. Factory prefabricated HDPE fittings shall be submitted for approval of the Engineer. Fabricate, transport, and install all fittings consistent with the Manufacturer's recommendations.
- C. Fittings and couplings shall be marked with the Manufacturer's name or logo, size, and material from which they were molded.
- D. All fittings and couplings, which will be fusion welded to the pipe, shall be manufactured using the same resin and additives and shall be from the same manufacturer as the HDPE pipe.
- E. Mechanical connections must be approved by the Engineer and may consist of sleeves, socket, or thread connections.
- F. Electrofusion couplers shall be rigid, straight coupler constructed of injection-molded polyethylene with embedded heating coils as manufactured by Friartec or approved equal. Electrofusion couplers are only to be installed at locations approved by Engineer.
- G. Flanges shall be ASTM A240, Type 304 or 316 stainless steel, ANSI B16.1 Standard drilled. Flanges shall be complete with one-piece, molded polyethylene stub ends. Flanged connections shall have the same or greater pressure rating as pipe with a safety factor of 2. Stub ends shall be the same grade HDPE and pressure rating as the pipe.

- H. Gasket material, size, and thickness shall be as recommended by pipe or flange manufacturer.
- I. Bolts, nuts, and washers shall be Type 316 stainless steel, ASTM A193, Grade B8 hex head bolts, and ASTM A194, Grade 8 hex head nuts. Bolts shall be fabricated in accordance with ANSI B18.2.2 and provided with washers of the same material as the bolts.

2.04 EQUIPMENT

- A. Equipment for handling, welding, and laying HDPE pipe shall be as recommended by the pipe manufacturer and approved by the Engineer.

PART 3: EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

- A. Exercise care during loading, transit, and unloading to prevent damage by abrasion or puncturing, or both.
- B. Store HDPE pipe with support to prevent developing a permanent set.
- C. Stack the heaviest series of HDPE pipe on the bottom.
- D. Stack HDPE pipe no more than eight layers high or consistent with the Manufacturer's recommendations.
- E. HDPE Pipe damaged during transportation, loading, unloading, delivery, storage, or during construction shall be documented by the Engineer and the Contractor.
- F. Contractor shall repair or replace damaged HDPE pipe at no cost to the County and to the satisfaction of the Engineer.

3.02 PREPARATION

- A. Expose the point of connection with risers at the locations shown on the Project Drawings.
- B. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Notify the Engineer of such conditions and proposed corrective actions before correcting unsatisfactory conditions. Do not proceed until unsatisfactory conditions are corrected.
- C. Trenching and backfilling associated with pipe installation shall be completed in accordance with Section 31 23 16 of these Specifications.

3.03 PIPE INSTALLATION

- A. The HDPE pipe couplings and fittings shall be cleaned of all foreign material such as dirt, grease, oil, or moisture prior to placement.
- B. Pipe ends shall be capped, or otherwise closed, to prevent dirt or other materials from entering pipe while HDPE pipe is being positioned for welding.
- C. The HDPE pipe shall be laid in a manner that does not damage pipe or underlying geosynthetics.
- D. The HDPE pipe shall be laid to the lines and grades shown on the Drawings. HDPE pipe shall be installed in a “snaked” position in accordance with the Project Drawings unless approved otherwise by the Engineer. Additional pipe anchoring may be required to constrain locations of excessive pipe movement. Proposed anchoring at such locations shall be reviewed and approved by the Engineer.

3.04 PIPE CONNECTIONS

- A. Fusion weld all HDPE pipe connections consistent with the manufacturer's recommendations unless otherwise shown on the Project Drawings or approved by the Engineer.
- B. Electrofusion welds to be used on saddle connections to existing pipe shall be consistent with the manufacturer's recommendations unless otherwise shown on the Project Drawings or approved by the Engineer.

3.05 FABRICATED FITTINGS

- A. HDPE pipe installation procedures shall provide for the least possible amount of lifting and moving.
- B. A fabricated HDPE fitting shall not be used as the point of attachment for a lifting or pulling line.

3.06 TESTING

- A. Perform pressure tests on the following piping systems and specified parameters:
 - 1. LFG collection piping: Compressed air or water, with a test pressure of 10 psi.
 - 2. Leachate and lysimeter pump manifold piping: Water, with a test pressure of 60 psi.
 - 3. 2-inch HDPE condensate and compressed air piping: Water, with a test pressure of 100 psi.

- B. Conduct all pressure testing in accordance with the pipe manufacturer's recommendations and procedures. Test pressures shall be contained for a minimum of 1-hour, with no change in pressure, except that calculated due to temperature change.
- C. Before pressure testing, blow the pipe clean of dirt and debris and remove from systems equipment that would be damaged by test pressure. Replace equipment after testing. Systems may be tested in sections.
- D. Locate and repair all leaks. Correct leaks by replacing faulty materials with new material.
- E. Repeat pressure testing until all piping systems pass. Perform additional pressure tests after repair of each system at no cost to the County.
- F. Test solenoid and pressure relief valves for proper operation at settings indicated. Test pressure relief valves three times.
- G. The Contractor will be responsible for notifying the Engineer at least 48 hours in advance so that the Engineer or his representative may be present during testing.

3.07 PROTECTION

- A. Protect all installations and materials from damage until final acceptance by the Engineer.
- B. Prevent debris from entering into piping systems during and after installation.

END OF SECTION

SECTION 23 09 13

VALVES AND VALVE BOXES

PART 1: GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish valves (including nuts and bolts), valve boxes, other materials, all labor, tools, supervision, transportation, equipment and incidentals necessary to install valves and valve boxes of the type and size and at the locations shown on the Project Drawings and as needed for a complete and proper operation.
- B. The work shall be carried out in accordance with these Specifications and with the Project Drawings.

1.02 RELATED Sections

- 1. Section 33 23 00 – Landfill Gas Extraction Wells
- 2. Section 31 23 16 – Trenching
- 3. Section 22 10 00 – PVC Plastic Pipe
- 4. Section 22 10 10 – HDPE Pipe

1.03 REFERENCES (not used)

1.04 SUBMITTALS

- A. Product Data: Before shipping, the Contractor shall submit
 - 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's Specifications, catalog cuts, and other data needed to prove compliance with the specified requirements.
 - 3. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.
- B. If materials proposed to be provided under this Section are shipped prior to Engineer's conditional approval or approval, it will be at the Contractor's risk.

1.05 WARRANTY

- A. The Contractor shall assign to the County the warranties of the manufacturers of any of the valves used.

PART 2: MATERIALS

2.01 GENERAL

- A. All valves shall be complete with all necessary operators, actuators, handwheels, worm and gear operators, wrenches, and other accessories or appurtenances, which are required for the proper completion of work, included under this Section.
- B. Valves shall be suitable for the intended service. Renewable parts, including discs, packing, and seats, shall be of types recommended by valve manufacturer for intended service, but not of lower quality than specified herein.
- C. Valves and operators shall be suitable for the exposure they are subjected to, enclosed in valve chamber or exposed, as applicable.
- D. All valves shall have the name of the manufacturer and sizes cast on the body or bonnet or shown on a permanently attached plate in raised letters.
- E. For the purpose of designating the type and grade of valve desired, a manufacturer's name is given in the following specifications. Valves of equal quality by other manufacturers will be acceptable.

2.02 BUTTERFLY VALVES

- A. Unless otherwise specified, butterfly valves used in the landfill gas collection system shall be Stonetown "STL" lug-style, ductile-iron body with flat-faced flanged ends with Type 316 stainless steel disk and stem, and Viton seal and seat, rated for 350 psi, or approved equal.
- B. All bolting for valves installed above grade shall be Type 316 stainless steel.
- C. Unless specified otherwise on the Project Drawings, valves greater than 6 inches shall have a gear operator and valves 6 inches and less shall have a 10 position locking handle.
- D. All valves and gear operators shall be right hand close.

2.03 BALL VALVES

- A. Ball valves shall have Type 316 stainless steel body and ball with glass-filled PTFE seats and PTFE seals. Valves shall be rated for 1,000 psi at 200° F maximum pressure, 28.95 inches Hg vacuum, and a temperature range of 0 to 450° F.
- B. Valve connections shall be NPT female at the sizes shown on the Project Drawings.
- C. Valves shall have an oval handle.

2.04 CHECK VALVES

- A. Check valves shall be swing check type with PVC body, flanged ends, ethylene propylene diene monomer (EPDM) seals, and spring-assist closure, rated at 150 psi, by Asahi, or equal. Any metal components shall be Type 316 stainless steel.

2.05 VALVE BOXES

- A. Valve boxes shall be precast concrete of the size and type shown on the Project Drawings. Dimensions shown on the Project Drawings are nominal and refer to the base of the box. Boxes shall be stackable for extra depth. Valve boxes and lids shall be HS-20 traffic rated.
- B. The lid for header control valve boxes shall be hinged, double-door, HS-20 rated and set to allow operation of below-grade valves from the ground surface using a valve key.
- C. Vault box penetrations shall be cleanly cored and sealed with a rubber boot as manufactured by Kor-N-Seal, or equal.

2.06 ACCESSORIES

- A. Tagging: Provide 1 ½-inch diameter heavy brass or stainless steel tag attached with No. 16 solid brass or stainless steel jack chain for each valve bearing the valve tag number. Get tag numbers from the Engineer.
- B. T-Handle Operating Rod (below-grade service): Provide an 8-foot long steel operating rod.

PART 3 EXECUTION

3.01 PREPARATION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Notify the Engineer of such conditions and proposed corrective actions before correcting unsatisfactory conditions. Do not proceed until unsatisfactory conditions are corrected.
- B. Adjoining pipe, couplings and fittings shall be cleaned of all foreign material such as dirt, grease, oil, or moisture prior to valve installation.

3.02 VALVE INSTALLATION

- A. Valves of the size and type shown on the Project Drawings shall be set plumb and installed at the locations indicated on the Project Drawings. Valves shall be installed in accordance with

manufacturer's recommended installation procedures and with the details shown on the Project Drawings.

- B. Valves shall be installed such that they are supported properly in their respective positions, free from distortion and strain. Valves shall be installed such that their weight is not borne by blowers and equipment that are not designed to support the weight of the valve.
- C. Valves shall be carefully inspected during installation; they shall be opened wide and then tightly closed and the various nuts and bolts shall be tested for tightness. Special care shall be taken to prevent any foreign matter from becoming lodged in the valve seat. Check and adjust all valves for smooth operation.
- D. Clean iron flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil or graphite, and tighten nuts uniformly and progressively. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be airtight.
- E. Install valves with the operating stem in either horizontal or vertical position. When possible all butterfly valves shall be installed so that the disk rotates on the vertical axis. Below grade butterfly valves without gear operator shall be installed with their axis in the vertical direction.
- F. The inside diameter of HDPE pipe flange adapters may be smaller than the diameter of the disk on a butterfly valve. If the inside diameter of the flange adapter interferes with full operation of the disk, the Contractor shall at his option install 2-inch HDPE valve spacers on both sides of the valves or may remove by machining excess material from the ID of the HDPE flange adapter.
- G. Locate and arrange valves to allow sufficient clearance around the valve operator for proper operation and to provide complete adjustment between fully open to fully closed position.
- H. Install where shown on the Project Drawings.
- I. Locate valves for easy accessibility and maintenance.
- J. Install valves in closed position.

3.03 VALVE BOX INSTALLATION

- A. Valve boxes of the size and type shown on the Project Drawings shall be set plumb and installed at the locations indicated on the Project Drawings. Valve boxes shall be installed in accordance with manufacturer's recommended installation procedures and with the details shown on the Project Drawings.
- B. Trenching and backfilling shall conform to the requirements of

Section 31 23 16.

3.04 TESTING

- A. Valves shall be tested at the same time that the adjacent pipeline is tested. Joints shall show no visible leakage under test. Joints that show signs of leakage shall be repaired prior to final acceptance. If there are any special parts of control systems or operators that might be damaged by the pipeline test, they shall be properly protected. The Contractor will be held responsible for any damage caused by the testing.

END OF SECTION

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DIVISION 26

ELECTRICAL

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SECTION 26 00 00 BASIC ELECTRICAL REQUIREMENTS

PART I. GENERAL

1.1 WORK INCLUDED

- A. The work described in this section consists of furnishing all labor, materials, equipment, and installation required for the complete, satisfactory, and approved electrical systems as indicated on the Contract Drawings and called for in these Specifications, or as may be reasonably implied by either. The work shall include fabrication of five Sump Pump Control Panels for Modules 4, 5, 6, 7 and 8, and installation and integration of three Sump Pump Control Panels for Modules 4, 5, and 6 at Phase III of the American Avenue Disposal Site, as shown on the Contract Drawings and Specifications herein.
- B. The Contractor shall provide, fabricate, factory test and program Sump Control Panels for Modules 4, 5, 6, 7 and 8. Complete with necessary devices, instruments and the like for power, control, and telemetering of sumps as shown on the Contract Drawings. Deliver all Sump Control Panels to site, ready for installation and connection. Engineer will inspect and select three (3) Sump Control Panels for completion of installation in Phase III, Modules 4, 5 and 6. Contractor to repack and secure remaining two (2) Sump Control Panels for storage by County in protected facility until future installation in Modules 7 and 8 (by others).
- C. The Contractor shall install complete and operating electrical systems consisting of the following:
 - 1. Sump Control Panels for Modules 4, 5 and 6. Complete with necessary devices, instruments and the like for power, control, and telemetering of sumps as required at each module and shown on the Contract Drawings.
 - 2. Complete extension of 480 Volt power system to Modules 6, 7 and 8 as shown on the Contract Drawings.
 - 3. Connect new control panels to existing and new 480 Volt system, including new underground conduit, new wire, new grounds and all other items as shown on the Contract Drawings.
 - 4. Replace existing 480 Volt, 30 Amp, 3 Pole circuit breaker with new 480 Volt, 60 Amp, 3 Pole circuit breaker at adjacent well water facility.
 - 5. Program new control panel PLC and HMI touch screen and integrate new control panel telemetering with existing SCADA system. New control panel PLC and HMI touch screen to be configured and function similar to existing.
 - 6. Connect electrical to new County-provided flow meters.
 - 7. Provide and install new sump pump cable and sump level cable termination junction boxes, and connect. Sump pump and level

- probe by others.
- 8. Contractor shall make all final connections to equipment.
- 9. Contractor shall provide radios, antennae and cable connections as shown. Antennae cables shall enter the panels through the bottom of the enclosures and be provided with drip loops.

1.2 CODES AND STANDARDS

- A. Reference within these Specifications to standards, codes, or reference specifications implies that any item, product, or material so identified must comply with all minimum requirements as stated therein, unless indicated otherwise. Only the latest revised editions, adopted by local governing agencies, are applicable.
- B. The Specifications, codes, and standards listed below form a part of these Specifications:
 - 1. National Electrical Code (NEC).
 - 2. Underwriters' Laboratories (UL).
 - 3. National Electrical Manufacturers Association (NEMA).
 - 4. Insulated Cable Engineers Association (ICEA).
 - 5. American Society for Testing and Materials (ASTM).
 - 6. California Electrical Code (CEC)
 - 7. Instrument Society of America (ISA)
 - 8. County of Fresno Standard Special Provisions
 - 9. Caltrans Standard Specifications, 2010, as amended
- C. Testing and Laboratory Listing/Approval: Equipment and material shall be UL listed where standards have been established, and shall be identified for the purpose intended.

1.3 DRAWINGS

- A. The Contract Drawings indicate the extent and general arrangements of equipment and wiring systems. If any modifications from the drawings are deemed necessary by the Contractor, details of such modifications and reasons therefor shall be submitted to the Engineer for approval within 30 days after award of the Contract. No such modifications shall be made without the prior written approval of the Engineer. All items not specifically mentioned in the Specifications or noted on the drawings but obviously necessary to make a complete working installation shall be included.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. Each package of shop drawings shall be bound as a unit and shall contain a first sheet with the project name, location, date submitted,

name and address of the contractor, name and address of the equipment supplier, and a list of the contents.

2. The submittal drawings shall include materials, dimensions, fabrication details, installation instructions, standards compliance, and UL approval. Where a data sheet contains details covering various sizes or ratings of equipment, clearly mark the items applicable to the project.
3. Submit drawings for pull box, conduit and fittings showing dimensions, nameplate nomenclature and electrical rating.

B. Operation and Maintenance Manuals:

1. The operation and maintenance manuals shall include the name, address, and phone number of the supplier and nearest manufacturer's representative and shall contain a complete parts list for each system.

1.5 EQUIPMENT MANUALS AND OWNER INSTRUCTIONS

- A. Upon completion of the work, the Contractor shall prepare and deliver to the Engineer five complete sets of the operation and maintenance manuals for each electrical, control, or similar equipment installed. The manuals shall consist of detailed drawings of catalog sheets for each component, replacement parts lists, wiring diagrams, maintenance instructions, and description of system operation.

1.6 COORDINATION WITH OTHER TRADES

- A. The Contractor shall plan and layout the electrical work in order to be compatible with the site, equipment location, and panel mounting.

1.7 STORAGE

- A. All materials shall be stored in a safe, orderly manner. Materials shall not be stored directly on the ground or floor and shall be kept clean, dry, and free from damage or deteriorating elements. Damaged or rusted materials shall not be installed.

1.8 MATERIALS

- A. All equipment, materials, and components shall be new, standard, current products by manufacturers regularly engaged in the production of such equipment and be the manufacturer's latest design. All components by same manufacturer shall be mechanically and electrically compatible with rating of apparatus in which they are installed. All materials shall bear the label of Underwriters Laboratory for the intended use in all cases where this labeling is available or shall be materials reviewed by the code enforcing authorities and Engineer. Equipment of a similar nature shall be identical.

1.9 ACCESSORIES

- A. All hardware and accessory fittings shall be of a type designed, intended, or appropriate for their use, complement the items with which they are used, and shall have corrosion protection suitable for the atmosphere in which they are installed. All such hardware shall be U.S. standard sizes.

1.10 INSTALLATION

- A. All materials shall be installed at the locations shown on the drawings and in accordance with the specific manufacturer's recommend installation methods.
- B. All equipment shall be set level and plumb at the correct heights, properly aligned, and, where in sections, shall be bolted together.
- C. Secure all materials and equipment firmly in place. Do not weld electrical materials for attachment and/or support.
- D. All screws, bolts, nuts, clamps, fittings, or other fastening devices shall be made up tight.
- E. All materials and equipment shall be installed complete, including screws or bolts, covers, plates, fittings, etc.
- F. Follow the installation directions and recommendations of the materials and equipment manufacturers.
- G. All conduits stub-ups from underground shall be provided with conduit seal-off prior to terminating to electrical equipment, devices, and wire trough. Connections to motors shall be made with metallic flexible metal conduit and approved fittings.

1.11 IDENTIFICATION

- A. Electrical equipment shall be clearly and permanently labeled with a securely fastened nameplate. Nameplates shall be 1/16-inch thick engraved laminated plastic and shall have 3/16-inch high white letters on a black background. Plates shall be provided for all fused disconnect, control panel, and circuit breaker panels.
- B. All conductors shall be permanently tagged at wire trough and terminal boxes. Feeders shall be identified at every accessible point with a permanent tag indicating circuit number. Conductor tags shall be non-conductive.
- C. All circuits and equipment shall be identified to correspond with

drawings and specifications.

- D. Panel board shall contain a typewritten directory behind a plastic cover, located on inside of door.
- E. Install equipment identification nameplate at the top center of the equipment, using a rubber-based adhesive.

1.12 CONNECTION

- A. Make all connections for the power distribution and control devices. Install and connect pump motor starters and controls for correction operation, including exact wiring requirements as determined in accordance with control wiring diagrams furnished for the equipment.
- B. Contractor shall submit work plan listing all likely service interruptions, the affected locations, and their durations for Owner approval. Contractor shall coordinate scheduling of every interruption with Owner prior to starting work.

1.13 TESTING

- A. Upon completion of the work, the Contractor shall energize, start up, and test operate all the systems and equipment in the presence of the Engineer and Owner.
- B. All testing and measuring instruments and equipment required to test each system shall be provided by the Contractor. Any defects or variances from standard or specified conditions found during these tests shall be corrected by the Contractor at no cost to the Owner. The following tests shall be performed:
 - 1. The main service and all feeders and branch circuits shall be energized from the normal power source. Amp meter and volt meter readings shall be made and recorded as follows: Phase to phase and phase to ground voltage at the main service connection at motor starters or and panel board.
 - 2. All circuit breakers shall be manually tripped and reset.
 - 3. All defective equipment and/or components found during test shall be immediately replaced.
 - 4. All motors and controls shall be checked to verify correct connection and operation.
 - 5. A complete operating test of the instrumentation and control systems shall be made to verify correct operation of each system and all related equipment.
- C. Prior to the final test, continuity tests and insulation resistance tests shall be performed to assure there are no shorts or unintentional grounds in the entire electrical system. Test reading shall be recorded and given to the Engineer.

1.14 PERSONNEL AND EQUIPMENT

- A. The Contractor shall provide the following:
 - 1. Qualified personnel to conduct all testing.
 - 2. The services of the equipment manufacturer's representative to assist in testing their equipment, when the service is specified.
 - 3. The services of the equipment manufacturer's representative to assist the Contractor in the repair or troubleshooting of their equipment in the event that said equipment fails to pass all tests.
 - 4. All labor and equipment required for testing.

1.15 CLEAN-UP AND PAINTING

- A. After all systems and equipment have been installed, the Contractor shall clean all electrical equipment inside and outside the enclosures. All grease, dust, rust, and chipped plaster and concrete shall be removed from the installed equipment. Each piece of equipment shall be thoroughly cleaned and left in brand new condition. The project will not be accepted as being finished until all such dirt and contamination has been removed. The Contractor shall provide touch-up painting where finished surfaces have received minor scratches during installation. Where electrical equipment with painted surfaces has been installed in finished areas, any such damage to the painted surfaces that cannot be corrected with minor touch-up painting shall be refinished at the factory at no cost to the Owner. Equipment installed in finished areas having noticeable damage to the finished surface will not be accepted.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 05 WIRES, CABLES AND CONNECTIONS

PART I. GENERAL

1.1 WORK INCLUDED

- A. The work included in this section covers the work necessary to furnish and install wires, cables, and connectors for electrical and control circuits as shown on the drawings and specified herein.

1.2 STANDARDS

- A. Materials to bear UL labels.

1.3 SUBMITTALS

- A. Submit for review properly identified manufacturer's literature and shop drawings giving wire size, insulation type, rated voltage and temperature, and NEC designation.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Power Conductors (Above 50 Volts and Below 600 Volts):
 - 1. Conductors shall be rated at 600 volts and conform to NEMA WC-7.
 - 2. Conductors shall be composed of 98 percent annealed copper only, stranded. Furnish conductor sizes for circuits as shown on Project Drawings. Minimum size shall be #12 AWG except as otherwise specified for control wiring.
 - 3. All conductors shall be 600 volt minimum, type THWN, rated 75 degrees C wet or dry maximum conductor temperature with polyvinyl chloride insulation, and shall comply with UL standard for thermoplastic insulated wire.
 - 4. All conductors shall be plainly marked on outer surface at least every two feet with name of manufacturer, and size and grade of insulation.
 - 5. Multiple conductors in the same conduit shall be considered to be a bundle. Measurement for payment shall be based on the length of conduit containing the installed bundle of conductors.
- B. Color code all service, feeder, and branch circuit wire as follows:

1. 277/480 Volt System:
 - i. Light Gray - Neutral;
 - ii. Brown - Phase A;
 - iii. Orange - Phase B;
 - iv. Yellow - Phase C.
 2. Bonding conductor - green.
 3. Solid colored insulation shall be used on all conductors #10 AWG and smaller and colored vinyl tape banding over black insulation at all accessible locations for #8 AWG and larger.
- C. Control Wiring:
1. All control wiring conductors shall be 600 volt type THWN. Minimum size shall be #14 AWG.
 2. Control panel wiring shall be type MTW or as indicated on drawings. Minimum size as indicated on drawings.
 3. Conductors for control wiring shall be color coded, using color coding different than for the power conductors specified above.
- D. Instrumentation Wiring:
1. All instrumentation wires shall be soft annealed bare or tinned copper with PVC flame retardant insulation, 300 volt rating except 600 volt rating when installed in enclosures and/or raceways containing 480 volt operating voltage, 105°C temperature rating, overall cable shield and with a drain wire. All instrumentation wires shall be minimum as indicated on drawings.
- E. Connectors, Terminals, and Splices:
1. Provide connectors, terminals, and splices for all power and lighting circuits using 600-volt wire and cable as follows:
 - a. Provide connectors, terminals, and splices, for all wire, cable, and equipment and bus connections that are designed and approved for the specific type and size of conductors being connected.
 - b. Connectors and terminals shall be designed and UL-approved for use with the associated conductor material and shall provide a uniform compression over the entire contact surface. Solderless terminal lugs shall be used on all stranded conductors.
 - c. Pressure-crimp type connectors, terminals, and splices shall be applied with a mechanical or hydraulic tool with proper size crimping dies for making each connection. The tool shall be of the type that will not release until the correct pressure has been applied.

PART 3. EXECUTION

3.1 INSTALLATION

- A. Conductors shall not be pulled into conduit until all mechanical work is complete.
- B. Pulling lubricants shall be of the type accepted for the particular cable insulation and as recommended by the cable manufacturer.
- C. Conductors in panel boards, junction boxes, pull boxes, etc., shall be formed, grouped, and taped to present a neat and orderly appearance.
- D. Leading end of each conductor pulled shall be carefully examined for damage to jacket. If damaged, cable shall be extended and further checked for damage with only good cable to remain.
- E. At each outlet, allow not less than 6 inches of slack for connection to load.
- F. Tape all connections in 600-volt wire and cable as follows:
 - 1. Tape all connections, splices, taps, and exposed barrels of terminal lugs with half-lapped layers of 3M Scotch 33, vinyl plastic tape, or equal, applied to a thickness equal to the conductor insulation and, in addition, apply at least two half-lapped layers of 3M Scotch 88 vinyl plastic tape over the first layers of tape.
- G. Wire and Cable Marking:
 - 1. The convention for identifying and numbering all wires shall be consistent with the existing marking system in Phase III, Modules 1, 2 and 3.
 - 2. Identify each phase of all three phase feeder conductors with 3M Scotch 35, or equal, vinyl plastic marking tape.
 - 3. All feeders and branch circuit conductors and all control, alarm, and instrumentation wires shall be identified at all terminations, junction boxes, and pull boxes as follows:
 - a. Use Brady Company, or equal, self-sticking vinyl cloth wire markers for all wire and cable identification.
 - b. Identify all conductors of control, alarm, and instrumentation systems with wire numbers or terminal letters as indicated on the drawings. Where markings are not indicated, the Contractor shall assign his own markings and indicate them on the "Record Drawings" set of Project Drawings.
- H. Installation of 600-volt Wire and Cable:
 - 1. Install wire and cable in conduits and other enclosures as indicated on Project Drawings. Except as otherwise indicated or specified, all wire and cable shall be installed in continuous runs between terminal points without splicing.
 - 2. Make splices and taps only in wire trough from terminals in terminal boxes

- and other accessible enclosures.
 - 3. Do not splice or tap control, alarm, or instrumentation wiring in underground locations.
 - 4. When pulling wire or cable, do not subject the wire or cable to a tension greater than 50 percent of the yield strength of the conductor. Pulling lugs shall be attached to the conductor with a sleeve or grip over the cable sheath to prevent the insulation from slipping.
 - 5. Use a UL-approved lubricant to decrease friction when pulling cable in ducts and conduits.
 - 6. Do not subject cable to a bending radius less than 8 times the cable's outside diameter during or after installation.
 - 7. In wire trough, make splices first then encapsulate them in an epoxy resin sealing and potting compound. Encapsulation of compression sleeve splices shall be with preformed molds.
 - 8. Pulling of wires and cable into conduits shall be performed by workers experienced in this type of work and shall be done in a manner which will in no way damage the insulation.
 - 9. Sufficient lengths (minimum of three-feet) of wire shall be left at pull boxes for splicing and/or connecting to equipment and apparatus without straining.
 - 10. All conductors and cables to be installed in a single conduit shall be pulled at the same time.
- I. Wire Sizes. Drawings indicate wire and conduit sizes. Any changes shall be approved by the Engineer.
 - J. Terminations:
 - 1. Terminate solid conductors at screw terminals or mechanical connectors furnished on devices and equipment.
 - 2. Terminate stranded conductors at mechanical connectors furnished on equipment. Where no connectors are included, provide suitable mechanical connectors.
 - 3. Termination of stranded conductors on screw terminals will not be permitted. Provide suitable size compression or mechanical-type connector with spade tongue.

3.2 TESTING

- A. Continuity tests and insulation-resistance tests shall be performed to assure there are no shorts or unintentional grounds. The insulation resistance shall be measured with a 2500-volt DC megger and should read greater than 50 megohm (conductor to conductor) and oneohm (conductor to ground). Test readings shall be recorded and a certified copy given to the Engineer.

END OF SECTION

SECTION 26 05 26 GROUNDING

PART 1. GENERAL

1.1 WORK INCLUDED

- A. The work included in this Section covers the work necessary to provide a grounding system complete as indicated on the Project Drawings and specified herein.

1.2 QUALITY ASSURANCE

- A. Materials shall bear UL label.
- B. The electrical system and equipment shall be grounded in accordance with the requirements of the NEC and as specified.
- C. Grounding system installation shall conform to NFPA 70 and the NEC.
- D. Grounding system shall be installed as shown on drawings.
- E. Install in all conduit runs an insulated, green equipment grounding conductor and bond in accordance with the NEC.

PART 2. PRODUCTS

2.1 MATERIALS

- A. The grounding conductor shall be an insulated copper wire of size indicated. Where not indicated, the conductor shall be in accordance with the requirements of the NEC except that minimum size shall be No. 12. Inaccessible connections shall be made with the exothermic welding process using equipment manufactured by Burndy or Erico Products. Accessible connections shall be made with multiple bolt silicon bronze connectors specifically designed and approved for the connection to be made. Connectors shall be as manufactured by Burndy or O.Z. Gedney Electric. Grounding jumpers shall be provided across metal parts which are separated by non-conducting materials or joined so that there is a high resistance at the joints. Grounding cable shall not be buried directly in concrete, but a conduit sleeve shall be provided where cable passes through concrete. Grounding cable buried in earth shall be tinned.
- B. Grounding Source:
 - 1. The ground source shall consist of existing ground rods, grids, and other existing ground sources except as noted below.
 - 2. Maximum resistance to ground shall be limited to 1 ohm. Additional ground rods shall be driven if required to maintain this level.

Maximum ground resistance to each individual rod shall be 25 ohms.

3. Verify locations of utilities and liner with Engineer prior to installation of grounding rods.
- C. Ground Rods. Unless as specified on the Project Drawings, copper clad steel rod shall be not less than 3/4 inch in diameter, 10 feet long, driven full length into the earth. Maximum ground resistance shall not exceed 25 ohms under normal dry conditions. Verify locations of utilities and liner prior to installation of grounding walls.
- D. Parts to be grounded. Parts to be grounded include fences, disconnect switch frame, frame, fittings, fixtures and devices, cable sheaths, neutral of transformers, wire trough and raceways, motor frames, skid frame, and devices, and all other parts and equipment as required by NEC. Neutral wire shall never be used as grounding means.
- E. Conductor. All grounding cable shall be green insulated copper stranded cable, soft drawn or annealed, sized as indicated on drawings.

PART 3. EXECUTION

3.1 INSTALLATION

- A. All connections to equipment, bus, or conduit shall be made with approved type of solderless connector and shall be unpainted and thoroughly cleaned before connection is made to insure a good metal contact.
- B. All connections which will be inaccessible after completion of project shall be made by exothermic weld process.
- C. The lighting fixture shall be grounded by means of a conductor between the outlet box and fixture. All locknut connections to cabinets, pull boxes, junction boxes, etc., shall be drawn up sufficiently tight to assure a continuous metal-to-metal bond.
- D. Bond all conduits stubbing under motor starter panels, wire trough, motor control center, and similar locations using bonding bushings.
- E. Provide a bonding wire in all flexible conduits and connect to the boxes at each end in an approved manner.
- F. Flexible conduit shall not be used as a grounding medium.
- G. Ground receptacles to their outlet boxes by means of a grounding

conductor from the green terminal on the receptacle to a grounding screw in the outlet box.

- H. Ground the neutral of each dry type transformer to a single grounding riser.

END OF SECTION

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SECTION 26 05 33

RACEWAYS

PART I. GENERAL

1.1 WORK INCLUDED

- A. The work included in this Section covers the work necessary to furnish and install raceways for electrical and control wiring as shown on the drawings and specified herein.

1.2 STANDARDS

- A. Size of raceways shall be not less than NEC requirements, but in no case shall be less than indicated on the drawings. Project Drawings are diagrammatic and routing of conduits shall be made by the Contractor to avoid interference with other work.
- B. Materials shall bear UL labels.

1.3 RELATED WORK

- A. Section 26 00 00 – Basic Electrical Requirements.

1.4 SHOP DRAWINGS

- A. Submit for review properly identified manufacturer's literature and shop drawings giving materials, finishes, dimensions, weights, and standards compliance.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Rigid Steel Conduit. Use rigid steel conduit for aboveground, including bushings, couplings, elbows, nipples, and other fittings, galvanized by hot-dipping, and meeting the requirements of UL and NEC. Do not use set screw-type couplings, bushings, elbows, nipples, and other fittings, unless approved by the Engineer.
- B. PVC Conduit. Use PVC conduit, elbows, couplings, for underground direct burial meeting the requirements of UL and NEC. Conduit size and schedule shall be as shown on plans. Conduit color shall be grey with labeling as required per UL and NEC.

- C. Flexible Metal Conduit, Liquid-tight. Unless as noted on the drawings at pump motors and field mounted devices, use UL listed liquid-tight flexible metal conduit consisting of galvanized steel flexible conduit covered with an extruded PVC jacket and terminated with nylon bushings or bushings with steel, or malleable iron body and insulated throat and sealing O-ring (approved metallic liquid-tight flexible connectors).
- D. Conduit Sealing Fittings. Unless noted otherwise on the Project Drawings, the Contractor shall use EYD conduit sealing fittings consisting of body and closure made of ferralloy or malleable iron with zinc electroplate finishes and removable nipple made of steel with zinc electroplate finishes.
- E. Sealing Compound. Material shall maintain its dimension and integrity while preventing the passage of flame and gases under conditions of installation and use when exposed to the ASTM E1 19 time-temperature curve for a time period equivalent to the rating of the assembly penetrated.

PART 3. EXECUTION

3.1 INSTALLATION

- A. Changes in directions of raceway runs shall be made with symmetrical bends or cast metal fittings. Field-made bends and offsets shall be made with a hickey or conduit bending machine specifically for size and type of conduit used. Minimum radius shall be 8 times conduit diameter for rigid metal conduit and PVC jacketed rigid metal conduit. Crushed or deformed raceways shall not be used. Use factory formed fittings for surface raceways.
- B. Except where boxes, panels, and other equipment have threaded openings, make conduit connections as follows:
 - 1. Double locknuts, one inside and one outside.
 - 2. Provide malleable iron or steel bushing with Bakelite liner molded and bonded into the bushing.
 - 3. Place bushing on end of conduit in addition to locknuts.
- C. Location and Use of Each Type of Conduit:
 - 1. Galvanized rigid steel conduit shall be used:
 - a. When installed aboveground.
 - 2. PVC conduit shall be used:
 - a. When installed underground.
 - b. Trenches for direct buried conduit shall be free of rocks and other material.

- c. All joints in conduit shall utilize conduit manufacturer's specified joint compound.
 - 3. All nicks, cuts, abrasions, etc. of the PVC jacket shall be patched to the project Engineer's satisfaction utilizing conduit manufacturer's specified patch materials
 - 4. Liquid-tight flexible metal conduit shall be used for connections to vibrating equipment in wet and damp locations and exterior locations. Install liquid-tight flexible metal conduit so that liquids run off surface and drain away from fittings. Provide not less than 18-inch and not more than 24-inch length where practical. Shorter lengths shall have project Engineer's approval prior to installation.
- D. Raceway Fastening and Supports:
- 1. Supports:
 - a. Secure support and fasten in place exposed raceways at intervals of not more than 4 feet, within 3 feet of any bend and every outlet or junction box. This shall apply on vertical runs as well as horizontal runs.
 - b. Support individual horizontal conduits not larger than 1-1/2 inches in diameter by means of one-hole pipe straps or properly sized Unistrut-type straps where applicable.
 - 2. Fastenings:
 - a. To Concrete or Solid Brick Masonry: By expansion bolts. Holes drilled to a depth of more than 1-1/2 inch in reinforced concrete beams or to a depth of more than 3/4 inch in concrete joists shall avoid cutting the main reinforcing bars. Holes not used shall be filled with mortar.
 - b. To Steel Work: Machine screws, welded threaded studs, or spring-tension clamps. Raceways or pipe straps shall not be welded to steel structures.
 - c. Nail-type nylon anchors or threaded studs driven in by a powder charge and provided with lock washers and nuts may be used in lieu of expansion bolts or machine screws.
 - d. Threaded C-clamps shall not be used.
- E. Conduit Sealing Fittings:
- 1. Provide conduit sealing fittings as required by the NEC and as shown on the Project Drawings.
- F. Raceways Seals:
- 1. Seal the end entering the equipment and device box with the specified

- sealing compound to prevent the entrance of gases.
2. Conduit with Wires. Separate wires so that sealant can penetrate between wires, and between wires and conduit

END OF SECTION

SECTION 26 09 17 SUMP PLC REQUIREMENTS

PART I. GENERAL

1.1 WORK INCLUDED

- A. The work described in this section consists of furnishing all labor, materials, equipment, and installation required for the complete, satisfactory, and approved systems as indicated on the Project Drawings and called for in these Specifications.
- B. The Contractor shall install complete and operating electrical systems as indicated in Section 26 00 00, Basic Electrical Requirements and as stated in the below specification.

1.2 CODES AND STANDARDS

- A. Reference within these Specifications to standards, codes, or reference specifications implies that any item, product, or material so identified must comply with all minimum requirements as stated therein, unless indicated otherwise. Only the latest revised editions are applicable.
- B. The Specifications, codes, and standards listed below form a part of these Specifications:
 - 1. National Electrical Code (NEC).
 - 2. Underwriters' Laboratories (UL).
 - 3. National Electrical Manufacturers Association (NEMA).
 - 4. Insulated Cable Engineers Association (ICEA).
 - 5. American Society for Testing and Materials (ASTM).
 - 6. Instrument Society of America (ISA).
- C. Testing and Laboratory Listing/Approval: Equipment and material shall be UL listed where standards have been established, and shall be identified for the purpose intended. Obtain and pay for all necessary laboratory testing, inspection, and approval of unlisted equipment or material where listing is required by the Department of Building and Safety.

1.3 DRAWINGS

- A. The Project Drawings indicate the extent and general arrangements of equipment and wiring systems. If any departures from the drawings are deemed necessary by the Contractor, details of such departures and

reasons therefor shall be submitted to the Engineer for approval within 30 days after award of the Contract. No such departures shall be made without the prior written approval of the Engineer. All items not specifically mentioned in the Specifications or noted on the drawings but obviously necessary to make a complete working installation shall be included.

1.4 SUBMITTALS

A. Shop Drawings:

1. Refer to Section 26 00 00, Basic Electrical Requirements, for submittal requirements.

B. Operation and Maintenance Manuals:

1. The operation and maintenance manuals shall include the name, address, and phone number of the supplier and nearest manufacturer's representative and shall contain a complete parts list for each system. The operation and maintenance manuals shall include the name, address, and phone number of the supplier and nearest manufacturer's representative and shall contain a complete parts list for each system.
2. The Contractor will reference the Operation and Maintenance manual for the SCADA system.
 - a. The manual will provide specific instructions on:
 - 1) How to connect to the SCADA system once you are connected to the County network.
 - 2) How to retrieve data from the system.
 - 3) How to change set points
 - 4) Manual overriding of pumps, valves, and motors
 - 5) Minimum troubleshooting instructions for:
 - a) how to reboot the computers
 - b) how to re-align the antenna
 - c) how to re-connect control panels to the WIFI network
 - d) how to test for panel connectivity
 - e) how to test data logging at the panel and at the SCADA PC
 - f) how to recover lost data from the panel USB stick

1.5 EQUIPMENT MANUAL AND OWNER INSTRUCTIONS

- A. Upon completion of the work, the Contractor shall prepare and deliver to the Engineer **five** complete sets of the operation and maintenance manuals for each electrical system installed. The manuals shall consist of detailed drawings of catalog sheets for each component, replacement parts lists, wiring diagrams, maintenance instructions, and description of system operation. Contractor shall provide five hard copy sets and an electronic file in an Engineer-approved format.
- B. Contractor shall provide five sets of PLC, communication, SCADA configuration and program software in hard copy and County-approved electronic format.
- C. The Contractor shall provide qualified instructors for a minimum of 8 hours of instruction to designated County personnel in the operation and maintenance of all systems.

1.6 COORDINATION WITH OTHER TRADES

- A. The Contractor shall plan and lay out the electrical work in order to be compatible with the site, equipment location, panel mounting, and piping system.

1.7 STORAGE

- A. All materials shall be stored in a safe, orderly manner. Materials shall not be stored directly on the ground or floor and shall be kept clean, dry, and free from damage or deteriorating elements. Damaged or rusted materials shall not be installed.

1.8 MATERIALS

- A. All equipment, materials, and components shall be new, standard, current products by manufacturers regularly engaged in the production of such equipment and be the manufacturer's latest design. All components by same manufacturer shall be mechanically and electrically compatible with rating of apparatus in which they are installed. All materials shall bear the label of Underwriters Laboratory for the intended use in all cases where this labeling is available or shall be materials reviewed by the code enforcing authorities and Engineer. Equipment of a similar nature shall be identical.

- B. The Contractor shall provide and install the specified component, and no substitutions will be allowed for items listed as sole-sourced.

1.9 ACCESSORIES

- A. All hardware and accessory fittings shall be of a type designed, intended, or appropriate for their use, complement the items with which they are used, and shall have corrosion protection suitable for the atmosphere in which they are installed. All such hardware shall be U.S. standard sizes.

1.10 INSTALLATION

- A. All materials shall be installed at the locations shown on the drawings and in accordance with the specific manufacturer's recommended installation methods.
- B. All equipment shall be set level at the correct heights, properly aligned, and, where in sections, shall be bolted together.
- C. Secure all materials and equipment firmly in place. Do not weld electrical materials for attachment and/or support.
- D. All screws, bolts, nuts, clamps, fittings, or other fastening devices shall be made up tight.
- E. All materials and equipment shall be installed complete, including screws or bolts, covers, plates, fittings, etc.
- F. Follow the installation directions and recommendations of the materials and equipment manufacturers.

1.11 IDENTIFICATION

- A. Electrical equipment shall be clearly and permanently labeled with a securely fastened nameplate. Nameplates shall be 1/16-inch thick engraved laminated plastic and shall have 3/16-inch high white letters on a black background. Plates shall be provided for all fused disconnect, control panel, and circuit breaker panels.
- B. All conductors shall be permanently tagged at wire trough and terminal boxes. Feeders shall be identified at every accessible point with a permanent tag indicating circuit number. Conductor tags shall be non-conductive.
- C. All circuits and equipment shall be identified to correspond with drawings and specifications.

- D. Panel board shall contain a typewritten directory behind a plastic cover, located on inside of door.
- E. Install equipment identification nameplate at the top center of the equipment, using a rubber-based adhesive.

1.12 CONNECTION

- A. Make all connections for the power distribution and control devices. Install and connect motor starters and controls, including exact wiring requirements as determined in accordance with control wiring diagrams furnished for the equipment.

1.13 TESTING

- A. Upon completion of the work, the Contractor shall energize, start up, and test operate all the systems and equipment in the presence of the Engineer and County. All testing and measuring instruments and equipment required to test each system shall be provided by the Contractor. Any defects or variances from standard or specified conditions found during these tests shall be corrected by the Contractor at no cost to the County. The following tests shall be performed:
 - 1. The main service and all feeders and branch circuits shall be energized from the normal power source. Amp meter and volt meter readings shall be made and recorded as follows:
 - a. Phase to phase and phase to ground voltage at the main service connection at motor starters or and panel board.
 - b. Correct pump motor rotation direction.
 - 2. All circuit breakers shall be manually tripped and reset.
 - 3. All defective lamps found during test shall be immediately replaced.
 - 4. All receptacles and light switches shall be tested to verify they are connected properly.
 - 5. All motors and controls shall be checked to verify correct connection and operation.
 - 6. Wire trough and panel board shall be inspected prior to installing covers to verify correct sizes and color coding.
 - 7. A complete operating test of the instrumentation and control systems shall be made to verify correct operation of each system and all related equipment.
 - 8. The Contractor will perform resistance grounding test as per 26 05 26-1 2.1 B.2.

9. Final acceptance of the system will require that SCADA system run for the period of 30 consecutive days without loss of basic functions.
- B. Prior to the final test, continuity tests and insulation resistance tests shall be performed to assure there are no shorts or unintentional grounds in the entire electrical system. Test readings shall be recorded and given to the Engineer.

1.14 PERSONNEL AND EQUIPMENT

- A. The Contractor shall provide the following:
 1. Qualified personnel to conduct all testing.
 2. The services of the equipment manufacturer's representative to assist in testing their equipment, when the service is specified.
 3. The services of the equipment manufacturer's representative to assist the Contractor in the repair or troubleshooting of their equipment in the event that said equipment fails to pass all tests.
 4. All labor and equipment required for testing.

1.15 CLEAN-UP AND PAINTING

- A. After all systems and equipment have been installed; the Contractor shall clean all electrical equipment inside and outside the enclosures. All grease, dust, rust, and chipped plaster and concrete shall be removed from the installed equipment. Each piece of equipment shall be thoroughly cleaned and left in new condition. The project will not be accepted as being finished until all such dirt and contamination has been removed. The Contractor shall provide touch-up painting where finished surfaces have received minor scratches during installation. Where electrical equipment with painted surfaces has been installed in finished areas, any such damage to the painted surfaces that cannot be corrected with minor touch-up painting shall be refinished at the factory at no cost to the County. Equipment installed in finished areas having noticeable damage to the finished surface will not be accepted.

PART 2. PRODUCTS

2.1 PLC

- A. Approved PLC manufacturer is Kayo/Automation Direct (Model D2-250-1-CPU)

2.2 PLC HARDWARE

- A. Minimum of 1 Rack with 9 slot count.
- B. The H2-ECOM-100 is the only approved Ethernet card. It will be installed in the last slot of the first rack.
- C. D2-FILL will be used to fill spare slots.

2.3 COMMUNICATION PROTOCOL

- A. The PLC's will communicate via the H2ECOM-100 card using ECOM. The Contractor will provide Windows-based drivers by Kepware (KepServer EX) for the Kayo family of PLC's.
- B. Wi-Fi radio module to be MOXA AWK-3121 US-T for high ambient temperature applications.

2.4 FUNCTIONALITY

- A. The operator will have remote start/stop and alarm reset ability from 3rd party SCADA via Windows based PC communications driver. The Contractor will configure the KepServer EX to use the Suite Link communications between the driver and the HMI application.

2.5 DISPLAY

- A. The Control Panel shall be provided with operator interface display for the viewing of system parameters, control set points, alarms and shutdowns.
- B. The Control Panel shall have the same functionality as the County's existing system.
- C. The operator will have full control of the sump.
 - 1. They will be able to adjust set points, start and stop the sump and any associated equipment.
 - 2. They will be able to manually operate any associated equipment via the touch screen.
 - 3. A minimum of 3 security levels to match the existing system will be required for the display.
 - a. None- the user has view-only rights on all the system parameters.
 - b. Operator- the user can view all system parameters, and can stop/start the sumps.
 - c. Engineer- the user has the same access privilege as the operator but can also modify PID parameters and force logic.

- D. Display shall be installed on an inner door behind the main control panel door.
- E. The touch screen display shall be an Automation Direct PN: EA7-T6CL.
 - a. It shall be supplied with one 128 megabyte flash drives. The Contractor will setup the panels to log the following data to the USB drive:
 - i. Liquid level and Liquid Flow
 - b. The AC power adapter: EA-AC.
 - c. One (1) EA-CF-128MB CF card.

2.6 CONTROL PANEL

- A. Climate control from Section 26 09 18 will be required.
- B. External controls:
 - 1. External panel disconnect shall be provided. It shall be located on the right side of the panel.
 - 2. HOA / HO controls for the pump will be installed on the inner door.
 - 3. The panel will contain a single stack beacon.
 - i. A flashing red light indicating high liquid level or motor fault
 - ii. A flashing blue light for SCADA or communication problem.
 - 4. The wireless radio antennas shall be connected using lightning surge arrestors. The surge arrestors will ground to the panel.
 - 5. The panel will be grounded using a copper grounding rod at least 10 feet long. The locations of utilities and the liner shall be verified with Engineer before installation of grounding rods.

2.7 PLC ALARMS

- A. The PLC shall provide all the alarms necessary to safely control the equipment.
 - 1. The PLC shall make available all the alarms to a 3rd party SCADA. Address list with the alarm descriptions and set points shall be provided.
 - 2. The PLC shall provide remote alarm acknowledgement via the SCADA.
 - 3. In addition to the alarms above, the PLC shall provide open loop alarms for all analog signals. If these signals are used to control equipment, then the alarms will cause the system/equipment to stop.

2.8 FACTORY TEST AND GUARANTEE

- A. The Manufacturer shall test the completed panel in their facility and shall provide a written report detailing the results of the test.
- B. If not specifically indicated for a longer period, equipment and accessories supplied by the Manufacturer under this Division shall be guaranteed for a period of not less than one year from date of acceptance by the County. One year guarantee on all equipment, regardless of shipping date.

PART 3. EXECUTION

3.1 INTEGRATED SYSTEM

- A. New control panel PLC and HMI touch screen to be configured and function similar to existing.
- B. The following functions shall be included in the 3rdparty SCADA application Landfill Module Leachate and Lysimeter Sumps interface:
 - 1. Sump liquid level (actual)
 - 2. Sump pump on/off status
 - 3. Sump pump auto/ start/ stop
 - 4. Flow rate and totalizer with reset
 - 5. Runtime hours
 - 6. Runtime status
 - 7. HOA / HO Selector indication
 - 8. Alarm status

3.2 PANEL SCREEN FUNCTION

- A. All analog values shall include color changing indicators when the operating parameters exceed limits. These limits shall be user configurable by the user "Engineer."
 - 1 LOLO = blue
 - 2 LO = cyan
 - 3 Normal = green
 - 4 HI = yellow
 - 5 HHI = red
- B. All analog points shall have a pop-up information screen indicating the above parameters, a description of that point and its P&ID reference number.

END OF SECTION

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SECTION 26 09 18 CONTROL PANEL REQUIREMENTS

PART 1. GENERAL

1.1 CODES AND STANDARDS

- A. Reference within these Specifications to standards, codes, or reference specifications implies that any item, product, or material so identified must comply with all minimum requirements as stated therein, unless indicated otherwise. Only the latest revised editions are applicable.
- B. The Specifications, codes, and standards listed below form a part of these Specifications:
 - 1. National Electrical Code (NEC).
 - 2. Underwriters' Laboratories (UL).
 - 3. National Electrical Manufacturers Association (NEMA).
 - 4. Insulated Cable Engineers Association (ICEA).
 - 5. American Society for Testing and Materials (ASTM).
 - 6. Instrument Society of America (ISA).
- C. Testing and Laboratory Listing/Approval: Equipment and material shall be UL listed where standards have been established, and shall be identified for the purpose intended. Obtain and pay for all necessary laboratory testing, inspection, and approval of unlisted equipment or material where listing is required by the Fresno County Department of Public Works and Planning.

1.2 DRAWINGS

- A. Refer to Section 26 00 00 for Work depicted by Drawings

1.3 SUBMITTALS

- A. Refer to Section 26 00 00 for submittal requirements

1.4 EQUIPMENT MANUAL AND COUNTY INSTRUCTIONS

- A. Upon completion of the work, the Contractor shall prepare and deliver to the Engineer **five** complete sets of the operation and maintenance manuals for each electrical system installed. The manuals shall consist of detailed drawings of catalog sheets for each component, replacement parts lists, wiring diagrams, maintenance instructions, and description of system operation. The Contractor shall provide qualified instructors for a minimum of 8 hours of instruction to designated County personnel in the operation

and maintenance of all systems.

1.5 STORAGE

- A. All materials shall be stored in a safe, orderly manner. Materials shall not be stored directly on the ground or floor and shall be kept clean, dry, and free from damage or deteriorating elements. Damaged or rusted materials shall not be installed.

1.6 MATERIALS

- A. All equipment, materials, and components shall be new, standard, current products by manufacturers regularly engaged in the production of such equipment and be the manufacturer's latest design. All components by same manufacturer shall be mechanically and electrically compatible with rating of apparatus in which they are installed. All materials shall bear the label of Underwriters Laboratory for the intended use in all cases where this labeling is available or shall be materials reviewed by the code enforcing authorities and Engineer. Equipment of a similar nature shall be identical.
- B. The Contractor shall provide and install the specified component, and no substitutions will be allowed for items listed as sole-sourced.

1.7 ACCESSORIES

- A. All hardware and accessory fittings shall be of a type designed, intended, or appropriate for their use, complement the items with which they are used, and shall have corrosion protection suitable for the atmosphere in which they are installed. All such hardware shall be U.S. standard sizes.

1.8 INSTALLATION

- A. All materials shall be installed at the locations shown on the Project Drawings and in accordance with the specific manufacturer's recommended installation methods.
- B. All equipment shall be set level at the correct heights, properly aligned, and, where in sections, shall be bolted together.
- C. Secure all materials and equipment firmly in place. Do not weld electrical materials for attachment and/or support.
- D. All screws, bolts, nuts, clamps, fittings, or other fastening devices shall be made up tight.
- E. All materials and equipment shall be installed complete, including screws or

bolts, covers, plates, fittings, etc.

- F. Follow the installation directions and recommendations of the materials and equipment manufacturers.

1.9 IDENTIFICATION

- A. Electrical equipment shall be clearly and permanently labeled with a securely fastened nameplate. Nameplates shall be 1/16-inch thick engraved laminated plastic and shall have 3/16-inch high white letters on a black background. Plates shall be provided for all fused disconnect, control panel, and circuit breaker panels.
- B. All conductors shall be permanently tagged at wire trough and terminal boxes. Feeders shall be identified at every accessible point with a permanent tag indicating circuit number. Conductor tags shall be non-conductive.
- C. All circuits and equipment shall be identified to correspond with drawings and specifications.
- D. Install equipment identification nameplate at the top center of the equipment, using a rubber-based adhesive.

1.10 TESTING

- A. Upon completion of the work, the Contractor shall energize, start up, and test operate all the systems and equipment in the presence of the Engineer and County. All testing and measuring instruments and equipment required to test each system shall be provided by the Contractor. Any defects or variances from standard or specified conditions found during these tests shall be corrected by the Contractor at no cost to the County. The following tests shall be performed:
 - 1. The main service and all feeders and branch circuits shall be energized from the normal power source. Amp meter and volt meter readings shall be made and recorded as follows: Phase to phase and phase to ground voltage at the main service connection at motor starters and panel board.
 - 2. All circuit breakers shall be manually tripped and reset.
 - 3. All defective lamps found during test shall be immediately replaced.
 - 4. All receptacles and light switches shall be tested to verify they are connected properly.
 - 5. All motors and controls shall be checked to verify correct connection and operation.
 - 6. Wire trough and panel board shall be inspected prior to installing covers to verify correct sizes and color coding.

7. A complete operating test of the instrumentation and control systems shall be made to verify correct operation of each system and all related equipment.
- B. Prior to the final test, continuity tests and insulation resistance tests shall be performed to assure there are no shorts or unintentional grounds in the entire electrical system. Test reading shall be recorded and given to the Engineer.

1.11 CLEAN-UP AND PAINTING

- A. After all systems and equipment have been installed; the Contractor shall clean all electrical equipment inside and outside the enclosures. All grease, dust, rust, and chipped plaster and concrete shall be removed from the installed equipment. Each piece of equipment shall be thoroughly cleaned and left in new condition. The project will not be accepted as being finished until all such dirt and contamination has been removed. The Contractor shall provide touch-up painting where finished surfaces have received minor scratches during installation. Where electrical equipment with painted surfaces has been installed in finished areas, any such damage to the painted surfaces that cannot be corrected with minor touch-up painting shall be refinished at the factory at no cost to the County. Equipment installed in finished areas having noticeable damage to the finished surface will not be accepted.

1.12 PERSONNEL AND EQUIPMENT

- A. The Contractor shall provide the following within 15 days of Notice of Award:
 1. Qualified personnel to conduct all testing.
 2. Requirements for Contractors/Sub-Contractors:
 - a. Submit resume qualifications
 - b. Work history of at least 6 similar projects including the following experience.
 - c. PLC installation: 4 years minimum experience
 - d. Wonderware: 4 years minimum experience
 - e. WiFi installation: 4 years minimum experience
 - f. Windows Server 2003 proficient
 - g. Dell open manage software proficient
 3. The services of the equipment manufacturer's representative are to assist in testing their equipment, when the service is specified.
 4. The services of the equipment manufacturer's representative to assist the Contractor in the repair or troubleshooting of their equipment in the event that said equipment fails to pass all tests.

5. All labor and equipment required for testing.

PART 2. PRODUCTS

2.1 CONTROL PANEL

A. DRAWINGS

1. Before the Contractor will be authorized to build the panel, the Contractor shall provide Bill-of-Materials, panel layout drawing, and manufacturer cut sheets.
2. Upon acceptance of the control panel the contractor shall provide AS-BUILT documentation of the control panel within 2 weeks of the written acceptance.

B. PANEL RATINGS

1. The panel shall be rated for the specified area classification, but shall be a minimum of NEMA 3R/12/4 for unclassified areas.
2. The panel shall be no less than 16" deep, unless otherwise specified by the Engineer or Contract Drawing set.

C. CLIMATE CONTROL

1. Cooling
 - a. Panel heat exchanger will be used to control the internal panel temperatures. The heat exchanger will not mix panel air with outside air.
 - b. The panel heat exchanger will be supplied with louvered inlet with removable filter, and exhaust vents.
 - c. The panel rating with the heat exchanger installed will not be less than NEMA-3/3R.
2. A panel heater will be sized to maintain the panel at 40° F in -5° F weather. The panel heater will be wired through a breaker.

D. PANEL APPEARANCE

1. The control panel external door will be supplied with the door hinged on the left hand side.
2. The control panel exterior color shall be stainless steel. This applies to leachate control panels
3. The inner door shall be hinged on the left hand side and white in color.

4. The inner door will have a thumb screw locks that will not require more than 1/2 a turn to open or close.
5. The panel shall have interior panel lighting with manually operated switches located on the top left corner of inner door.
6. The control panel shall be lockable using a standard lock to be supplied by Engineer.
7. Indication lights, switches, and buttons shall be installed on the inner panel door. No devices shall be installed on the exterior panel door.

E. WIRING

1. All PLC I/O shall be wired to terminals.
2. Unused I/O shall be labeled as spare.
3. Panel wiring shall be color coded per NEC code requirements.
4. Minimum wire size for control wire is 18 AWG.
5. Analog isolators shall be provided for all analog circuits. The only acceptable isolators are Automation Direct part numbers.
6. No components shall be installed on the back panel closer than 1" from any wall.
7. Panel shall be U.L. labeled.
8. All conduit runs shall enter the panel through the bottom of the panel.
9. All radio antenna cables shall enter the panels through the bottom of the enclosures and be provided with drip loops.

F. WIREWAY

1. The minimum wireway height will be 4".
2. A minimum clearance of 1 inch shall be kept between the wireway and wire terminals and or devices.
3. The wireway shall be dark grey color only.
4. The back panel will be framed by wireway.
5. The wireway will be installed inset a minimum of 1/2" from the edge of the backpanel.

G. RECEPTACLES

1. Quantity of four (4) grey 120VAC receptacles with a breaker shall be provided and wired through a breaker.

H. EMT ISOLATION

1. If 480 VAC is provided in the panel, it will be isolated from the control voltages (120 VAC/+24 VDC).
2. The panel will be supplied with EMI protection for control voltages.

I. POWER

1. All 120 VAC circuits shall have breakers. Fuses are not permitted.
2. A 500 VA UPS battery backup shall be provided. Acceptable manufacturers are:
 - a. Tripplite
 - b. Belkin
 - c. APC
3. The PLC and the DC power supply will be provided with a standard PC 120 VAC pigtail. These pigtails will be plugged into the battery backup.
4. The 24VDC power supply commons (0 VDC) shall be grounded.
5. A minimum of five spare terminals shall be supplied for 24VDC and 0 VDC; for a total of 10, five of each.

J. TERMINAL BLOCKS

1. Grey with pre-printed numbers
2. Terminal shall be jumpered using center comb-jumper only.
3. Terminals will be sized to accept gauge wires used.
4. Terminal blocks will be sized to clip on to 35mm din rail.

K. LABELING

1. All wires shall be labeled with preprinted labels on both ends.
2. The wire labels MUST match the design drawings labels.
3. All terminals shall be labeled with preprinted labels.
4. All panel devices (breakers, relays, etc.) shall be labeled per the electrical schematic.
5. Engraved phenolic labels shall be provided for all hardware, switches, lights, powersupplies, PLC racks, etc.

2.2 FACTORY TEST AND GUARANTEE

- A. The Manufacturer shall test the completed panel in their facility and shall provide a written report detailing the results of the test.
- B. If not specifically indicated for a longer period, equipment and accessories supplied by the Manufacturer under this Division shall be guaranteed for a period of not less than one year from date of acceptance by the County. One year guarantee on all equipment, regardless of shipping date.

PART 3. EXECUTION (NOT USED)

END OF SECTION

DIVISION 31

SITE CONSTRUCTION

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SECTION 31 23 16

TRENCHING

PART 1:GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, equipment and incidentals necessary to complete trenching as specified herein, as shown on the Project Drawings including, but not necessarily limited to, trenching, backfilling, and compacting as specified herein and as needed for a complete and proper installation of underground piping, conduit, pipe sleeves, condensate interceptor trench, anchor trenches, and drainage control system.
- B. The work shall be carried out in accordance with these Specifications and with the Project Drawings.

1.02 RELATED SECTIONS

- A. Section 33 42 13 – Corrugated Metal Pipe
- B. Section 22 10 10 - HDPE Piping
- C. Section 26 00 00 – Basic Electrical Requirements

1.03 REFERENCES

- A. ASTM D-512, Standard Test Methods for Chloride Ion in Water
- B. ASTM D-516, Standard Test Method for Sulfate Ion in Water
- C. ASTM D-1557, Standard Test Methods for Laboratory Compaction Characteristics for Soil Using Modified Effort
- D. ASTM D-2974, Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
- E. ASTM G-51, Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing
- F. ASTM G-187, Standard Test Method for Measurement of Soil Resistivity Using the Two-Electrode Soil Box Method
- G. Occupational Safety and Health Administration (OSHA) standards Part P (Excavations) of 29 CFR Part 1926, Safety and Health Regulations for Construction.

1.04 DEFINITIONS

- A. Select Backfill: Material placed in trenches or other excavation.

- B. Sand or Pipe Bedding: Granular material placed as shown on Project Drawings.

1.05 QUALITY ASSURANCE

- A. The Contractor shall render assistance, as necessary, to the Engineer during observation of trenching and backfilling.

PART 2: PRODUCTS

2.01 SELECT BACKFILL

- A. Source: Coordinate with onsite earthmoving activities.
- B. Soil backfill shall be select on-site silty sand with a maximum size of 2 inches in any dimension and free of organics.
- C. Select backfill shall not contain any construction or other debris.

2.02 SAND BEDDING

- A. Free of organics and other deleterious material.
- B. Minimum of 90 percent passing the No. 4 sieve.
- C. Maximum of 5 percent passing the No. 200 sieve.
- D. Sand bedding shall not contain any construction or other debris.

2.03 CORRUGATED METAL PIPE BEDDING AND BACKFILL

- A. Bedding and backfill for metal pipe shall be free draining granular material, without any organics.
- B. Corrugated metal pipe bedding and backfill shall not contain any construction or other debris.
- C. Bedding and backfill shall have the chemical properties listed in the following table.

Property	ASTM Test Method	Limits
pH	G-51	5 – 10
Resistivity	G-187	>3,000 ohm-cm
Chloride	D-512	<100 ppm
Sulfate	D-516	<200 ppm
Organics	D2974	<1%

PART 3: EXECUTION

3.01 PREPARATION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely, safe, and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Trenching extending more than 4 feet below the ground surface shall be performed in accordance with the Special Provisions.
- C. Comply with health and safety requirements specified in Section 01 35 29, including OSHA standards in Part P (Excavations) of 29 CFR Part 1926.
- D. Coordinate with local utilities in the area.
- E. Freestanding liquid may be encountered during excavation especially in trenches. The liquid may be hazardous. Notify the Engineer immediately. If free standing liquid is encountered the Engineer will determine how it is to be removed.

3.02 WORK PROCEDURES

- A. Remove all water, including rainwater, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods.
- B. Keep trenches and site construction area free from standing water.
- C. All waste excavated from trenching shall be handled and disposed at the active phase of the landfill designated by Engineer in accordance with requirements of these specifications, including Section 01 11 00-1.04.G and Section 33 23 00-3.01.F.

3.03 TRENCHING

- A. Comply with pertinent provisions of related sections.
- B. Trenching for pipes:
 - 1. Trench to the lines and grades shown on the Project Drawings as a minimum, and to the minimum width necessary for proper installation of pipe with sides as nearly vertical as possible. Uniformly grade the bottom to provide uniform bearing for the pipe.
 - 2. Where it becomes necessary to excavate beyond the limits of normal excavation lines to remove boulders or other interfering objects, backfill the voids remaining after removal of the objects as directed by the Engineer.
 - 3. When the void is below the subgrade for the pipe bedding, use

select backfill to fill in the void.

4. When the void is in the side of the trench or open cut, use select backfill to fill in the void.
5. Obstruction removal and backfill 1 foot or less beyond normal excavation lines shall be at no additional cost to the Engineer. Obstruction removal and backfill over 1 foot beyond normal excavation lines shall be performed in accordance with force account rates.

3.04 BACKFILLING

A. General:

1. The Contractor shall not place bedding or backfill in trenches until subgrade has been inspected and approved by the Engineer.
2. Place bedding and backfill trenches to the ground surface with materials shown on the Project Drawings. Contractor shall not backfill with waste, construction debris, or any other debris.
3. Reopen trenches that have been improperly backfilled. Refill and compact as specified, or otherwise correct to the approval of the Engineer.
4. Do not allow or cause any of the Work performed or installed to be covered up or enclosed by work of this Section prior to required inspections, tests, and approvals.
5. Should any of the Work be so enclosed or covered up before it has been approved, uncover all such Work and, after approvals have been made, refill and compact as specified, all at no additional cost to the County.

B. Bedding and Backfill around Pipes Outside Landfill

1. Take special care in bedding and backfilling operations to not damage pipe and pipe coatings.
2. Place pipe-bedding material to the thickness as shown on Project Drawings. Use hand operated compactor to compact the backfill.
3. Place backfill material to completely surround pipe without voids.
4. Place select backfill in layers not exceeding 6 inches in thickness, and compact to 95 percent relative compaction of ASTM D 1557 at 2 percent below to 4 percent above optimum moisture content. Compaction testing of select backfill shall be performed by Engineer.

END OF SECTION

SECTION 33 23 00

LANDFILL GAS EXTRACTION WELLS

PART 1: GENERAL

1.01 SUMMARY

- A. The Contractor shall drill and install landfill gas (LFG) extraction wells, including backfill materials (soil, bentonite, rock), as indicated in the Project Drawings and Specifications.
- B. The Contractor shall decommission existing LFG extraction wells, as indicated in the Project Drawings and Specifications.

1.02 RELATED SECTIONS

- A. Section 01 31 13 – Project Coordination
- B. Section 01 35 29 - Health and Safety
- C. Section 23 09 13 – Valves and Valve Boxes
- D. Section 22 10 00 – PVC Plastic Pipe
- E. Section 22 10 10 – HDPE Pipe

1.03 REFERENCES

- A. ANSI B 16.1, Cast Iron Pipe Flanges and Flanged Fittings
- B. ANSI B18.2.2, Square and Hex Nuts (Inch Series)
- C. ASTM A-36, Standard Specification for Carbon Structural Steel
- D. ASTM A-193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
- E. ASTM A-194, Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
- F. ASTM C-136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- G. ASTM C-1173, Standard Specification for Flexible Transition Couplings for Underground Piping Systems
- H. ASTM D-422, Standard Test Method for Particle-Size Analysis of Soils
- I. ASTM D-4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- J. ASTM D-4829, Standard Test Method for Expansion Index of Soils

K. ASTM D-5926, Standard Specification for Poly (Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems

1.04 QUALITY ASSURANCE

- A. Driller Qualifications.
 - 1. The Contractor and the drilling subcontractor shall have minimum five years of experience in the drilling and installation of landfill gas extraction wells. All superintendents and drill rig operators shall have minimum two years of experience in the drilling and installation of landfill gas extraction wells.
 - 2. The Contractor and the drilling subcontractor must demonstrate prior experience of at least three landfill gas projects completed within the last five years, with installation of no less than 500 lineal feet of landfill gas extraction wells in solid waste.
- B. Contractor shall comply with Section 01 45 13 Quality Control and the CQA Plan.
- C. Observation will be performed by the Engineer to confirm that the materials and construction comply with the requirements of these Specifications. Contractor shall make allowances for observation, sampling and testing by the Engineer in both production and scheduling, including but not limited to the following:
 - 1. Drilling equipment and drilling pad shall be inspected by the Engineer prior to beginning the Work.
 - 2. All drilling, logging and installation activities shall be observed by the Engineer.

1.05 SUBMITTALS

- A. Prior to beginning work, the Contractor shall submit references, list of assigned personnel and all other materials identifying Contractor's qualifications to the satisfaction of the Engineer.
- B. The Contractor will prepare and submit a Landfill Gas Well Drilling Work Plan documenting procedures and methods the Contractor will use to complete the Work. This plan shall be submitted as required by these Specifications. The Work Plan shall include the following:
 - 1. Methods and procedures to control drilling depth and protect the base liner during drilling and well installation operations.
 - 2. Drilling pad procedures to be used during construction.
 - 3. List of drilling augers, buckets and casings to be used in the

Work.

4. Documentation demonstrating that the Contractor meets the qualification requirements of Paragraph 1.04 A.
- C. The Contractor shall submit to the Engineer for approval Certificates of Compliance for pipe, proposed bentonite, and gravel materials, which indicate meeting the material requirements of this Section.
- D. If materials or personnel proposed or provided under this Section are shipped or used prior to Engineer's conditional approval or approval, it will be at the Contractor's risk, and subject to rejection and removal at no cost to the County.

PART 2: PRODUCTS

2.01 WELL CASING AND FITTINGS

- A. Materials used for well casing and fittings shall conform to the Project Drawings and Section 22 10 10 of these Specifications. Fabrication of all casing and perforations shall be as stipulated in Section 22 10 10 of these Specifications.
- B. Well screen perforations shall be shop drilled.

2.02 BENTONITE

- A. Source: Contractor-selected and Engineer-approved source.
- B. The bentonite shall be high-swelling, sodium bentonite containing no added organic polymers. The material shall exhibit the following properties:
 1. Bentonite Chips
 - a. $\frac{3}{8}$ " – $\frac{3}{4}$ " size
 - b. Plasticity Index: 54 per ASTM D-4318
 - c. Expansion Index: 289 per ASTM D-4829
 2. Fine Granular Bentonite
 - a. 85% passing the #8 sieve
 - b. Plasticity Index: 54 per ASTM D-4318
 - c. Expansion Index: 289 per ASTM D-4829

2.03 POLYMER

- A. Liquid polymer designed to improve drilling efficiency by eliminating clay swelling
- B. CETCO Insta-Vis Plus, or equal

2.04 GRAVEL

- A. Source: Contractor-selected and Engineer-approved off-site borrow source.
- B. Gradation: ASTM C-136.
- C. Gravel for well screen pack shall consist of permeable aggregate material, clean, washed, rounded to subrounded, and free of organic matter. Limestone will not be acceptable for this classification. The material shall meet the following gradation requirements:

U.S. Sieve Size	Range of Percent Passing
3 inches	100
2 inches	50 to 75
1 ½ inches	5 - 40
¾ inch	0 to 5
½ inch	0

- D. Crushed or angular gravel is not acceptable.

2.05 SELECT BACKFILL

- A. Source: On-site area designated by Engineer.
- B. Soil backfill shall be select on-site silty sand with a maximum size of 2 inches in any dimension and free of organics.

2.06 LANDFILL GAS WELLHEADS

- A. General Description:
 - 1. Landfill gas wellheads shall be 2 inch QED Model ORP215 wellhead and shall consist of wellhead piping with precision control valve, orifice plate kits (six plates), quick disconnect gas sampling ports with caps, static and impact pressure ports; gas temperature gauge port and thermometer; and flexible hose connector.
 - 2. Wellhead piping and fittings shall be Schedule 80 PVC. Adapters shall be elastomeric Polyvinyl Chloride.
 - 3. The equipment shall be capable of withstanding the rigors of landfill gas recovery application, including internal high vacuum, weathering, and gas constituent and ultraviolet light exposure.
 - 4. The wellhead shall be tight and leak free and shall be height adjustable in the field using adapter bushings.
 - 5. The wellhead assembly shall be capable of being used with the CES-Landtec GEM-5000™ and GEM-2000™ Gas

Extraction Monitor incorporating all GEM™ monitoring functions or equivalent.

6. It is the intent of this Specification that the wellhead assembly shall be supplied as a complete factory-manufactured unit.

B. Materials/Components

1. Precision Control Valve:

- a. The flow control gate valve shall have a PVC body with socket fittings, seats, and seals of inert LFG-resistant materials, a polypropylene wedge, stainless steel stem and handle, and metered scale for adjusting the flow setting.

2. Temperature Gauge:

- a. The temperature gauge shall have a stainless steel probe, watertight dial cover, and calibration nut. It shall be connected to the wellhead with a quick connect fitting that is positive sealing and shall be constructed of polypropylene, stainless steel, or chrome-plated brass. The temperature gauge shall be removable.

3. Well Cap

- a. Well cap shall be QED Stabilizer™ well cap, sized to fit the LFG extraction well casing and wellhead.
 - b. Well cap shall include appropriate sized Fernco sleeve and flexible coupling.

4. Flexible Hose Connector:

- a. A flexible hose shall be used to connect the wellhead to the well lateral, control manifold, or collection header.
 - b. Flex hose for wellhead assemblies shall be QED Solarguard™ flex hose, as shown on the Project Drawings. Hose shall be provided with inside diameter to match the outside diameter of PVC or HDPE pipe to be connected. Minimum bend radius shall provide 90° bend between wellhead and lateral pipe, without causing internal damage or kinking. Flex hose shall be manufactured from UV resistant PVC with rigid PVC helix. Outer cover shall be resistant to UV, ozone, and weathering for long-term, exposed service. QED high strength, stainless steel banding shall be used to connect the flex hose at the wellhead and lateral.

5. Rubber Coupling:

- a. Constructed of elastomeric polyvinyl chloride (PVC) in

conformance with ASTM D5926 and ASTM C1173.

6. Nuts, Bolts, and Clamps:
 - a. For aboveground installation, nuts and bolts shall be cadmium plated, galvanized steel, or zinc plated.
 - b. For belowground installation, nuts and bolts shall be Type 316 stainless steel, ASTM A193, Grade B8 hex head bolts and ASTM A194, Grade B8 hex head nuts. Bolts shall be fabricated in accordance with ANSI B18.2.2 and provided with washers of the same material as the bolts.
 - c. Hose band-clamps of correct size shall be stainless steel with hexagonal and slotted adjusting screw.
7. Quick Disconnect Fittings:
 - a. Quick disconnect fittings shall be positive sealing and shall be constructed of polypropylene, stainless steel, or chrome-plated brass. 1/8-inch female shut-off with 1/4-inch male NPT end.

C. Performance Specifications

1. Volumetric Flow Rating: The nominal flow capacity of the wellhead shall be:

Wellhead Nominal Size (inches)	Minimum Flow (CFM)	Maximum Flow (CFM)
2	1	125

2. Pressure Design Ratings: The wellhead assembly shall be designed to withstand a vacuum of 100 inches of water.

2.07 WELLHEAD PIPE SUPPORT

- A. Pipe supports for the wellhead piping shall be 12-gauge double-strut posts at locations shown on the Drawings. Post and fittings shall be hot-dipped galvanized and conform to ASTM A36. All nuts, bolts, and washers shall be hot-dipped galvanized mild steel. Supports shall be Uni-Strut.

2.08 HEADER PIPE ANCHORS/STRAPS

- A. Header pipe anchors/straps shall be installed at locations shown and/or specified on the Drawings.
- B. One-inch galvanized pipe, schedule 40, shall be used for header pipe anchors. Top caps shall be OSHA-approved safety caps.
- C. Header pipe anchor/straps shall be Real Environmental Products Series 6000 Infa-Just pipe supports, or approved equal.

- D. Anchor/straps shall be installed in accordance with the manufacturer's recommendations.

2.09 IDENTIFYING DEVICES

- A. All wellheads to be labeled with a baked enamel finish 20-gauge (minimum) steel or 18-gauge (minimum) aluminum sign.
- B. Provide metal placard with well label for each wellhead. The placard shall be 6 inches wide by 8 inches long (minimum).
- C. Placard lettering shall be proportionately sized to fit within the allotted space of the placard. Weather resistant lettering shall be used. Lettering shall be black on white background. Engineer to provide direction on labeling and approval of design before placards are made.

PART 3: EXECUTION

3.01 LANDFILL GAS EXTRACTION WELLS

- A. The Contractor shall advance boreholes and install the landfill gas extraction wells at the locations indicated on the Project Drawings and in accordance with the Engineer-approved submittals, Phasing Work Plan, Project Drawings and Specifications.
- B. Preparation
 - 1. The County shall stake and survey the well locations, including actual surface elevation, for the purposes of verification of boring depth.
 - 2. Prior to drilling, the Contractor shall re-verify, in a written plan (Landfill Gas Well Drilling Work Plan), the well locations and respective drilling depths and elevation of the base liner system at that location.
 - 3. Reverification will occur prior to the actual drilling take place, after the drilling pad has been constructed and approved, and after the borehole location has been staked and surveyed. The Contractor is responsible for insuring that the well bores do not advance beyond the Target Boring Depth approved by the Engineer (20 feet above the bottom of waste). In no instance will well bores be advanced and/or completed into the native soils beneath the landfill. The depth to the bottom of the landfill is approximated from information provided by the County. Due to placement of additional fill and/or settlement, the actual depths to the bottom may be different than the values presented on the Project Drawings. The Contractor shall be responsible for confirming the final well depth with the Engineer prior to drilling the well.

4. Contractor shall be responsible for any grading, leveling, mowing and/or restoration, which may be necessary for movement of the drill rig on the landfill property.

C. Boring

1. The LFG well boring will be a nominal 36-inch diameter hole drilled to the specified depth as determined by Contractor and approved by Engineer. The Contractor shall drill the borehole to permit the installation of the casing and slotted pipe assembly in a plumb and true line.
2. Contractor shall start no boring unless the Engineer or their representative is present.
3. Contractor shall drill the gas extraction well bores using an appropriate drilling unit with sufficient torque and weight capable of boring to the depths indicated in the Project Drawings and Specifications. The Contractor should anticipate encountering large amounts of wood, plastic, leachate, metal of varying shapes and sizes, and otherwise a varied waste formation consisting of compacted and un-compacted waste material. Varied compaction and moisture levels can result in caving and the Contractor shall provide sidewall casing, if required. The Contractor shall remove the casing after the well is completed. All drilling equipment mobilized shall be maintained in good condition. Auger teeth shall be sharp. Worn auger teeth shall be replaced at no additional expense to the County. The Contractor shall make equipment available for inspection before drilling commences.
4. No drilling muds will be allowed for the construction of these wells.
5. Obstructed Borings: If obstructions are encountered during boring, the Contractor shall continue drilling until it is demonstrated that further efforts to advance the borehole are impractical. The Engineer will determine which of the following courses of action will be taken:
 - a. Abandonment: The Contractor shall abandon the borehole by backfilling with bentonite slurry and/or other material at the direction of the Engineer. The Contractor shall relocate borehole at the direction of the Engineer in consultation with the Engineer of Record. No submittals will be required.
 - b. Complete Well: The Contractor shall complete installation of the well to the depth obtained at that location.
6. At no time are open well borings to be left uncovered and unattended. If the drilling unit should break down while boring

a well, the bore hole may be left and boring resumed after the drilling unit is repaired. The bore hole shall be covered securely and marked to alert people that there is an open bore hole.

D. Installation

1. Contractor shall assemble the well casings in accordance with the Project Drawings and Section 22 10 10 of these Specifications. If the well depth is different than that listed in the Project Drawings, the Contractor shall have perforation length approved by the Engineer in consultation with the Engineer of Record, prior to the installation of the well casing. Final casing lengths shall be adjusted at the completion of drilling to accommodate any deviation from proposed depths.
2. The upper ends of the well casings shall be temporarily capped with a HDPE cap or similar cap prior to installation to prevent gas from escaping and to prevent backfill from entering the casing.
3. Casings for single LFG wells shall be set centered in the bore using manufactured centralizers proposed by the Contractor and reviewed by the Engineer. Casing shall be suspended during completion to insure casing remains centered in the bore. Casings for dual LFG wells will be separated with spacers and centered in the bore. Once suspended the annular space can be backfilled. Well casings shall be installed immediately after completion of each bore. The casing shall be installed to a depth one (1) foot above the bottom of the bore or as directed by the Engineer. The well casing shall terminate at least 3 feet above final finish grade. The casing shall be suspended at the surface and centered in the boring at all times during backfilling. Suspension and centering equipment shall allow for safe manipulation of the well casing in and over the open boring and provide a stable working surface for personnel.
4. Gravel screen pack shall be placed from the base of the borehole to two feet above the top of the perforated portion of the casing.
5. Bentonite Seal: The bentonite seal shall be comprised of 2 parts bentonite chips and 1 part coarse fine bentonite. Mix bentonite with clean water at a ratio of minimum 60% bentonite and maximum 40% water by volume, and polymer to produce a thick slurry consistency. The Contractor shall pre-mix and pour the bentonite gradually and carefully to the design level, as indicated on the Project Drawings, above the top of the gravel pack, as determined by volume

measurements and sounding with a weighted tape. Do not hydrate the bentonite by adding water down the borehole.

6. Select backfill soil will be placed above the bentonite seal and continued to the depth shown on the Project Drawings.
 7. Backfill will be moisture conditioned to ± 3 percent of optimum according to ASTM D1557 before placing in bore. Backfill will be tamped using a drill rig tool or other method approved by the Engineer..
 8. Upper seal shall consist of coarse granulated bentonite chips ($\frac{3}{8}$ " to $\frac{3}{4}$ ") and fine granular bentonite (8-mesh Baroid Benseal or approved equal) pre-mixed at a ratio of 2-to-1. Add a minimum 40 percent water (by volume) to the bentonite and mix to a thick slurry consistency before placement. If required, provide polymer (CETCO Insta-Vis or approved equal) to facilitate thorough mixing and hydration. Bentonite shall not be hydrated by adding water down the borehole.
 9. All materials shall be placed in the borehole in a manner to prevent bridging and voids. Proper installation of each material shall be verified by volume measurements and sounding with a weighted tape.
- E. No pressure test is required when perforated piping cannot be isolated to facilitate such a test.
- F. Waste Excavation
1. The Contractor shall be responsible for disposal of all waste excavated for the construction of the landfill gas extraction wells. The Contractor is responsible for compliance with all local, State and federal requirements governing the temporary handling and disposal of drilling spoils.
 2. Excavated waste shall be placed in a bin or truck provided by the Contractor. The waste in the bin or truck shall be covered at all times when waste is not being placed in the bin or truck.
 3. The last load of waste shall be delivered to the landfill active disposal area, as directed by the Engineer, and unloaded no later than 3:00 PM.
- G. Repairs
1. Should liner materials be encountered during drilling, all drilling operations on that hole will cease and the Engineer immediately notified. In the event the liner is damaged by any Contractor activity, Contractor is responsible and shall bear all costs associated with the acceptable mitigation and repair for any liner damage. The bottom of the borehole will be sealed in accordance with an approved liner repair plan to be

prepared by the Contractor. The liner repair plan shall be submitted to the Engineer within 5 business days of the liner materials being encountered. The Engineer shall review the liner repair plan and either approve it or submit it back to the Contractor for revision. The approved liner repair plan will be submitted by the Engineer to the applicable agencies having jurisdiction for approval. Liner repairs shall be witnessed as directed by the Engineer and agencies having jurisdiction.

3.02 Landfill Gas Wellheads

- A. The Contractor shall handle the wellheads according to Manufacturer's instructions.
- B. The Contractor shall install the wellhead on the well casing in accordance with the Manufacturer's written Instructions.
- C. Where a rubber flex connections is used, the flex connection shall be installed in accordance with the Manufacturer's written Instructions. The Contractor shall use a stainless steel hose clamp on both ends of the flex connection as manufactured by QED for non-slip grip on PVC or HDPE pipe.
- D. Where the wellhead connects directly to the collection header, the Contractor shall install a branch fitting ("Tee" or "Wye") on the header in accordance with accepted methods and standards appropriate for the header material. The Contractor shall connect the wellhead to the header branch fitting in accordance with the Manufacturer's written instructions and as shown on the Project Drawings. The Contractor shall use adapters as recommended by the Manufacturer.
- E. After installation the wellhead valve shall be left in the closed position.

3.03 Landfill Gas Well Decommissioning

- A. The Contractor shall remove all above ground assemblies, including wellhead, flex hose, and lateral piping. Lateral piping shall be removed up to the header. After removing the lateral piping, a cap shall be welded to the lateral piping stub-out from the header. Wellheads and flex hose shall be salvaged and provided to County.
- B. The area around the well casing shall be excavated to a minimum 3 feet depth below the ground level.
- C. The existing well casing shall be cut-off a sufficient depth below the ground surface so that the top of a cap placed on the well casing shall be a minimum 3 feet below the ground surface.
- D. After cutting-off the well casing, the well casing shall be backfilled with cement-bentonite grout to the top of the casing using a tremie

- pipe. After backfilling a cap shall be placed on the casing.
- E. After backfilling and capping the well casing, the Contractor shall monitor the area around the well casing for methane using an appropriate instrument calibrated to measure methane.
 - F. The excavation shall be backfilled with cement-bentonite grout to 1 foot below the ground surface. The remainder of the excavation shall be backfilled with select backfill and mounded to allow surface drainage away from the well location.

END OF SECTION

SECTION 33 42 13

CORRUGATED METAL PIPE

PART 1: GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, equipment and incidentals necessary to install corrugated metal pipe as specified herein, as shown on the Project Drawings and as needed for complete and properly functioning culverts and pipe sleeves, all with necessary fittings.
- B. The work shall be carried out in accordance with these Specifications and with the Project Drawings.

1.02 RELATED SECTIONS

- A. Section 31 23 16 – Trenching
- B. Section 22 10 10 – HDPE Pipe

1.03 REFERENCES

- A. State of California, Department of Transportation, Standard Specifications, 2010 edition, as amended.

1.04 SUBMITTALS

- A. In accordance with Section 01 33 00, the Contractor shall submit, prior to shipping, manufacturer's specifications stating that the piping meets or exceeds the requirements presented in this Specification and as shown on the Project Drawings.
- B. If materials proposed to be provided under this Section are shipped prior to Engineer's conditional approval or approval, it will be at the Contractor's risk.

PART 2: PRODUCTS

- A. Corrugated metal pipe shall comply with Section 66 of the California Department of Transportation (Caltrans) Standard Specifications.
- B. Corrugated metal pipe shall be a minimum of 14 gage, or as shown on the Project Drawings.

PART 3: EXECUTION

- A. Trench excavation, bedding and backfill shall comply with Section 31 23 16 of these Specifications.

- B. Installation of corrugated metal pipe shall comply with Section 66-1.03 of the Caltrans Standard Specifications

PART 4: MEASUREMENT AND PAYMENT

- A. Measurement and payment shall be as specified in Section 01 20 00 of these Specifications.

END OF SECTION

DIVISION 44

EQUIPMENT

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SECTION 44 42 53

LANDFILL GAS CONDENSATE SUMP

PART 1. GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, equipment and incidentals necessary to install a condensate liquid sump and automatic electrical pump system as shown on the Project Drawings and as needed for a complete and proper operation.
- B. The work shall be carried out in accordance with these Specifications and with the Project Drawings.

1.02 RELATED SECTIONS

- A. Section 31 23 16 – Trenching
- B. Section 22 10 00 - PVC Plastic Pipe
- C. Section 22 10 10 - HDPE Pipe

1.03 REFERENCES (NOT USED)

1.04 SUBMITTAL

- A. Product Data: The Contractor shall submit
 - 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's specifications, catalog cuts, and other data needed to prove compliance with the specified requirements.
 - 3. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.
 - 4. Manufacturer's operations and maintenance guidelines including startup procedures.
- B. If materials proposed to be provided under this Section are shipped prior to Engineer's conditional approval or approval, it will be at the Contractor's risk.

PART 2. MATERIALS

2.01 CONDENSATE SUMP

- A. The landfill gas condensate sump shall be a Real Environmental Products 7000-R-DC 18/24 Auto-Sump with a QED AP4-BL pump.
- B. The landfill gas condensate sump shall an 18-inch diameter condensate liquid sump. The sump shall be a welded single walled, liquid and gas tight assembly constructed from high-density polyethylene (HDPE) pipe, SDR 17. The sump shall have a 24-inch diameter HDPE pipe, SDR 17 secondary containment. Thicker HDPE wall thicknesses are acceptable.
- C. The sump shall be designed to withstand vacuum of 29.8 inches of mercury and pressure of 5 PSIG. The sump shall have a 6-inch deep solids settling area. The sump shall include an isolation well through which the pump will be installed for solids separation.
- D. The sump shall have a 4-inch HDPE, SDR 11 inlet, located 10 feet below the top of the 18-inch sump.
- E. The sump length shall be a minimum of 20 feet long, but shall drain correctly and continuously maintain a clear LFG header under a header vacuum application of -65 inches water column (in. w.c.).

2.02 VAULT

- A. All operating components of the condensate pump and control assembly shall be located in an insulated polyethylene vault that is integrally mounted on top of the condensate liquid sump.
- B. Service connections, including the liquid discharge, and pressure balance line, shall be stainless steel hydraulic quick connects and shall be bulkhead mounted through a standard quick release cap on top of the sump, and through a common wall of the vault.
- C. The vault shall be a Real Environmental Products 1730-18" vault box.

2.03 CONNECTIONS

- A. The sump shall have the following connection sizes and types:

<u>Service</u>	<u>Size Connection</u>	<u>Furnished Supplied Connection</u>
Condensate Discharge	¾ inch	FNPT
Air Inlet	½ inch	FNPT
Balance Line	¾ inch	FNPT

- B. The condensate liquid inlet to the sump shall be 4-inch diameter SDR 11 HDPE.
- C. The condensate discharge line and header equalization pipe inside the sump shall be constructed of SDR 11 HDPE, Schedule 80 PVC or reinforced heavy-duty PVC hose.
- D. The condensate discharge line and header equalization pipe inside the sump shall include Type 316 stainless steel or HDPE isolation valves.
- E. The condensate discharge line shall include a stainless steel 304 check valve to prevent liquid back flow to the sump.

2.04 LIQUID PUMP

- A. An integral, pneumatic submersible pump (QED AP4-BL) shall be included as part of the landfill gas condensate sump and shall be used to transfer LFG condensate from the sump.
- B. Provide only equipment that is new, and of the type and quality specified.
- C. The pump shall be rated for service in harsh and explosive environments.

PART 3. EXECUTION

3.01 SOURCE QUALITY CONTROL

- A. Test pump for 30 minutes in a tank operated by control panel.

3.02 INSTALLATION

- A. Landfill gas condensate sump shall be installed by a qualified trained installer in accordance with the manufacturer's recommendations.

3.03 WARRANTY

- A. Sump pump, control panel and accessories installed as a complete system shall be warranted for a period of 30 months from date of manufacturer.
- B. Manufacturer to submit warranty with any required “as built shop drawings” and Operation and Maintenance Manuals.

END OF SECTION

Project Details



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



RECEIVED

JUN 30 2016

FRESNO COUNTY
DEPT. OF
PUBLIC WORKS & PLANNING

ML
7/1/16

DT

JUN 29 2016

Mr. Curtis Larkin
American Ave Landfill
Public Works & Planning, Fresno County
2220 Tulare St, 6th Floor
Fresno, CA 93721

**Re: Notice of Final Action - Title V Permit Renewal
District Facility # C-3115
Project # C-1150035**

Dear Mr. Larkin:

The District has issued the Final Renewed Title V Permit for American Ave Landfill. The preliminary decision for this project was made on April 18, 2016. No comments were received subsequent to the District preliminary decision.

The public notice for issuance of the Final Title V Permit will be published approximately three days from the date of this letter.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Errol Villegas, Permit Services Manager, at (559) 230-5900.

Sincerely,

Errol Villegas
fw Arnaud Marjollet
Director of Permit Services

Enclosures

cc: Tung Le, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

Sayed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



Facility # C-3115
AMERICAN AVENUE LANDFILL
2220 TULARE ST, 6TH FLOOR
ATTN: RESOURCES MANAGER
FRESNO, CA 93721

Notice of Permit Issuance

The enclosed permit unit requirements authorize the operation of the equipment as described. These permit unit requirements supersede any and all previous permits for the specified equipment.* Please insert these documents into the Facility Permit to Operate, and post copies on or near the equipment as required by District Rule 2010.

Please contact any of our Small Business Assistance (SBA) staff at the numbers below if you have any questions:

Modesto:	(209) 557-6446
Fresno:	(559) 230-5888
Bakersfield:	(661) 392-5665

*Failure to comply with the permit unit requirements may result in enforcement action.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

Permit to Operate

FACILITY: C-3115

EXPIRATION DATE: 07/31/2021

LEGAL OWNER OR OPERATOR:
MAILING ADDRESS:

AMERICAN AVENUE LANDFILL
2220 TULARE ST, 6TH FLOOR
ATTN: RESOURCES MANAGER
FRESNO, CA 93721

FACILITY LOCATION:

18950 W AMERICAN AVE
KERMAN, CA

FACILITY DESCRIPTION:

LANDFILL (EG SOURCE)

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Seyed Sadredin
Executive Director / APCO

Arnaud Marjollet
Director of Permit Services

San Joaquin Valley Air Pollution Control District

FACILITY: C-3115-0-3

EXPIRATION DATE: 07/31/2021

FACILITY-WIDE REQUIREMENTS

1. The owner or operator shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
2. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
3. The owner or operator of any stationary source operation that emits more than 25 tons per year of nitrogen oxides or reactive organic compounds, shall provide the District annually with a written statement in such form and at such time as the District prescribes, showing actual emissions of nitrogen oxides and reactive organic compounds from that source. [District Rule 1160] Federally Enforceable Through Title V Permit
4. Any person building, altering or replacing any operation, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, shall first obtain an Authority to Construct (ATC) from the District unless exempted by District Rule 2020 (12/20/07). [District Rules 2010 and 2020] Federally Enforceable Through Title V Permit
5. The permittee must comply with all conditions of the permit including permit revisions originated by the District. All terms and conditions of a permit that are required pursuant to the Clean Air Act (CAA), including provisions to limit potential to emit, are enforceable by the EPA and Citizens under the CAA. Any permit noncompliance constitutes a violation of the CAA and the District Rules and Regulations, and is grounds for enforcement action, for permit termination, revocation, reopening and reissuance, or modification; or for denial of a permit renewal application. [District Rules 2070, 2080 and 2520] Federally Enforceable Through Title V Permit
6. A Permit to Operate or an Authority to Construct shall not be transferred unless a new application is filed with and approved by the District. [District Rule 2031] Federally Enforceable Through Title V Permit
7. Every application for a permit required under Rule 2010 (12/17/92) (Permits Required) shall be filed in a manner and form prescribed by the District. [District Rule 2040] Federally Enforceable Through Title V Permit
8. The operator shall maintain records of required monitoring that include: 1) the date, place, and time of sampling or measurement; 2) the date(s) analyses were performed; 3) the company or entity that performed the analysis; 4) the analytical techniques or methods used; 5) the results of such analysis; and 6) the operating conditions at the time of sampling or measurement. [District Rule 2520] Federally Enforceable Through Title V Permit
9. The operator shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, or report. Support information includes copies of all reports required by the permit and, for continuous monitoring instrumentation, all calibration and maintenance records and all original strip-chart recordings. [District Rule 2520] Federally Enforceable Through Title V Permit
10. The operator shall submit reports of any required monitoring at least every six months unless a different frequency is required by an applicable requirement. All instances of deviations from permit requirements must be clearly identified in such reports. [District Rule 2520] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate. Any amendments to these Facility-wide Requirements that affect specific Permit Units may constitute modification of those Permit Units.

Facility Name: AMERICAN AVENUE LANDFILL
Location: 18950 W AMERICAN AVE, KERMAN, CA
C-3115-0-3 Jun 23 2016 10:41AM - LOWELES

11. Deviations from permit conditions must be promptly reported, including deviations attributable to upset conditions, as defined in the permit. For the purpose of this condition, promptly means as soon as reasonably possible, but no later than 10 days after detection. The report shall include the probable cause of such deviations, and any corrective actions or preventive measures taken. All required reports must be certified by a responsible official consistent with section 10.0 of District Rule 2520(6/21/01). [District Rules 2520 and 1100] Federally Enforceable Through Title V Permit
12. If for any reason a permit requirement or condition is being challenged for its constitutionality or validity by a court of competent jurisdiction, the outcome of such challenge shall not affect or invalidate the remainder of the conditions or requirements in that permit. [District Rule 2520] Federally Enforceable Through Title V Permit
13. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. [District Rule 2520] Federally Enforceable Through Title V Permit
14. The permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [District Rule 2520] Federally Enforceable Through Title V Permit
15. The permit does not convey any property rights of any sort, or any exclusive privilege. [District Rule 2520] Federally Enforceable Through Title V Permit
16. The Permittee shall furnish to the District, within a reasonable time, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the District copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to EPA along with a claim of confidentiality. [District Rule 2520] Federally Enforceable Through Title V Permit
17. The permittee shall pay annual permit fees and other applicable fees as prescribed in Regulation III of the District Rules and Regulations. [District Rule 2520] Federally Enforceable Through Title V Permit
18. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 2520] Federally Enforceable Through Title V Permit
19. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 2520] Federally Enforceable Through Title V Permit
20. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under the permit. [District Rule 2520] Federally Enforceable Through Title V Permit
21. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
22. No air contaminants shall be discharged into the atmosphere from any source operation (as defined in District Rule 1020) for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (2/17/05), by using EPA method 9. If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

23. No person shall supply, sell, solicit or apply any architectural coating, except specialty coatings, that contains more than 250 grams of VOC per liter of coating (less water and exempt compounds, and excluding any colorant added to tint bases), or manufacture, blend, or repackage such coating with more than 250 grams of VOC per liter (less water and exempt compounds, and excluding any colorant added to tint bases) for use within the District, unless exempted under section 4.0 of District Rule 4601 (Amended 12/17/09). [District Rule 4601] Federally Enforceable Through Title V Permit
24. No person shall apply, sell, solicit, or offer for sale any specialty architectural coating listed in the Table of Standards (District Rule 4601, Table 1 (12/17/09)), nor manufacture, blend, or repackage such coating for use within the District, which contains VOCs (less water and exempt compounds, excluding any colorant added to tint bases) in excess of the specified limits listed in Table 1 of Rule 4601 (12/17/09), unless exempted under section 4.0 of District Rule 4601 (Amended 12/17/09). [District Rule 4601] Federally Enforceable Through Title V Permit
25. All VOC-containing materials shall be stored in closed containers when not in use. In use includes, but is not limited to: being accessed, filled, emptied, maintained or repaired, unless exempted under section 4.0 of District Rule 4601 (Amended 12/17/09). [District Rule 4601] Federally Enforceable Through Title V Permit
26. A person shall not use VOCs for the cleanup of spray equipment unless equipment for collection of the cleaning compounds and minimizing its evaporation to the atmosphere is used, unless exempted under section 4.0 of District Rule 4601 (Amended 12/17/09). [District Rule 4601] Federally Enforceable Through Title V Permit
27. The permittee shall comply with all the Labeling and Test Methods requirements outlined in Rule 4601 sections 6.1 and 6.2 (12/17/09), unless exempted under section 4.0 of District Rule 4601 (Amended 12/17/09). [District Rule 4601] Federally Enforceable Through Title V Permit
28. With each report or document submitted under a permit requirement or a request for information by the District or EPA, the permittee shall include a certification of truth, accuracy, and completeness by a responsible official. [District Rule 2520] Federally Enforceable Through Title V Permit
29. If the permittee performs maintenance on, or services, repairs, or disposes of appliances, the permittee shall comply with the standards for Recycling and Emissions Reduction pursuant to 40 CFR Part 82, Subpart F. [40 CFR 82 Subpart F] Federally Enforceable Through Title V Permit
30. If the permittee performs service on motor vehicles when this service involves the ozone-depleting refrigerant in the motor vehicle air conditioner (MVAC), the permittee shall comply with the standards for Servicing of Motor Vehicle Air Conditioners pursuant to all the applicable requirements as specified in 40 CFR Part 82, Subpart B. [40 CFR Part 82, Subpart B] Federally Enforceable Through Title V Permit
31. Disturbances of soil related to any construction, demolition, excavation, extraction, or other earthmoving activities shall comply with the requirements for fugitive dust control in District Rule 8021 unless specifically exempted under Section 4.0 of Rule 8021 (8/19/04) or Rule 8011 (8/19/04). [District Rule 8021 and 8011] Federally Enforceable Through Title V Permit
32. Outdoor handling, storage and transport of any bulk material which emits dust shall comply with the requirements of District Rule 8031, unless specifically exempted under Section 4.0 of Rule 8031 (8/19/04) or Rule 8011 (8/19/04). [District Rule 8031 and 8011] Federally Enforceable Through Title V Permit
33. An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041 Section 5.0, unless specifically exempted under Section 4.0 of Rule 8041 (8/19/04) or Rule 8011 (8/19/04). [District Rule 8041 and 8011] Federally Enforceable Through Title V Permit
34. Whenever open areas are disturbed or vehicles are used in open areas, the facility shall comply with the requirements of Section 5.0 of District Rule 8051, unless specifically exempted under Section 4.0 of Rule 8051 (8/19/04) or Rule 8011 (8/19/04) [District Rule 8051 and 8011] Federally Enforceable Through Title V Permit
35. Any paved road or unpaved road shall comply with the requirements of District Rule 8061 unless specifically exempted under Section 4.0 of Rule 8061 (8/19/04) or Rule 8011 (8/19/04). [District Rule 8061 and 8011] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

36. Any unpaved vehicle/equipment area that anticipates more than 75 vehicle trips per day shall comply with the requirements of Section 5.1.1 of District Rule 8071. Any unpaved vehicle/equipment area that anticipates more than 100 vehicle trips per day shall comply with the requirements of Section 5.1.2 of District Rule 8071. All sources shall comply with the requirements of Section 5.0 of District Rule 8071 unless specifically exempted under Section 4.0 of Rule 8071 (9/16/04) or Rule 8011 (8/19/04). [District Rule 8071 and 8011] Federally Enforceable Through Title V Permit
37. Any owner or operator of a demolition or renovation activity, as defined in 40 CFR 61.141, shall comply with the applicable inspection, notification, removal, and disposal procedures for asbestos containing materials as specified in 40 CFR 61.145 (Standard for Demolition and Renovation). [40 CFR 61 Subpart M] Federally Enforceable Through Title V Permit
38. The permittee shall submit certifications of compliance with the terms and standards contained in Title V permits, including emission limits, standards and work practices, to the District and the EPA annually (or more frequently as specified in an applicable requirement or as specified by the District). The certification shall include the identification of each permit term or condition, the compliance status, whether compliance was continuous or intermittent, the methods used for determining the compliance status, and any other facts required by the District to determine the compliance status of the source. [District Rule 2520] Federally Enforceable Through Title V Permit
39. Any Title V permittee shall submit an application permit renewal to the District at least six months, but not greater than 18 months, prior to the Title V permit expiration date. [District Rule 2520] Federally Enforceable Through Title V Permit
40. When a term is not defined in a Title V permit condition, the definition in the rule cited as the origin and authority for the condition in a Title V permit shall apply. [District Rule 2520] Federally Enforceable Through Title V Permit
41. The reporting periods for the Report of Required Monitoring and the Compliance Certification Report begin July 1 of every year, unless alternative dates are approved by the District Compliance Division. These reports are due within 30 days after the end of the reporting period. [District Rule 2520] Federally Enforceable Through Title V Permit
42. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-3115-2-14

EXPIRATION DATE: 07/31/2021

EQUIPMENT DESCRIPTION:

44.4 MILLION CUBIC YARD CAPACITY (367 ACRES) MUNICIPAL SOLID WASTE LANDFILL WITH A LANDFILL GAS COLLECTION AND CONTROL SYSTEM, INCLUDING COLLECTION WELLS, PIPING, VACUUM PUMP/BLOWER, CONDENSATE TRAPS AND A 3,150 GALLON CONDENSATE STORAGE TANK, CONTROLLED BY ONE 51 MMBTU/HR AND ONE 99 MMBTU/HR ENCLOSED GROUND FLARE USING AN LPG PILOT

PERMIT UNIT REQUIREMENTS

1. Annual amount of soil used for covering shall not exceed 5,920,933 cubic yards of soil, and PM10 emissions shall not exceed 0.008 lb PM10/ton of soil (using a soil density of 3,240 lbs/cubic yard of soil). Permittee shall keep annual records of the amount of soil used for covering. [District Rule 2201] Federally Enforceable Through Title V Permit
2. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201 and 40 CFR Part 60.752(b)(2)(iii)(B)(2) and (b)(2)(iv), and 62.14353(b)] Federally Enforceable Through Title V Permit
3. All equipment shall be constructed, calibrated, maintained and operated according to the specifications and plans contained in the permit application except as otherwise specified herein. [District Rule 2201 and 40 CFR 60.755(d), 60.756(b), 62.14354(b) and 40 CFR part 64] Federally Enforceable Through Title V Permit
4. No air contaminant shall be discharged from the flare into the atmosphere for a period or periods aggregating more than five minutes in any two hours which is as dark as, or darker than, Ringelmann 1/4 or 5% opacity. [40 CFR 60.18(c)(1)] Federally Enforceable Through Title V Permit
5. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide). [District Rule 4301] Federally Enforceable Through Title V Permit
6. Landfill gas condensate can be injected into the enclosed flares. [District Rule 2201] Federally Enforceable Through Title V Permit
7. The enclosed flares shall be equipped with automatic dampers, an automatic shutdown device, and a flame arrester. [District Rule 2201 and 17 CCR 95464] Federally Enforceable Through Title V Permit
8. VOC emissions from this landfill operation controlled with the 51 MMBtu/hr and 99 MMBtu/hr enclosed flares shall not exceed 804.3 lb/day (includes landfill fugitive, flare landfill gas, flare pilot, and flare condensate emissions). [District Rule 2201] Federally Enforceable Through Title V Permit
9. The enclosed flares shall either reduce VOC by 98 weight percent or reduce the outlet VOC concentration to less than 20 parts per million by volume, dry basis as methane at 3 percent oxygen. [District Rules 2201 and 4102, and 40 CFR 60.752(b)(2)(iii)(B) and 62.14353(b)] Federally Enforceable Through Title V Permit
10. The methane destruction efficiency for the enclosed flares shall be at least 99% by weight. [17 CCR 95464]
11. The landfill gas consumption rate for the 51 MMBtu/hr enclosed flare shall not exceed 51 MMBtu/hr. Heat input shall be calculated daily using landfill gas flow into the flare (cubic feet per minute) and the annually tested landfill gas heat content (Btu/cubic foot). [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

12. The landfill gas consumption rate for the 99 MMBtu/hr enclosed flare shall not exceed 99 MMBtu/hr. Heat input shall be calculated daily using landfill gas flow into the flare (cubic feet per minute) and the annually tested landfill gas heat content (Btu/cubic foot). [District Rule 2201] Federally Enforceable Through Title V Permit
13. Emissions from the 51 MMBtu/hr enclosed flare shall not exceed any of the following limits: 0.05 lb-NO_x/MMBtu; 0.0178 lb-SO_x/MMBtu (46.9 ppmv of H₂S in fuel); 0.2 lb-CO/MMBtu; or 0.008 lb-PM₁₀/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Emissions from the 99 MMBtu/hr enclosed flare shall not exceed any of the following limits: 0.057 lb-NO_x/MMBtu; 0.0178 lb-SO_x/MMBtu (46.9 ppmv of H₂S in fuel); 0.110 lb-CO/MMBtu; or 0.008 lb-PM₁₀/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Landfill design capacity shall not exceed 44.4 million cubic yards, or 367 acres, of solid waste. Annual amount of refuse received shall not exceed 1,300,000 ton/year. [District Rule 2201] Federally Enforceable Through Title V Permit
16. The enclosed flares shall be equipped with an LPG fired pilot. [40 CFR 60.18(c)(2) and (f)(2)] Federally Enforceable Through Title V Permit
17. Emissions from the flare LPG-fired pilot shall not exceed any of the following limits: 0.15 lb-NO_x/MMBtu, 0.0164 lb-SO_x/MMBtu, 0.0044 lb-PM₁₀/MMBtu, 0.021 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
18. Source sampling to determine the compliance status of an emissions source shall be witnessed or authorized by District personnel. [District Rule 1081] Federally Enforceable Through Title V Permit
19. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days after testing. [District Rule 1081] Federally Enforceable Through Title V Permit
20. Source testing to demonstrate compliance with VOC, NO_x, and CO emission limits and VOC control efficiency requirements shall be conducted at least once every 12 months for each flare. [District Rule 2201] Federally Enforceable Through Title V Permit
21. Source testing for NO_x shall be conducted using EPA Test Method 7E or CARB Method 100. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Source testing for CO shall be conducted using EPA Test Method 10 or 10B, CARB Methods 1-5 with 10 or CARB Test Method 100. [District Rule 1081] Federally Enforceable Through Title V Permit
23. Gas combusted in the flares shall be tested for H₂S content on a quarterly basis using Draeger tubes. If compliance is shown for two consecutive quarters, the testing frequency may be changed to annual. Quarterly testing shall resume if any annual test shows noncompliance. [District Rule 1081] Federally Enforceable Through Title V Permit
24. VOC emissions shall be measured by USEPA Test Method 18, 25, 25A, or 25C. [District Rule 1081 and 40 CFR 60.754(d) and 62.14354(b)] Federally Enforceable Through Title V Permit
25. The enclosed flares shall be equipped with a temperature indicator and recorder which measures and records the operating temperature. The temperature indicator and recorder must operate continuously. [40 CFR 60.756(b)(1) and 62.14354(b)] Federally Enforceable Through Title V Permit
26. The enclosed flare control devices shall be operated within the parameter ranges established during the initial or most recent performance test. [40 CFR 60.752(b)(2)(iii)(B)(2) and 62.14353(b) and 17 CCR 95464] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

27. Except during periods of startup, shutdown, and malfunction, the permittee shall continuously monitor and record combustion chamber temperature. The enclosed flare average combustion temperature, for all 3-hour periods of operation, shall not drop more than 28 degrees C below the average combustion temperature, during the most recent performance test at which compliance with 60.752(b)(2)(iii)(B)(2) was determined. Upon detecting any temperature excursion lower than 28 degree C (50 degree F) below the source test average combustion temperature, averaged over a 3-hour period, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. Duration of startup, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for control devices where free venting of landfill gas occurs. [40 CFR 60.758(c)(1)(i), 60.755(e), 62.14354(b), and 40 CFR part 64] Federally Enforceable Through Title V Permit
28. The owner or operator shall measure the gauge pressure in the gas collection header at each individual interior well on a monthly basis as provided in 60.755(a)(3). If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval. [40 CFR 60.755(a)(3), 60.756(a)(1), and 62.14354(b)] Federally Enforceable Through Title V Permit
29. The owner or operator shall monitor each interior well monthly for temperature and oxygen as provided in 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval. [40 CFR 60.753(c), 60.755(a)(3) and (a)(5), 60.756(a)(2) and (a)(3), and 62.14354(b)] Federally Enforceable Through Title V Permit
30. The operator shall record quarterly the surface emission tests including test time, weather conditions, precipitation records, areas sampled, calibration records, and test results. Corrective action shall be taken if required in accordance to 40 CFR 60.755(c). [District Rule 2201, 40 CFR 60.755(c), 60.756(f), and 62.14354(b)] Federally Enforceable Through Title V Permit
31. Permittee shall maintain continuous records of flare combustion temperature and volumetric gas flow rate. Permittee shall record and test the net heating value of landfill gas being combusted at least annually using ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201 and 40 CFR 60.756(b), 60.758(b)(2)(i), (c)(2) and (b)(2)(i), and 62.14354(b)] Federally Enforceable Through Title V Permit
32. Permittee shall keep, for the life of the collection system, an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector. [40 CFR 60.758(d) and 60.34(c)] Federally Enforceable Through Title V Permit
33. The operator shall record emission control device source tests including VOC destruction/treatment efficiency and emissions of CO, NOx, and SOx, in pounds per MMBtu heat input. [District Rule 1081] Federally Enforceable Through Title V Permit
34. Records of the weight of materials received (tons) of Class II/III waste material shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
35. This operating permit may be cancelled upon District approval when the landfill is closed, is not otherwise subject to the requirements of 40 CFR part 70 or part 71, and if the landfill meets the conditions for control system removal specified in 40 CFR 60.752(b)(2)(v). [40 CFR 62.14352(f)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

36. An active collection system shall be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment, collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of 5 years or more if active; or 2 years or more if closed or at final grade, collect gas at a sufficient extraction rate, and be designed to minimize off-site migration of subsurface gas. [40 CFR 60.752(b)(2)(ii)(A) and 62.14353(b)] Federally Enforceable Through Title V Permit
37. If the landfill is permanently closed, a closure notification shall be submitted to the APCO within 30 days of waste disposal cessation. A permanent closure must take place in accordance with 40 CFR 258.60. If a closure report has been submitted, no additional waste may be placed in the landfill without filing a notification of modification to the APCO, pursuant to 40 CFR 60.7(a)(4). [40 CFR 60.752(b)(1)(ii)(B), 60.757(d), and 62.14354(b)] Federally Enforceable Through Title V Permit
38. For approval of collection and control systems that include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions, owner or operator must follow the procedures in 40 CFR 60.752(b)(2). If alternatives have already been approved under 40 CFR Part 62 subpart GGG, these alternatives can be used to comply with 40 CFR 63 subpart AAAA, except that all affected sources must comply with the startup, shutdown, and malfunction (SSM) requirements in subpart A of 40 CFR 63 as specified in Table 1 of 40 CFR 63 subpart AAAA and all affected sources must submit compliance reports every 6 months as specified in 40 CFR 63.1980(a) and (b), including information on all deviations that occurred during the 6 month reporting period. Deviations for continuous emission monitors or numerical continuous parameter monitors must be determined using a 3 hour monitoring block average. [40 CFR 60.752(b)(2) and 63.1955(c)] Federally Enforceable Through Title V Permit
39. Permittee shall operate the landfill gas collection system with negative pressure at each wellhead except under the following conditions: (1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 60.757(f)(1); (2) At a wellhead within the immediate vicinity of filling; (3) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan; (4) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the APCO. [40 CFR 60.753(b) and 62.14354(b) and 17 CCR 95464, 17 CCR 95468] Federally Enforceable Through Title V Permit
40. Permittee shall operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. [40 CFR 60.753(d), 60.755(c)(1) and 62.14354(b)] Federally Enforceable Through Title V Permit
41. Compliance with the surface methane operational standard shall be demonstrated using the procedures outlined in 40 CFR 60.755(c) within 180 days of installation and startup of the collection and control system and quarterly thereafter. [40 CFR 60.753(d), 60.755(c), 62.14354(b), and 60.8] Federally Enforceable Through Title V Permit
42. Permittee shall operate the enclosed flares at all times when the collected gas is routed to it. [40 CFR 60.753(f) and 62.14354(b)] Federally Enforceable Through Title V Permit
43. Permittee shall operate the landfill gas collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for: (1) five years or more if active; or (2) two years or more if closed or at final grade. [40 CFR 60.753(a) and 62.14354(b)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

44. Permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 C and with oxygen level less than 5 percent except under the following conditions: (1) A fire or increased well temperature; or (2) at a wellhead within the immediate vicinity of filling. The owner or operator may establish a higher operating temperature or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decompositions by killing methanogens. [40 CFR 60.753(c) and 62.14354(b)] Federally Enforceable Through Title V Permit
45. The collection system shall be operated so that the methane concentration is less than 500 parts per million above background at the surface of the landfill, and such that all collected gases are sent to a control system designed and operated in compliance with 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour. [40 CFR 60.753(d), (e), 60.755(c), and 62.14354(b)] Federally Enforceable Through Title V Permit
46. If monitoring demonstrates that the operational requirements are not met, corrective action shall be taken as specified in 40 CFR 60.755(a)(3 - 5) or (c). [40 CFR 60.753(g) and 62.14354(b)] Federally Enforceable Through Title V Permit
47. For each interior wellhead, unless an alternative test method is established as allowed by 60.752(b)(2)(i) of this subpart, the oxygen shall be determined by a Landtec GEM gas meter or equal, in accordance with the equipment requirements set forth in 40 CFR 60.753 for field measurement of temperature and oxygen or an oxygen meter using Method 3A or 3C except that: (i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span; (ii) A data recorder is not required; (iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span; (iv) A calibration error check is not required; (v) The allowable sample bias, zero drift, and calibration drift are +/-10 percent. [40 CFR 60.753(c)(2) and 62.14354(b)] Federally Enforceable Through Title V Permit
48. Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions. Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in 40 CFR 60.755(c)(4)(i-v) shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 60.753(d). [40 CFR 60.755(c)(3), (4) and 62.14354(b)] Federally Enforceable Through Title V Permit
49. Permittee shall calculate the NMOC emission rate for purposes of determining when the collection and control system can be removed as provided in 40 CFR 60.752(b)(2)(v) by using the equation found in 40 CFR 60.754(b). [40 CFR 60.754(b) and 62.14354(b)] Federally Enforceable Through Title V Permit
50. For the performance test required in 60.752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of Appendix A must be used to determine compliance with the 98 weight percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the APCO as provided by 60.752(b)(2)(i)(B). Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. If using Method 18 of appendix A, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency: $(\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / \text{NMOC}_{\text{in}}$. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081 and 40 CFR 60.754(d) and 62.14354(b)] Federally Enforceable Through Title V Permit
51. Each owner or operator shall place each well or design component as specified in the approved design plan as provided in 40 CFR 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of: 1) 5 years or more if active or 2) 2 years or more if closed or at final grade. [40 CFR 60.755(b) and 62.14354(b)] Federally Enforceable Through Title V Permit
52. For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 60.752(b)(2)(ii)(A)(1), one of the equations in Section 60.755(a)(1)(i) or (ii) or (iii) shall be used. [40 CFR 60.755(a)(1) and 62.14354(b)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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53. For the purposes of determining sufficient density of gas collectors for compliance with 60.752(b)(2)(ii)(A)(2), the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the APCO, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards. [40 CFR 60.755(a)(2) and 62.14354(b)] Federally Enforceable Through Title V Permit
54. Owners or operators are not required to expand the system as required in paragraph 60.755(a)(3) during the first 180 days after gas collection system startup. [40 CFR 60.755(a)(4) and 62.14354(b)] Federally Enforceable Through Title V Permit
55. The provisions of this subpart apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices. [40 CFR 60.755(e) and 62.14354(b)] Federally Enforceable Through Title V Permit
56. Surface monitoring shall be performed on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.755(d). [40 CFR 60.755(c)(1) and 62.14354(b)] Federally Enforceable Through Title V Permit
57. When performing surface monitoring, the background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. [40 CFR 60.755(c)(2) and 62.14354(b)] Federally Enforceable Through Title V Permit
58. Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis. [40 CFR 60.755(c)(5) and 40 CFR 62.14354(b)] Federally Enforceable Through Title V Permit
59. The portable analyzer shall meet the instrument specifications of Method 21, section 3 (except that "methane" shall replace all references to VOC). The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air. To meet the performance evaluation requirements of Method 21, section 3.1.3, the instrument evaluation procedures of Method 21, section 4.4 shall be used. The calibration procedures provided in Method 21, section 4.2 shall be followed immediately before commencing a surface monitoring survey. The provisions of this condition apply at all times, except during periods of start-up, shutdown, or malfunction which shall not exceed 5 days for collections systems and shall not exceed 1 hour for treatment or control devices. [40 CFR 60.755(d), (e) and 62.14354(b)] Federally Enforceable Through Title V Permit
60. Each wellhead shall have a sampling port and a thermometer, other temperature-measuring device, or an access port for temperature measurements. [40 CFR 60.756(a)] Federally Enforceable Through Title V Permit
61. The enclosed flares shall be equipped with a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater. The temperature indicator and recorder must operate continuously. [District Rule 2201 and 40 CFR 60.756(b)(1) and 62.14354(b) and 40 CFR part 64] Federally Enforceable Through Title V Permit
62. The owner/operator shall install, calibrate, maintain, and operate a meter with a continuous recording device that measures and records the landfill gas flow rate into the flare at least once every 15 minutes. This meter shall also be capable of measuring the landfill gas flow rate that might bypass the flare in the event of equipment malfunction or maintenance. [40 CFR 60.754(b)(1), 60.756(b)(2) and 62.14354(b)] Federally Enforceable Through Title V Permit
63. When performing surface monitoring, any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. [40 CFR 60.756(f) and 62.14354(b)] Federally Enforceable Through Title V Permit
64. The operator shall monitor and record maintenance-related and other control system downtimes and individual well shutdowns. Exceedances defined under 60.758(c) shall be reported once every 180 days. [District Rule 4102 and 40 CFR 60.757(f), (g)(4) and 60.758(c) and (e), and 62.14354(b)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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65. Except as provided in 60.752(b)(2)(i)(B), each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs 60.758(b)(1) through (b)(4) as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal. [40 CFR 60.758(b) and 62.14354(b)] Federally Enforceable Through Title V Permit
66. Permittee shall keep the following records: (1)(i) the maximum expected gas generation flow rate as calculated in 60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the APCO; (ii) the density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 60.759(a)(1); (2)(i) the average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test; (ii) the percent reduction of NMOC determined as specified in 60.752(b)(2)(iii)(B) achieved by the control device. [40 CFR 60.758(b)(1) and (2) and 62.14354(b)] Federally Enforceable Through Title V Permit
67. Except as provided in 60.752(b)(2)(i)(B), permittee shall keep, for the life of the collection system, an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector. If applicable, permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as well as any nonproductive areas excluded from collection. [40 CFR 60.758(d), 62.14354(b), and 60.34(c)] Federally Enforceable Through Title V Permit
68. Except as provided in 60.752(b)(2)(i)(B), permittee shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. [40 CFR 60.758(e)] Federally Enforceable Through Title V Permit
69. The landfill is no longer required to comply with the requirements of 40 CFR Part 63 Subpart AAAA when it is no longer required to apply controls as specified in the Federal plan or EPA approved and effective State plan or tribal plan that implements 40 CFR part 60, subpart Cc. [40 CFR 63.1950] Federally Enforceable Through Title V Permit
70. The permittee shall comply with the general provisions specified in Table 1 of 40 CFR Part 63 Subpart AAAA and 63.1960 through 63.1985 starting on the date required to install the gas collection and control system. [40 CFR 63.1955(b)] Federally Enforceable Through Title V Permit
71. The permittee shall maintain a copy of the SSM plan written according to the provisions in 40 CFR 63.6(e)(3). Failure to maintain a copy of the SSM plan is a deviation from the requirements of this subpart. [40 CFR 63.1960] Federally Enforceable Through Title V Permit
72. The permittee shall keep records and reports as specified in the Federal plan, EPA approved State plan or tribal plan that implements 40 CFR part 60, subpart Cc. The annual report described in 40 CFR 60.757(f) must be submitted every 6 months. [40 CFR 63.1980(a)] Federally Enforceable Through Title V Permit
73. The permittee shall maintain records as specified in the general provisions of 40 CFR part 60 and this part as shown in Table 1 of this subpart. Applicable records in the general provisions include items such as SSM plans and the SSM plan reports. [40 CFR 63.1980(b)] Federally Enforceable Through Title V Permit
74. The enclosed flare burner and its associated components and the vapor collection system shall be inspected on an annual basis. The records of inspection shall at least contain date and time of inspection, identification of the person performing an inspection, parts replacement and repairs, and all maintenance actions taken. The records shall be kept and maintained for compliance inspection upon request. [40 CFR part 64] Federally Enforceable Through Title V Permit
75. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR part 64] Federally Enforceable Through Title V Permit
76. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR part 64] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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77. If the District or EPA determine that a Quality Improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR part 64] Federally Enforceable Through Title V Permit
78. All records shall be retained for a minimum of 5 years, and shall be made available for District inspection upon request. [District Rule 1070 and 40 CFR 60.758(a) and (b) and 62.14354(b)] Federally Enforceable Through Title V Permit
79. Permittee may use actual landfill gas generation values in future expansion designs of the gas collection and control system(GCCS). All records and recovery data shall be submitted with GCCS plans. [17 CCR 95468]
80. Landfill collection and control system must be operated such that methane emission from the landfill do not exceed instantaneous or integrated limit requirements. [17 CCR 95464]
81. Landfill gas collection system components downstream of blower have a leak limit of 500 ppmv as methane. Components must be checked quarterly. If compliance with the methane limit has been demonstrated for 4 consecutive quarters, then the component checking frequency shall be annually. If an annual test fails to show compliance, quarterly testing shall resume. [17 CCR 95464]
82. Landfill collection and control system must be operated such that landfill surface methane emissions shall not exceed instantaneous surface emission limit of 500 ppmv as methane or integrated surface emission limit of 25 ppmv as methane. [17 CCR 95464, 17 CCR 95465]
83. Instantaneous and integrated landfill surface emissions measurements shall be done quarterly. The landfill may monitor annually provided they comply with requirements of 17 CCR 95469 (a)(1). [17 CCR 95469]
84. Permittee shall keep records of all gas collection system downtime exceeding five days, including individual well shutdown and disconnection times and the reason for downtime. [17 CCR 95470]
85. Permittee shall keep records of all gas control system downtime in excess of one hour, the reason for the downtime and the length of time the gas control system was shutdown. [17 CCR 95470]
86. Permittee shall keep records of the expected gas generation flow rate calculated pursuant to section 95471(e). [17 CCR 95470]
87. Permittee shall keep records of all instantaneous surface readings of 200 ppmv or greater; all exceedances of the limits in sections 95464(b)(1)(B) or 95465, including the location of the leak (or affected grid), leak concentration in ppmv, date and time of measurement, the action taken to repair the leak, date of repair, any required re-monitoring and the re-monitored concentration in ppmv, and wind speed during surface sampling; and the installation date and location of each well installed as part of a gas collection system expansion. [17 CCR 95470]
88. Permittee shall keep records of any positive wellhead gauge pressure measurements, the date of the measurements, the well identification number, and the corrective action taken. [17 CCR 95470]
89. Permittee shall conduct surface emission monitoring using either the procedures specified in section 95471 or the Los Angeles County Sanitation District monitoring procedure. Permittee shall keep records of which procedure was used. [17 CCR 95468]
90. Permittee shall keep records of delays encountered during repair of leaks or repair of positive wellhead readings. Documentation of delays shall be submitted with the annual report. [17 CCR 95468]
91. Permittee shall keep records of alternate landfill gas collection system modifications being implemented to correct an exceedance in the landfill gas surface emissions or wellhead pressure. Any alternative to installing a new well shall be documented and submitted with the annual report. [17 CCR 95468]
92. Permittee shall identify areas which are dangerous and unable to be inspected. Areas shall be clearly identified on a map of the facility. A copy of the map shall be kept onsite as well as submitted with the annual report. [17 CCR 95468]
93. Permittee shall conduct monitoring of the landfill surface within 3 inches of the surface. The facility may monitor surface emissions with the probe tip at the height of the vegetation if there is vegetation and it is impractical to monitor at 3 inches from the landfill surface. [17 CCR 95468]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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94. Permittee shall terminate surface emission testing when the measured average wind speed is over 15 mph or the instantaneous wind speed is over 30 mph. [17 CCR 95468, 17 CCR 95471]
95. Permittee shall only conduct surface emission testing when precipitation has met the following requirements. It has been 24 hours since measured precipitation of 0.01 to 0.15 inches. It has been 48 hours since measured precipitation of 0.16 to 0.24 inches. It has been 72 hours since measured precipitation of 0.25 or more inches. [17 CCR 95468]
96. Permittee shall keep records of the annual solid waste acceptance rate and the current amount of waste-in-place. [17 CCR 95470]
97. Permittee shall keep records of the nature, location, amount, and date of deposition of non-degradable waste for any landfill areas excluded from the collection system. [17 CCR 95470]
98. Permittee shall keep records of any source tests conducted pursuant to section 95464(b)(4). [17 CCR 95470]
99. Permittee shall keep records describing the mitigation measures taken to prevent the release of methane or other emissions into the atmosphere during the following activities: 1. When solid waste was brought to the surface during the installation or preparation of wells, piping, or other equipment; 2. During repairs or the temporary shutdown of gas collection system components; or, 3. When solid waste was excavated and moved. [17 CCR 95470]
100. Permittee shall keep records of any construction activities pursuant to section 95466. The records must contain the following information: 1. A description of the actions being taken, the areas of the MSW landfill that will be affected by these actions, the reason the actions are required, and any landfill gas collection system components that will be affected by these actions. 2. Construction start and finish dates, projected equipment installation dates, and projected shut down times for individual gas collection system components. 3. A description of the mitigation measures taken to minimize methane emissions and other potential air quality impacts. [17 CCR 95470]
101. Permittee shall keep records of the equipment operating parameters specified to be monitored under section 95469(b)(1) as well as records for periods of operation during which the parameter boundaries established during the most recent source test are exceeded. The records must include the following information: 1. For enclosed flares, all 3-hour periods of operation during which the average temperature difference was more than 28 degrees Celsius (or 50 degrees Fahrenheit) below the average combustion temperature during the most recent source test at which compliance with sections 95464(b)(2) was determined and a gas flow rate device which must record the flow to the control device at least every 15 minutes. [17 CCR 95470]
102. Permittee shall submit the following reports as required in section 95470(b): Closure notification, Equipment removal report and Annual report. All reports must be accompanied by a certification of truth, accuracy, and completeness signed by a responsible official. [17 CCR 95470]
103. Permittee may comply with the CARB regulation for landfill methane control measures by using approved alternative compliance options. The permittee shall obtain written District approval for the use of any alternative compliance options not approved by this permit. Changes to the approved alternate compliance options must be made and approved in writing. Documentation of approved alternative compliance options shall be available for inspection upon request. [17 CCR 95468]

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San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-3115-3-2

EXPIRATION DATE: 07/31/2021

EQUIPMENT DESCRIPTION:

755 BHP CUMMINS MODEL QSX15-69 DIESEL-FIRED EMERGENCY IC ENGINE POWERING AN ELECTRICAL GENERATOR

PERMIT UNIT REQUIREMENTS

1. This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115] Federally Enforceable Through Title V Permit
4. This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702, 17 CCR 93115, and 40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
5. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702] Federally Enforceable Through Title V Permit
6. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702] Federally Enforceable Through Title V Permit
7. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702] Federally Enforceable Through Title V Permit
8. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702 and 40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
9. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115, and 40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
10. Operation of this engine for all purposes combined shall not exceed 10 hours per day. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
13. Emissions from this engine shall not exceed any of the following limits: 5.7 g-NOx/hp-hr, 0.4 g-CO/hp-hr or 0.14 g-VOC/hp-hr. [District Rule 2201] Federally Enforceable Through Title V Permit
14. The PM10 emissions rate shall not exceed 0.08 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201] Federally Enforceable Through Title V Permit
15. The permittee shall maintain monthly records of the type of fuel purchased, the amount of fuel purchased, date when the fuel was purchased, signature of the permittee who received the fuel, and signature of the fuel supplier indicating that the fuel was delivered. [17 CCR 93115]
16. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115] Federally Enforceable Through Title V Permit
17. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. For units at unstaffed sites or operated remotely, records may be maintained and retained at a District-approved off-site location. [District Rule 4702, 17 CCR 93115, and 40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
18. The engine's oil and filter shall be changed every 500 hours of operation or every 12 months, whichever comes first. [40 CFR Subpart ZZZZ] Federally Enforceable Through Title V Permit
19. The permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d of Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
20. The engine's air filter shall be inspected every 1,000 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
21. The engine's hoses and belts shall be inspected every 500 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
22. The permittee shall maintain monthly records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. The permittee shall also maintain monthly records of action taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
23. The engine shall be in full compliance with 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines). [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

SELF-DEALING TRANSACTION DISCLOSURE FORM

(1) Company Board Member Information:

Name: _____ Date: _____

Job Title: _____

(2) Company/Agency Name and Address:

(3) Disclosure (Please describe the nature of the self-dealing transaction you are a party to)

(4) Explain why this self-dealing transaction is consistent with the requirements of Corporations Code 5233 (a)

(5) Authorized Signature

Signature: _____ Date: _____

SELF-DEALING TRANSACTION DISCLOSURE FORM INSTRUCTIONS

In order to conduct business with the County of Fresno (hereinafter referred to as "County"), members of a contractor's board of directors (hereinafter referred to as "County Contractor"), must disclose any self-dealing transactions that they are a party to while providing goods, performing services, or both for the County. A self-dealing transaction is defined below:

"A self-dealing transaction means a transaction to which the corporation is a party and which one or more of its directors has a material financial interest"

The definition above will be utilized for purposes of completing the disclosure form.

- (1) Enter board member's name, job title (if applicable), and date this disclosure is being made.
- (2) Enter the board member's company/agency name and address.
- (3) Describe in detail the nature of the self-dealing transaction that is being disclosed to the County. At a minimum, include a description of the following:
 - a. The name of the agency/company with which the corporation has the transaction; and
 - b. The nature of the material financial interest in the Corporation's transaction that the board member has.
- (4) Describe in detail why the self-dealing transaction is appropriate based on applicable provisions of the Corporations Codes.
- (5) Form must be signed by the board member that is involved in the self-dealing transaction described in Sections (3) and (4).

COUNTY OF FRESNO

PROJECT

[illegible]

CONTRACTOR		COUNTY OF FRESNO	
REQUESTED BY (Contractor's Rep.)	DATE	RECEIVED BY (Resident Engineer)	DATE
		COMPLETED BY (Party Chief)	DATE

COMMENTS

CONTRACTOR REQUEST FOR CLARIFICATION

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

CONTRACT NUMBER: 16-16-SW

Requests for clarification of the plans and specifications regarding this project shall be submitted on this form. Any change or clarification of the project plans and specifications shall be in the form of a written addendum issued to planholders of record. Contractors requesting clarification shall complete the following:

Fax form to (559) 600-4399 or e-mail to DesignServices@co.fresno.ca.us

FIRM NAME: _____

SENDER / CONTACT NAME: _____

MAILING ADDRESS: _____

BUSINESS PHONE: (____) _____ FAX NUMBER: (____) _____ Zip Code

Drawing No.:

Spec Section:

Question Type or print one question below

Response

The following section is for County use only.

Response By: _____ Date: _____

Included in Addendum No. _____ Date: _____

Date Received: _____ Time Received: _____ am / pm RFC Number: _____

This form may be removed from the project specifications and/or reproduced as needed.

BID BOOK

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

BUDGET / ACCOUNT: 9026 / 8150



Department of Public Works and Planning

CONTRACT NUMBER: 16-16-SW

COPY NUMBER:

BID BOOK TABLE OF CONTENTS

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION

CONTRACT NUMBER: 16-16-SW

PROPOSAL NUMBER(S)	TITLE
NOT APPLICABLE	INSTRUCTIONS FOR COMPLETING THE BID BOOK
1	PROPOSAL TO THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO
2	BID SHEET
3	EVALUATION OF BID PROPOSAL SHEETS
4	BID SECURITY
5	NONCOLLUSION AFFIDAVIT
6	PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT
7	PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE AND PUBLIC CONTRACT CODE 10232 STATEMENT
8(A) – 8(F)	SUBCONTRACTORS
9 - 14	NOT USED
15	OPT OUT OF PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS
16	GUARANTY

INSTRUCTIONS FOR COMPLETING THE BID BOOK FOR NON-FEDERAL AID PROJECTS

General

Complete forms in the *Bid* book.

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date

Certain bid forms must be submitted with the bid and properly executed.

Certain other forms and information must be submitted either with the bid or within the prescribed period after bid opening as specified elsewhere in these special provisions.

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

Bid Item List and Bid Comparison

Submit a bid based on the bid item quantities the Department shows on the Bid Item List. Bids will be evaluated and the low bidder determined as indicated in the *Notice to Bidders*.

Bid Document Completion

Proposal sheets are identified by title and by the letter "P" followed by the number assigned to the proposal sheet in question. Proposal sheets are included in the *Bid Book*.

Proposal 1 - Proposal to the Board of Supervisors of Fresno County

Provided for information.

Proposal 2 - Bid Proposal Sheet

One or more sheet(s) upon which the bidder completes the bid.

Fill out completely including a unit price and total for each unit price-based item and a total for each lump sum item.

Do not make any additions such as "plus tax", "plus freight", or conditions such as "less 2% if paid by 15th".

Use ink or typewriter.

Proposal 3 - Evaluation of Bid Proposal Sheet

Describes how inconsistencies and irregularities are evaluated and corrected when Design Services reviews the Bid Sheet.

Proposal 4 - Bid Security and Signature

Submit one of the following forms of bidder's security equal to at least 10 percent of the bid:

- Cash
- Cashier's check
- Certified check
- Signed bidder's bond by an admitted surety insurer

Indicate type of bid security provided.

- Cash – Acceptable but not recommended. Cash is deposited in a clearing account and is returned to bidders by County warrant. This process may take several weeks.
- Cashier's or Certified Checks. This type of security is held until the bid is no longer under consideration. If submitted by a potential awardee, they will be returned when the contract is fully executed by the bidder and bonds and insurance have been approved.
- Bid Bonds - Must be signed by the bidder and by the attorney-in-fact for the bonding company. Provide notarized signature of attorney-in-fact accompanied by bonding company's affidavit authorizing attorney-in-fact to execute bonds. An unsigned bid bond will be cause for rejection.

Acknowledge Addenda

Provide contractor's license information.

State business name and if business is a:

- Corporation - list officers
- Partnership - list partners
- Joint Venture - list members; if members are corporations or partnerships, list their officers or partners.
- Individual - list Owner's name and firm name style

Signature of Bidder - the following lists types of companies and corresponding authorized signers.

- Corporation - by an officer
- Partnership - by a partner
- Joint Venture - by a member
- Individual - by the Owner

If signature is by a Branch Manager, Estimator, Agent, etc., the bid must be accompanied by a power of attorney authorizing the individual to sign the bid in question or to sign bids more generally, otherwise the bid may be rejected.

- Business Address - Firm's Street Address
- Mailing Address - P.O. Box or Street Address
- Complete, sign, and return with bid.

Proposal 5 - Noncollusion Affidavit

Must be completed, signed, and returned with bid.

Proposal 6 - Public Contract Code Section 10285.1 Statement

Check "has" or "has not" in accordance with instructions on form, return with completed for with bid. Note that signing the bid constitutes signing this statement.

Proposal 7 - Public Contract Code Section 10162 Questionnaire And Public Contract Code 10232 Statement

Check: "yes" or "no" accordance with instructions on form, include explanation if "yes" is checked. Return completed form with bid. Note that signing the bid constitutes signing this questionnaire and statement.

Proposal 8(a) through Proposal 8(f) - Subcontractors

Sheet(s) upon which bidders list subcontractors. List each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or \$10,000, whichever is greater (Pub Cont Code § 4100 et seq.).

The *Subcontractor List* submitted with the bid must show the name, location of business, work portions to be performed, and the contractor's license number for each subcontractor listed.

- Use subcontractor's business name style as registered with the License Board.
- Specify the city in which the subcontractor's business is located and the state if other than California.
- Description of the work to be performed by the subcontractor. Indicate with bid item numbers from the bid sheet and/or work descriptions similar to those on bid sheet.
- List license number for each subcontractor.

Upon request from Design Services, provide the following additional information within 24 hours of bid opening if not included on the *Subcontractor List* submitted with the bid:

- Complete physical address for each subcontractor listed.
- Percentage of the total bid or dollar amount associated with each subcontractor listed.
- Department of Industrial Relations registration number.

Proposal 9 - Proposal 15 – Not Used**Proposal 16 - Guaranty**

Does not need to be signed with the bid. Part of the contract which must be signed by the contractor when contract is executed.

PROPOSAL TO THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO

hereinafter called the Owner

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

The work embraced herein shall be done in accordance with the 2010 Standard Specifications and with the 2010 Standard Plans, of the State of California, Department of Transportation insofar as the same may apply and in accordance with these special provisions.

Except to the extent that they may conflict with these special provisions, revised Standard Specifications apply to the extent included in the section entitled "Project Details" of the book entitled "Specifications."

The work to be done is shown on a set of Plans, Department File No. 11260, entitled: "Landfill Gas Collection and Control System Expansion (LFGCCS) at the American Avenue Disposal Site (AADS)."

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

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: PH. II & III LANDFILL GAS COLLECTION AND CONTROL
SYSTEM EXPANSION - SCADA INTEGRATION

CONTRACT NO: 16-16-SW

Wood Bros.
Lowest Bidder

ITEM No.	QUANTITY	F/P/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	20,000		\$	Supplemental Work	\$ 1.00	\$ 20,000.00
2	1		LS	Mobilization/Demobilization	106,258.00	106,258.00
3	1		LS	Traffic Control System	5,813.00	5,813.00
4	1		LS	Construction Site Management	103,270	103,270
5	1		LS	Grade Checking and Protection of Existing Facilities	6,580.00	6,580.00
				Phase II		
6	2,030		LF	Landfill Gas Extraction Well Drilling	66.00	133,980.00
7	1,207		LF	Single Landfill Gas Extraction Well Installation and Backfill	48.00	57,936.00
8	1,399		LF	Dual Landfill Gas Extraction Well Installation and Backfill	41.00	57,359.00
9	38		EA	Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	1,616.00	61,408.00
10	56		LF	Landfill Gas Extraction Well, Drill to Refusal and Backfill	69.00	3,864.00
11	21		EA	Landfill Gas Extraction Well Decommissioning	1,725.00	36,225.00
12	3,200		LF	Provide and Install 6-inch LFG Well Lateral Pipe, with Supports and Guides	8.40	26,880.00
13	1		LS	Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	3,965.00	3,965.00
14	1,900		LF	Provide and Install 4-inch LFG Well Lateral Pipe, with Supports and Guides	11.39	21,641.00
15	1		LS	Provide and Install 4-inch Fittings, Valves, and Other Appurtenances	1,584.00	1,584.00
16	300		LF	Provide and Install 12-inch Corrugated Metal Pipe (CMP) and Soil Berm Road Crossing	39.39	11,817.00
				Phase III		
17	694		LF	Landfill Gas Extraction Well Drilling	66.00	45,804.00
18	718		LF	Single Landfill Gas Extraction Well Installation and Backfill	48.00	34,464.00
19	12		EA	Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	1,579.00	18,948.00
20	24		LF	Landfill Gas Extraction Well, Drill to Refusal and Backfill	69.00	1,656.00
21	1500		LF	Provide and Install 18-inch LFG Header Pipe, with Soil Berm, Supports and Guides	56.90	85,350.00
22	1		LS	Provide and Install 18-inch Fittings, Valves, and Other Appurtenances	10,361.00	10,361.00
23	75		LF	Provide and Install 12-inch CMP Drain Pipes below 18-inch LFG Header Pipe Soil Berm	136.00	10,200.00
24	3,200		LF	Provide and Install 6-inch LFG Lateral Pipe, with Supports and Guides	12.48	39,936.00
25	1		LS	Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	7,878.00	7,878.00
26	2		EA	Connect Existing Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Laterals to Header, with Wellhead, Fittings, and Other Appurtenances	1,734.00	3,468.00
27	1		EA	Provide and Connect New Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Lateral to Header, with Wellhead, Fittings, Valves, and other Appurtenances	3,712.00	3,712.00
28	1		EA	Provide and Install New Condensate Sump	27,438.00	27,438.00
29	1		EA	Connect LFG Header Drain to Existing Condensate Sump	3,614.00	3,614.00
30	640		LF	Provide and Install 2-inch Condensate Force Main Pipe, Fittings, Valves, and Other Appurtenances	4.00	2,560.00
31	640		LF	Provide and Install 2-inch Air Supply Pipe, Fittings, Valves, and Other Appurtenances	4.00	2,560.00
32	6		EA	Provide and Install Leachate Metering Manifold Piping, Fittings, Valves, and Other Appurtenances	3,480.00	20,880.00
33	5		EA	Fabricate and Provide Leachate Sump and Lysimeter Pump Panels	26,112.00	130,560.00
34	1,800		LF	Modify and Extend Leachate Panel Electrical Supply	45.56	81,900.00
35	3		EA	Install and Connect Leachate Sump and Lysimeter Pump Panels	9,083.00	27,249.00
36	1		LS	Program / Start-up / Integrate New Leachate Sump and Lysimeter Pump Panels	29,269.00	29,269.00
TOTAL BID (ITEMS 1 - 36)					1,246,387.00	

F - Final Pay Item
P - Partial Pay Item
S - Specialty Item

Proposal 2.0

Accompanying this proposal is security (check one only) in amount equal to at least ten percent (10%) of the total amount of the bid:

Bid Bond (✓); Certified Check (); Cashier's Check (); Cash (\$)

Bidder has and acknowledges the following addenda: 1

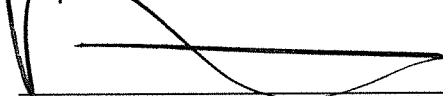
The names of all persons interested in the foregoing proposal as principals are as follows:

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

FIRM NAME Wood Bros Inc
William S. Wood, President
Donald T. Wood, Secretary

Licensed in accordance with an act providing for the registration of Contractors,
Class A License No. 058251 Expires 2/28/17

(Furnishing Contractor License information as part of this proposal is optional and is requested to facilitate verification of licensure)



Signature of Bidder

1/18/17

Dated

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

BUSINESS ADDRESS: 14147 18th Ave, Lemoore CA 93245
Zip Code

MAILING ADDRESS: PO Box 216 Lemoore CA 93245
Zip Code

BUSINESS PHONE: (559) 924-7715 FAX NUMBER: (559) 924-4595

EMAIL ADDRESS don@woodbrosinc.com

Proposal 4
Contract Number 16-16-SW

To the Board of Supervisors, County of Fresno:

NONCOLLUSION AFFIDAVIT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID *

Donald T. Wood
(Printed or Typed Name)

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

Secretary
(Owner, Partner, Corporate Officer (list title), Co-Venturer)
of Wood Bros Inc
(Bidding Entity)

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares 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.

[Signature]
(Signature)

1/18/17
(Dated)

(Title 23 United States Code Section 112)

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

* NOTE: Completing, signing, and returning the Noncollusion Affidavit is a required part of the Proposal. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Proposal 5
Contract Number 16-16-SW

PUBLIC CONTRACT CODE

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has , has not X been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10162 Questionnaire

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

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

Yes _____ No X

If the answer is yes, explain the circumstances in the following space.

Public Contract Code 10232 Statement

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

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

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

Proposal 7
Contract Number 16-16-SW

BIDDER: Wood Bros Inc.

SUBCONTRACTORS:

The following named subcontractor(s) will perform with labor, or otherwise render services to the general contractor in or about the construction of the work or improvement in an amount in excess of **one-half of one percent of the total bid presented herewith or \$10,000, whichever is greater.** Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board. Submission of subcontractor's name, location of business and description of work, and their contractor's license number is REQUIRED, by Section 4104 of the California Public Contract Code, to be submitted prior to bid opening. (The "location of business" must specify the city in which the subcontractor's business is located, and the state if other than California.) All other requested information shall be submitted, either with the bid or within 24 hours after bid opening.

Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board.

FAILURE TO LIST SUBCONTRACTORS AS DIRECTED MAY RENDER THE BID NON-RESPONSIVE, OR MAY RESULT IN ASSESSMENT OF A PENALTY AGAINST THE BIDDER IN ACCORDANCE WITH SECTION 4110 OF THE CALIFORNIA PUBLIC CONTRACT CODE.

SUBCONTRACTOR: Lighthouse Electrical Inc

Business Address: 3585 E. Date Ave Fresno CA 93725

Class C-10 Elec. License No. 871256 DIR Registration No. 1000024650

Item No. or Description of Work: # 33, 34, 35, 36 - Electrical

Dollar Amount or Percentage of Total Bid 15%

Email Address DAgrava@lcautomation.com

SUBCONTRACTOR: TBCO General Engineering

Business Address: 860 Midway Drive Alpine CA 91901

Class A-4C51 License No. 709037 DIR Registration No. 1000028480

Item No. or Description of Work: #6, 7, 8, 10, 11, 17 & 18 Wells

Dollar Amount or Percentage of Total Bid 21%

Email Address travis726@cox.net

BIDDER: Wood Bros Inc

SUBCONTRACTOR: F3 Land Surveying

Business Address: 701 East H Street Benicia CA 94510

Class License No. DIR Registration No. 1000010171

Item No. or Description of Work: Surveying

Dollar Amount or Percentage of Total Bid 0.6%

Email Address CREIS@F3-INC.COM

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

(This guaranty shall be executed by the successful bidder in accordance with instructions in the special provisions. The bidder may execute the guaranty on this page at the time of submitting his bid.)

GUARANTY

To the Owner: County of Fresno

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

CONTRACT NUMBER: 16-16-SW

The undersigned guarantees the construction and installation of the following work included in this project:

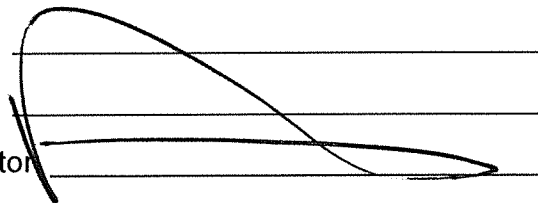
ALL WORK

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, 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, due to any of the above causes, all within twelve (12) months after date on which this contract is accepted by the Owner, 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 material 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 the receipt of demand from the Owner.

Date: 11/18/17

Contractor

Wood Bros Inc.


A G R E E M E N T

THIS AGREEMENT made at Fresno, in Fresno County, California, by and between Wood Bros. Inc., hereinafter called the Contractor, and the County of Fresno hereinafter called the Owner.

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

ARTICLE I. The Contractor agrees to furnish all labor and materials, including tools, implements, and appliances required, but excluding such materials as are mentioned in the specifications to be furnished by the Owner, and to perform all the work in a good and workmanlike manner, free from any and all liens and claims of mechanics, materialmen, teamsters, subcontractors, artisans, machinists, and laborers required for:

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

CONTRACT NUMBER: 16-16-SW

All in strict compliance with the plans, drawings and specifications therefor prepared by the Owner, and other contract documents relating thereto.

ARTICLE II. The Contractor and the Owner agree that the Notice to Bidders and Special Provisions, the Wage Scale (Prevailing Wages), the, the Plans and Drawings, Addenda and Bulletins thereto, and the Proposal (the Bid Book) hereto attached, together with this Agreement, form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated.

All portions of the Standard Specifications of the State of California, Department of Transportation, dated 2010, which are not in conflict with this contract shall be deemed a part of the specifications as though fully therein set forth; provided, however, that revisions to the said Standard Specifications shall apply only to the extent, if any, included in the Project Details of these specifications or as otherwise incorporated directly herein. No part of said specifications which is in conflict with any portion of this agreement, or which is not actually descriptive of the work to be done thereunder, or of the manner in which said work is to be executed, shall be considered as any part of this agreement, but shall be utterly null and void.

ARTICLE III. The Owner agrees to pay the Contractor in current funds for the performance of the contract the sum of **ONE MILLION TWO HUNDRED FORTY-SIX THOUSAND THREE HUNDRED EIGHTY-SEVEN DOLLARS AND 00/100 (\$1,246,387.00)** it being understood that said price is based upon the estimated quantities of materials to be used as set forth in the Proposal, except where provisions are made in the contract documents whereby the estimated quantities shall constitute the final quantity; that upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Contractor's Proposal hereto attached. Payments on account thereof will be made as set forth in the special provisions.

ARTICLE IV. If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION

his insolvency, or if he or any of his subcontractors should persistently violate any of the provisions of the contract, or if he 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 he 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 his surety of its intention to terminate the contract, and unless within five 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 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 his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If 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 damage incurred through the Contractor's default, shall be certified by the Engineer.

ARTICLE V. With respect to any work required to be done under this contract, the Contractor will indemnify and hold harmless the COUNTY OF FRESNO, CONSULTANTS and all other participating public agencies, whether or not said agencies are named herein, who have jurisdiction within the areas in which the work is to be performed, and all officers and employees of the Owner, the County, the State, the United States and said other participating agencies, from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents or employees under this Agreement, and from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to any person, firm or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents or employees under this Agreement. In addition, CONTRACTOR agrees to indemnify COUNTY for Federal, State of California and/or local audit exceptions resulting from non-compliance herein on the part of CONTRACTOR.

CONTRACTOR agrees to indemnify, save, hold harmless, and at COUNTY'S request, defend the COUNTY, its officers, agents, and employees from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents, or employees under this Agreement, and from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to any person, firm, or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents, or employees under this Agreement.

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION

In the event CONTRACTOR fails to keep in effect at all times insurance coverage as herein provided, the COUNTY may, in addition to other remedies it may have, suspend or terminate this Agreement upon the occurrence of such event.

All policies shall be with admitted insurers licensed to do business in the State of California. Insurance purchased shall be purchased from companies possessing a current A.M. Best, Inc. rating of A and FSC VIII or better.

The Certificate of Insurance shall be issued in duplicate, to the COUNTY OF FRESNO and all other participating agencies, whether or not said agencies are named herein, who contribute to the cost of the work or have jurisdiction over areas in which the work is to be performed and all officers and employees of said agencies while acting within the course and scope of their duties and responsibilities.

In the event CONTRACTOR fails to keep in effect at all times insurance coverage as herein provided, the COUNTY may, in addition to other remedies it may have, suspend or terminate this Agreement upon the occurrence of such event.

All policies shall be with admitted insurers licensed to do business in the State of California. Insurance purchased shall be purchased from companies possessing a current A.M Best Company rating of A FSC VII or better.

Without limiting the COUNTY'S right to obtain indemnification from CONTRACTOR or any third parties, CONTRACTOR, at its sole expense, shall maintain in full force and effect, the following insurance policies or a program of self-insurance, including but not limited to, an insurance pooling arrangement or Joint Powers Agreement (JPA) throughout the term of the Agreement:

A. Commercial General Liability

Commercial General Liability Insurance with limits not less than those shown in the following table:

Liability Insurance Requirements

Total bid	For each occurrence ^a	Aggregate for products/completed operation	General aggregate ^b	Umbrella or excess liability ^c
≤ \$1,000,000	\$1,000,000	\$2,000,000	\$2,000,000	\$5,000,000
> \$1,000,000 ≤ \$10,000,000	\$1,000,000	\$2,000,000	\$2,000,000	\$10,000,000
> \$10,000,000 ≤ \$25,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$15,000,000
> \$25,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$25,000,000

^aCombined single limit for bodily injury and property damage.

^bThis limit must apply separately to your work under this Contract.

^cThe umbrella or excess policy must contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION

This policy shall be issued on a per occurrence basis. COUNTY may require specific coverages including completed operations, products liability, contractual liability, Explosion-Collapse-Underground, fire legal liability, or any other liability insurance deemed necessary because of the of the nature of this contract.

Such Commercial General Liability insurance shall name the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents and employees shall be excess only and not contributing with insurance provided under CONTRACTOR's policies herein. This insurance shall not be cancelled or changed without a minimum of thirty (30) days advance written notice given to COUNTY. CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance policy naming COUNTY as an additional insured and providing for a thirty (30) day prior written notice of cancellation or change in terms or coverage.

Within eight (8) days from date CONTRACTOR executes this Agreement, CONTRACTOR shall provide certificates of insurance and endorsement as stated above for all of the foregoing policies, as required herein, to the County of Fresno, stating that such insurance coverages have been obtained and are in full force; that the County of Fresno, its officers, agents and employees will not be responsible for an premiums on the policies; that such Commercial General Liability insurance names the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned; that such coverage for additional insured shall apply as primary insurance an any other insurance, or self- insurance shall not be cancelled or changed without a minimum of thirty (30) days advance, written notice given to COUNTY.

CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance naming the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents, and employees shall be excess only and not contributing with insurance provided under CONTRACTOR'S policies herein. This insurance shall not be cancelled or changed without a minimum or thirty (30) days advance written notice given to COUNTY.

B. Automobile Liability

Comprehensive Automobile Liability Insurance with limits of not less than One Million Dollars (\$1,000,000) per accident for bodily injury and property damage. Coverage should include owned and non-owned vehicles used in connection with this Agreement and all applicable endorsements.

C. Professional Liability

If CONTRACTOR is a licensed professional or employs professional staff, (e.g., Architect, Engineer, Surveyor, etc.) in providing services, Professional Liability Insurance with limits of not less than One Million Dollars (\$1,000,000.00) per occurrence, Three Million Dollars (\$3,000,000.00) annual aggregate with a provision for 3 year tail coverage.

D. Worker's Compensation

A policy of Worker's Compensation insurance as may be required by the California Labor Code.

PROJECT: AMERICAN AVENUE DISPOSAL SITE LFGCCS EXPANSION

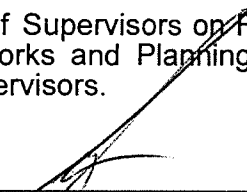
ARTICLE VI. Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the State of California and during the performance of the work contemplated herein will continue so to comply with said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in duplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-insure should be provided the Owner.

ARTICLE VII. The Contractor shall forthwith furnish in duplicate, a faithful performance bond in an amount equal to 100% of the contract price and a payment bond in an amount equal to 100% of the contract price, both bonds to be written by a surety company acceptable to the Owner and in the form prescribed by law.

The payment bond shall contain provisions such that if the Contractor or his subcontractors shall fail to pay (a) amounts due under the Unemployment Insurance Code with respect to work performed under the contract, or (b) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from the wages of the employees of the Contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor, then the surety will pay these amounts. In case suit is brought upon the payment bond, the surety will pay a reasonable attorney's fee to be fixed by the court.

ARTICLE VIII. Governing Law – Venue for any action arising out of or relating to this Agreement shall be in Fresno County, California. This Agreement shall be governed by the laws of the State of California

This Contract, 16-16-SW was awarded by the Board of Supervisors on February 28, 2017. It has been reviewed by the Department of Public Works and Planning and is in proper order for signature of the Chairman of the Board of Supervisors.



Director of the Department of Public Works and Planning

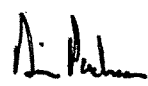
IN WITNESS WHEREOF, they have executed this Agreement this 27th day of

March, 2017

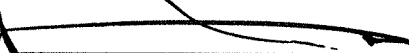
COUNTY OF FRESNO
(OWNER)

Wood Bros Inc
(CONTRACTOR)

17-0201450
(Taxpayer Federal I.D. No.)

By 

Chairman, Board of Supervisors

By 

Title Secretary

ATTEST:

BERNICE E. SEIDEL, Clerk
Board of Supervisors

By Susan Bishop
Deputy

MERCHANTS BONDING COMPANY™

CONSTRUCTION

MERCHANTS BONDING COMPANY (MUTUAL) P.O. BOX 14498, DES MOINES, IOWA 50306-3498
PHONE: (800) 678-8171 FAX: (515) 243-3854

Performance Bond

Premium is for contract term and subject to adjustment based on final contract price

CONTRACTOR:

(Name, legal status and address)

Wood Bros., Inc.
14147 18th Avenue
Lemoore, CA 93245

SURETY:

(Name, legal status and principal place of business)

Merchants Bonding Company (Mutual)
6700 Westown Parkway, West Des Moines, Iowa 50266

Bond No. CAC712984
Premium: \$15,964.00

OWNER:

(Name, legal status and address)

County of Fresno
2220 Tulare Street, Sixth Floor
Fresno, CA 93721

CONSTRUCTION CONTRACT

Date:

Amount: \$1,246,387.00

Description:

(Name and location)

American Avenue Disposal Site - Landfill Gas and Leachate Collection System Expansion
Contract No. 16-16-SW
18950 W. American Avenue
Kerman, CA 93630

BOND

Date: March 14th, 2017

(Not earlier than Construction Contract Date)

Amount: \$1,246,387.00

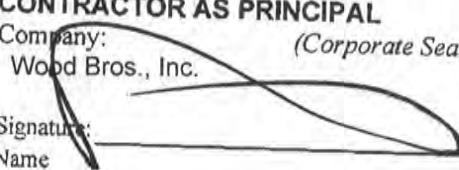
Modifications to this Bond: ☒ None ☐ See Section 16

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

This document combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONTRACTOR AS PRINCIPAL

Company:  (Corporate Seal)
Wood Bros., Inc.

Signature:

Name

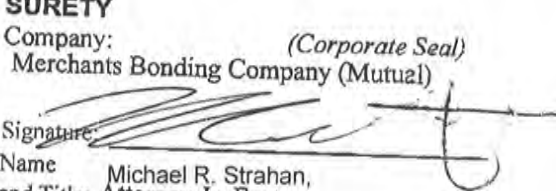
and Title:

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY— Name, address and telephone)

AGENT or BROKER:

SURETY

Company:  (Corporate Seal)
Merchants Bonding Company (Mutual)

Signature:

Name

and Title: Michael R. Strahan,
Attorney-In-Fact

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

Printed in cooperation with American Institute of Architects (AIA). The language in this document conforms exactly to the language used in AIA Document A312-Performance Bond-2010 edition.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract:

§ 5.2 Undertake to perform and complete the Construction Contract itself through its agents or independent contractors:

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages, as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4 and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____
(Corporate Seal)

SURETY

Company: _____
(Corporate Seal)

Signature: _____

Name and Title:

Address:

Signature: _____

Name and Title:

Address:

MERCHANTS
BONDING COMPANY™
POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations duly organized under the laws of the State of Iowa (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint, individually,

Marlene E Carles; Michael R Strahan

of San Diego and State of California their true and lawful Attorney-in-Fact, with full power and authority hereby conferred in their name, place and stead, to sign, execute, acknowledge and deliver in their behalf as surety any and all bonds, undertakings, recognizances or other written obligations in the nature thereof, subject to the limitation that any such instrument shall not exceed the amount of:

FIVE MILLION (\$5,000,000.00) DOLLARS

and to bind the Companies thereby as fully and to the same extent as if such bond or undertaking was signed by the duly authorized officers of the Companies, and all the acts of said Attorney-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed.

This Power-of-Attorney is made and executed pursuant to and by authority of the following By-Laws adopted by the Board of Directors of the Merchants Bonding Company (Mutual) on April 23, 2011 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 24, 2011.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 13th day of August, 2014.



MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By

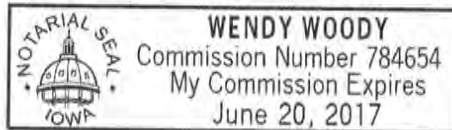
Larry Taylor

President

STATE OF IOWA
COUNTY OF POLK ss.

On this 13th day of August, 2014, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of the MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument is the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

In Testimony Whereof, I have hereunto set my hand and affixed my Official Seal at the City of Des Moines, Iowa, the day and year first above written.



Wendy Woody

Notary Public, Polk County, Iowa

STATE OF IOWA
COUNTY OF POLK ss.

I, William Warner, Jr., Secretary of the MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 14th day of March, 2017.



William Warner Jr.

Secretary

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of San Diego

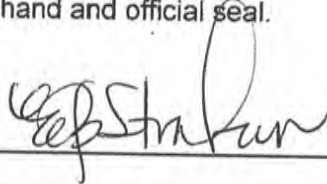
On March 14th, 2017 before me, E.B. Strahan, Notary Public
(insert name and title of the officer)

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

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

WITNESS my hand and official seal.

Signature



(Seal)



Executed in triplicate

**PAYMENT BOND - PUBLIC WORK
SECTIONS 3247 - 3252, CIVIL CODE
(CALIFORNIA)**

Merchants Bonding Company (Mutual)

SURETY COMPANY

Bond No. CAC712984

Premium: Included in performance bond

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, The County of Fresno has awarded to Wood Bros., Inc.

as Contractor, a contract for the work described as follows: American Avenue Disposal Site - Landfill Gas and Leachate Collection System Expansion
Contract No. 16-16-SW

AND WHEREAS, Said Contractor is required to furnish a bond in connection with said contract, to secure the payment of claims of laborers, mechanics, materialmen, and other persons as provided by law.

NOW, THEREFORE, We the undersigned Contractor and Surety are held and firmly bound unto the County of Fresno in the amount required by law, the sum of \$ 1,246,387.00, for which payment well and truly to be made we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if said Contractors shall fail to pay (1) Any of the persons named in Civil Code Section 3181, (2) amounts due under the Unemployment Insurance Code for work or labor performed in connection with said contract by any such claimant, or (3) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from wages of the employees of Contractor and his sub-contractors with respect to such work and labor, pursuant to Section 13020 of the Unemployment Insurance Code, then the Surety or Sureties herein will pay for the same in an aggregate amount not exceeding the sum specified in this bond, and also in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the court, otherwise the above obligation shall be void.

This bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

This bond is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in Civil Code, Sections 3247 - 3252 inclusive, and all amendments thereto.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 14th day of March, 2017.

Wood Bros., Inc.

By Donald T. Wood, Secretary

Contractor

Merchants Bonding Company (Mutual) SURETY COMPANY

By Michael R. Strahan, Attorney-In-Fact

MERCHANTS
BONDING COMPANY™
POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations duly organized under the laws of the State of Iowa (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint, individually,

Marlene E Carles; Michael R Strahan

of San Diego and State of California their true and lawful Attorney-in-Fact, with full power and authority hereby conferred in their name, place and stead, to sign, execute, acknowledge and deliver in their behalf as surety any and all bonds, undertakings, recognizances or other written obligations in the nature thereof, subject to the limitation that any such instrument shall not exceed the amount of:

FIVE MILLION (\$5,000,000.00) DOLLARS

and to bind the Companies thereby as fully and to the same extent as if such bond or undertaking was signed by the duly authorized officers of the Companies, and all the acts of said Attorney-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed.

This Power-of-Attorney is made and executed pursuant to and by authority of the following By-Laws adopted by the Board of Directors of the Merchants Bonding Company (Mutual) on April 23, 2011 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 24, 2011.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 13th day of August, 2014.



MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By

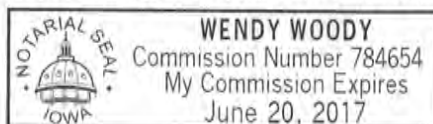
Larry Taylor

President

STATE OF IOWA
COUNTY OF POLK ss.

On this 13th day of August, 2014, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of the MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument is the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

In Testimony Whereof, I have hereunto set my hand and affixed my Official Seal at the City of Des Moines, Iowa, the day and year first above written.



Wendy Woody

Notary Public, Polk County, Iowa

STATE OF IOWA
COUNTY OF POLK ss.

I, William Warner, Jr., Secretary of the MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 14th day of March, 2017.



William Warner Jr.
Secretary

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of San Diego

On March 14th, 2017 before me, E.B. Strahan, Notary Public
(insert name and title of the officer)

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

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

WITNESS my hand and official seal.

Signature

(Seal)





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
3/22/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Andreini & Company-San Mateo 220 West 20th Ave San Mateo CA 94403		CONTACT NAME: PHONE (A/C, No, Ext): 650-573-1111 FAX (A/C, No): 650-378-4361 E-MAIL ADDRESS:	
		INSURER(S) AFFORDING COVERAGE	
		INSURER A: Liberty Mutual Fire Ins. Co.	
		INSURER B: Liberty Insurance Corporation	
		INSURER C: Navigators Specialty Ins. Co.	
		INSURER D:	
		INSURER E:	
		INSURER F:	

INSURED
Wood Bros., Inc.
P.O. Box 216
Lemoore CA 93245

COVERAGES **CERTIFICATE NUMBER:** 1120013823 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR ☐ GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☐ PRO-JECT ☐ LOC ☐ OTHER:	Y		TB2Z91461496066	9/30/2016	9/30/2017	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$300,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 Employee Benefits \$1,000,000
A	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS			AS2Z91461496016	9/30/2016	9/30/2017	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☒ RETENTION \$10,000			TH7Z91461496046	9/30/2016	9/30/2017	EACH OCCURRENCE \$10,000,000 AGGREGATE \$10,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N ☐ N / A		WC2Z91461496057	2/1/2017	2/1/2018	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
C	Pollution Liability			SF16ECP657311IC	9/30/2016	9/30/2017	Each Occurrence 5,000,000 Aggregate 10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: American Ave Disposal Site LFGCCS - Contract No. 16-16-SW. Certificate Holder is named Additional Insured with respect to General Liability per the attached endorsement. This insurance is primary per the attached endorsement. 30 days notice of cancellation applies except 10 days for non-payment.

CERTIFICATE HOLDER

County of Fresno Dept of Public Works and Planning
2220 Tulare Street, 6th Floor
Fresno CA 93721

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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- b. Coverage A does not apply to "bodily injury" or "property damage" that occurred before you acquired or formed the organization; and
- c. Coverage B does not apply to "personal and advertising injury" arising out of an offense committed before you acquired or formed the organization.

Item 14. Blanket Additional Insured Where Required By Written Contract

Paragraph 2. of Section II - Who Is An Insured is amended to add the following:

e. Additional Insured by Written Contract or Written Agreement

The following are insureds under the policy when you have agreed in a written contract or written agreement to provide them coverage as additional insureds under your policy:

- (1) **Lessors of Leased Equipment:** The person(s) or organization(s) from whom you lease equipment, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your maintenance, operation or use of equipment leased to you by such person(s) or organization(s).
- (2) **Managers or Lessors of Premises:** Any manager or lessor of premises leased to you in which the written lease agreement obligates you to procure additional insured coverage.

The coverage afforded to the additional insured is limited to liability in connection with the ownership, maintenance or use of the premises leased to you and caused, in whole or in part, by some negligent acts or omissions of you, your "employees", your agents or your subcontractors. There is no coverage for the additional insured for liability arising out of the sole negligence of the additional insured or those acting on behalf of the additional insured, except as provided below.

If the written agreement obligates you to procure additional insured coverage for the additional insured's sole negligence, then the coverage for the additional insured shall conform to the agreement, but only if the applicable law would allow you to indemnify the additional insured for liability arising out the additional insured's sole negligence.

This insurance does not apply to:

- (a) Any "occurrence" which takes place after you cease to be a tenant in that premises or to lease that land; or
- (b) Any premises for which coverage is excluded by endorsement.
- (3) **Mortgagees, Assignees or Receivers:** Any person(s) or organization(s) with respect to their liability as mortgagee, assignee or receiver and arising out of the ownership, maintenance or use of your premises. This insurance does not apply to structural alterations, new construction and demolition operations performed by or for that person or organization.
- (4) **Owners, Lessees or Contractors:** any person(s) or organization(s) to whom you are obligated by a written agreement to procure additional insured coverage, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of your "employees", your agents, or your subcontractors, in the performance of your ongoing operations.

This insurance does not apply to "bodily injury", "property damage", or "personal and advertising injury" arising out of "your work" included in the "products-completed operations hazard" unless you are required to provide such coverage for the additional insured by the written agreement, and then only for the period

of time required by the written agreement and only for liability caused, in whole or in part, by your acts or omissions or the acts or omissions of your "employees", your agents, or your subcontractors.

There is no coverage for the additional insured for liability arising out of the sole negligence of the additional insured or those acting on behalf of the additional insured, except as provided below

If the written agreement obligates you to procure additional insured coverage for the additional insured's sole negligence, then the coverage for the additional insured shall conform to the agreement, but only if the applicable law would allow you to indemnify the additional insured for liability arising out of the additional insured's sole negligence.

This insurance does not apply to "bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or the failure to render, any professional architectural, engineering or surveying services, including:

- (a) The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or
 - (b) Supervisory, inspection, architectural or engineering activities.
- (5) **Architects, Engineers or Surveyors:** any architect, engineer, or surveyor engaged by you but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:
- (a) In connection with your premises; or
 - (b) In the performance of your ongoing operations.

This insurance does not apply to "bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of or the failure to render any professional services by or for you, including:

- (a) The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or
 - (b) Supervisory, inspection, architectural or engineering activities.
- (6) **Any Person or Organization Other Than a Joint Venture:** Any person or organization (other than a joint venture of which you are a member) for whom you are obligated by a written agreement to procure additional insured coverage, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:
- (a) In the performance of your ongoing operations; or
 - (b) In connection with premises owned by you.

This insurance does not apply to:

1. Any construction, renovation, demolition or installation operations performed by or on behalf of you, or those operating on your behalf;
2. Any person or organization whose profession, business or occupation is that of an architect, surveyor or engineer with respect to liability arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, specification or the performance of any other professional services by such person or organization; or
3. Any person or organization more specifically covered in Paragraphs e.(1) through (5) above.

The insurance afforded to any person or organization as an insured under this Paragraph 2.e.:

- (1) Applies only to coverage and minimum limits of insurance required by the written agreement or written contract, but in no event exceeds either the scope of coverage or the limits of insurance provided by this policy;
- (2) Does not apply to any person or organization for any "bodily injury", "property damage" or "personal and advertising injury" if any other additional insured endorsement attached to this policy applies to that person or organization with regard to the "bodily injury", "property damage" or "personal and advertising injury";
- (3) Applies only if the "bodily injury" or "property damage" occurs, or offense giving rise to "personal and advertising injury" is committed, subsequent to the execution of the written agreement; and
- (4) Applies only if the written agreement is in effect at the time the "bodily injury" or "property damage" occurs, or at the time the offense giving rise to the "personal and advertising injury" is committed.

Item 15. Blanket Additional Insured – Grantors Of Permits

Paragraph 2. of Section II - Who Is An Insured is amended to add the following:

Any state, municipality or political subdivision with respect to any operations performed by you or on your behalf, or in connection with premises you own, rent or control and to which this insurance applies, for which the state, municipality or political subdivision has issued a permit.

However, this insurance does not apply to:

1. "Bodily injury", "property damage" or "personal and advertising injury" arising out of operations performed for the state, municipality or political subdivision;
2. Any "bodily injury" or "property damage" included within the "products-completed operations hazard", except when required by written contract or agreement initiated prior to loss; or
3. "Bodily injury", "property damage" or "personal and advertising injury", unless negligently caused, in whole or in part, by you or those acting on your behalf.

Item 16. Waiver Of Right Of Recovery By Written Contract Or Agreement

The following is added to Paragraph 8. Transfer Of Rights Of Recovery Against Others To Us of Section IV – Conditions:

We waive any right of recovery because of payments we make under this policy for injury or damage arising out of your ongoing operations or "your work" included in the "products-completed operations hazard" that we may have against any person or organization with whom you have agreed in a written contract or agreement to waive your rights of recovery but only if the "bodily injury" or "property damage" occurs, or offense giving rise to "personal and advertising injury" is committed subsequent to the execution of the written contract or agreement.

Item 17. Other Insurance Amendment

If you are obligated under a written agreement to provide liability insurance on a primary, excess, contingent, or any other basis for any person or organization that qualifies as an additional insured on this policy, this policy will apply solely on the basis required by such written agreement and Paragraph 4. Other Insurance of Section IV – Conditions will not apply. Where the applicable written agreement does not specify on what basis the liability insurance will apply, the provisions of Paragraph 4. Other Insurance of Section IV – Conditions will govern. However, this insurance is excess over any other insurance available to the additional insured for which it is also covered as an additional insured by attachment of an endorsement to another policy providing coverage for the same "occurrence", claim or "suit".

Common Policy Conditions

All Coverage Parts included in this policy are subject to the following conditions:

A. CANCELLATION

1. The First Named Insured shown in the Declarations may cancel this policy by mailing or delivering to us advance written notice of cancellation.
2. We may cancel this policy by mailing or delivering to the first Named Insured written notice of cancellation at least:
 - a. 10 days before the effective date of cancellation if we cancel for nonpayment of premium; or
 - b. 30 days before the effective date of cancellation if we cancel for any other reason.
3. We will mail or deliver our notice to the first Named Insured's last mailing address known to us.
4. Notice of cancellation will state the effective date of cancellation. The policy period will end on that date.
5. If this policy is canceled, we will send the first Named Insured any premium refund due. If we cancel, the refund will be pro rata. If the first Named Insured cancels, the refund may be less than pro rata. The cancellation will be effective even if we have not made or offered a refund.
6. If notice is mailed, proof of mailing will be sufficient proof of notice.

B. CHANGES

This policy contains all the agreements between you and us concerning the insurance afforded. The first Named Insured shown in the Declarations is authorized to make changes in the terms of this policy with our consent. This policy's terms can be amended or waived only by endorsement issued by us and made a part of this policy.

C. EXAMINATION OF YOUR BOOKS AND RECORDS

We may examine and audit your books and records as they relate to this policy at any time during the policy period and up to three years afterward.

D. INSPECTIONS AND SURVEYS

1. We have the right to:
 - a. Make inspections and surveys at any time;
 - b. Give you reports on the conditions we find; and
 - c. Recommend changes.
2. We are not obligated to make any inspections, surveys, reports or recommendations and any such actions we do undertake relate only to insurability and the premiums to be charged. We do not make safety inspections. We do not undertake to perform the duty of any person or organization to provide for the health or safety of workers or the public. And we do not warrant that conditions:
 - a. Are safe or healthful; or



County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

March 29, 2017

William S. Wood, President
Wood Bros., Inc.
P.O. Box 216
Lemoore, CA 93245

Subject: Notice of Approval, American Ave Disposal Site LFGCCS, Contract No. 16-16-SW

The contract between your firm and the County of Fresno for the referenced project became operative on March 27, 2017. Two copies of the executed contract are enclosed.

A "Notice to Proceed" authorizing commencement of the work will be issued by the Construction Engineer.

The attached copy of Section 41 of the Charter of the County of Fresno is for your reference and compliance. If you have any questions contact Mitch Araki at maraki@co.fresno.ca.us or (559) 600-4501.

Sincerely,

Mohammad Alimi, Ph.D., P.E.
Design Engineer

Dale Siemer, P.E.
Supervising Engineer

Enclosures

c: Board of Supervisors, Auditor-Controller, Financial Services, Construction Management,
Design Division, Design Services

ATTACHMENT TO NOTICE OF APPROVAL

(Portion of the Charter of the County of Fresno)

SECTION 41. No officer or employee shall be interested directly or indirectly in any contract or transaction with the County or become a surety upon any bond given to the County.

No officer or employee shall receive any commission, money, or thing of value, or derive any profit, benefit or advantage, directly or indirectly, from or by reason of any dealings with, or service for the County, by himself or otherwise, except his lawful compensation as such officer or employee.

As to members of appointive boards and commissions only, the following standards shall apply. No appointive board or commission member shall be financially interested in any contract made by any body or board of which he is a member. The meaning of the terms "financial interest" and "made" shall be consistent with state law. Nothing contained herein shall be construed to apply to a member of a board or commission which is purely advisory.

Any violation of the provisions of this section shall render the contract or transaction involved voidable at the option of the Board of Supervisors. It shall be the duty of every officer and employee who has knowledge of any violation of the provisions of this section immediately to report such violation to the Board of Supervisors. Failing to do so, he may be removed from his office or employment. (Amended June 3, 1980.)

Fresno County Department of Public Works and Planning
Project: AADA LFGCCS - SCADA
Contract No.: 16-16-SW

Bid Opening: 01/19/17
Award Date: 02/28/17
Environmental Construction, Inc.

Wood Brothers, Inc.

Blue Flame Crew West, LLC

- Bidders**
1 Wood Brothers, Inc.
2 Blue Flame Crew West, LLC
3 Environmental Construction, Inc.
4 Papich Construction Co., Inc.
5 SCS Engineers, Inc.
6 Innovative Construction Solutions

Subcontractors for Apparent Low Bidder
Lighthouse Electrical, Inc.
TBCO General Engineering
F3 Land Surveying

Subcontractors for 2nd Bidder
Sacramento Drilling, Inc.
McIntire Electric
xxx

Subcontractors for 3rd Bidder
Lighthouse Electrical, Inc.
SD Drilling, Inc.

ITEM NO.	QUANTITY	UNIT OF MEASURE	F. S.	ITEM DESCRIPTION	Engineer's Estimate		1		2		3	
					ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)	ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)	ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)	ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)
1	1	LS		Supplemental Work	\$ 20,000.00	\$20,000.00	20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
2	1	LS		Mobilization/Demobilization	\$ 120,000.00	\$120,000.00	108,258.00	\$108,258.00	\$53,962.00	\$53,962.00	\$130,700.00	\$130,700.00
3	1	LS		Traffic Control	\$ 5,000.00	\$5,000.00	5,813.00	\$5,813.00	\$11,282.00	\$11,282.00	\$500.00	\$500.00
4	1	LS		Construction Site Management	\$ 30,000.00	\$30,000.00	103,270.00	\$103,270.00	\$16,150.00	\$16,150.00	\$2,000.00	\$2,000.00
5	1	LS		Grade Checking and Protection of Existing Facilities	\$ 5,000.00	\$5,000.00	6,580.00	\$6,580.00	\$5,503.00	\$5,503.00	\$20,000.00	\$20,000.00
				Phase II								
6	2,030	LF		Landfill Gas Extraction Well Drilling	\$ 90.00	\$182,700.00	66.00	\$133,980.00	\$54.60	\$110,838.00	\$72.00	\$146,160.00
7	1,207	LF		Single Landfill Gas Extraction Well Installation and Backfill	\$ 16.04	\$19,355.96	48.00	\$57,936.00	\$40.00	\$48,280.00	\$50.00	\$60,350.00
8	1,399	LF		Dual Landfill Gas Extraction Well Installation and Backfill	\$ 13.08	\$19,138.07	41.00	\$57,359.00	\$41.00	\$57,359.00	\$55.00	\$76,945.00
9	38	EA		Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	\$ 850.00	\$32,300.00	1,616.00	\$61,408.00	\$1,140.00	\$43,320.00	\$1,180.00	\$44,840.00
10	56	LF		Landfill Gas Extraction Well, Drill to Refusal and Backfill	\$ 96.12	\$5,326.67	69.00	\$3,864.00	\$46.50	\$2,604.00	\$72.00	\$4,032.00
11	21	EA		Landfill Gas Extraction Well Decommissioning	\$ 222.37	\$4,669.79	1,725.00	\$36,225.00	\$531.00	\$11,151.00	\$2,000.00	\$42,000.00
12	3,200	LF		Provide and Install 6-inch LFG Well Lateral Pipe, with Supports and Guides	\$ 20.15	\$64,466.15	8.40	\$26,880.00	\$8.60	\$27,520.00	\$13.00	\$41,600.00
13	1	LS		Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	\$ 11,108.61	\$11,108.61	3,965.00	\$3,965.00	\$31,119.00	\$31,119.00	\$3,390.00	\$3,390.00
14	1,900	LF		Provide and Install 4-inch LFG Well Lateral Pipe, with Supports and Guides	\$ 16.11	\$30,611.53	11.39	\$21,641.00	\$5.75	\$10,925.00	\$9.00	\$17,100.00
15	1	LS		Provide and Install 4-inch Fittings, Valves, and Other Appurtenances	\$ 1,742.35	\$1,742.35	1,584.00	\$1,584.00	\$8,293.00	\$8,293.00	\$5,220.00	\$5,220.00
16	300	LF		Provide and Install 12-inch Corrugated Metal Pipe (CMP) and Soil Berm Road Crossing	\$ 80.00	\$24,000.00	39.39	\$11,817.00	\$45.00	\$13,500.00	\$75.00	\$22,500.00
				Phase III								
17	694	LF		Landfill Gas Extraction Well Drilling	\$ 90.00	\$62,460.00	66.00	\$45,804.00	\$54.60	\$37,892.40	\$72.00	\$49,968.00
18	718	LF		Single Landfill Gas Extraction Well Installation and Backfill	\$ 16.35	\$11,739.85	48.00	\$34,464.00	\$40.00	\$28,720.00	\$50.00	\$35,900.00
19	12	EA		Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	\$ 850.00	\$10,200.00	1,579.00	\$18,948.00	\$1,145.00	\$13,740.00	\$1,180.00	\$14,160.00
20	24	LF		Landfill Gas Extraction Well, Drill to Refusal and Backfill	\$ 96.12	\$2,282.88	69.00	\$1,656.00	\$46.50	\$1,116.00	\$100.00	\$2,400.00
21	1500	LF		Provide and Install 18-inch LFG Header Pipe, with Soil Berm, Supports and Guides	\$ 69.99	\$104,985.50	56.90	\$85,350.00	\$51.60	\$77,400.00	\$92.00	\$138,000.00
22	1	LS		Provide and Install 18-inch Fittings, Valves, and Other Appurtenances	\$ 17,559.10	\$17,559.10	10,361.00	\$10,361.00	\$32,200.00	\$32,200.00	\$6,920.00	\$6,920.00
23	75	LF		Provide and Install 12-inch CMP Drain Pipes below 18-inch LFG Header Pipe Soil Berm	\$ 80.00	\$6,000.00	136.00	\$10,200.00	\$45.00	\$3,375.00	\$75.00	\$5,625.00
24	3,200	LF		Provide and Install 6-inch LFG Lateral Pipe, with Supports and Guides	\$ 18.26	\$58,443.98	12.48	\$39,936.00	\$9.60	\$30,720.00	\$13.00	\$41,600.00
25	1	LS		Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	\$ 4,583.76	\$4,583.76	7,878.00	\$7,878.00	\$24,638.00	\$24,638.00	\$3,030.00	\$3,030.00
26	2	EA		Connect Existing Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Laterals to Header, with Wellhead, Fittings, and Other Appurtenances	\$ 3,626.89	\$7,253.79	1,734.00	\$3,468.00	\$4,707.00	\$9,414.00	\$1,560.00	\$3,120.00
27	1	EA		Provide and Connect New Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Lateral to Header, with Wellhead, Fittings, Valves, and Other Appurtenances	\$ 6,011.81	\$6,011.81	3,712.00	\$3,712.00	\$7,113.00	\$7,113.00	\$2,240.00	\$2,240.00
28	1	EA		Provide and Install New Condensate Sump	\$ 30,000.00	\$30,000.00	27,438.00	\$27,438.00	\$29,387.00	\$29,387.00	\$30,600.00	\$30,600.00
29	1	EA		Connect LFG Header Drain to Existing Condensate Sump	\$ 4,000.00	\$4,000.00	3,614.00	\$3,614.00	\$6,913.00	\$6,913.00	\$1,080.00	\$1,080.00
30	640	LF		Provide and Install 2-inch Condensate Force Main Pipe, Fittings, Valves, and Other Appurtenances	\$ 5.60	\$3,712.00	4.00	\$2,560.00	\$2.50	\$1,600.00	\$3.00	\$1,920.00
31	640	LF		Provide and Install 2-inch Air Supply Pipe, Fittings, Valves, and Other Appurtenances	\$ 7.38	\$4,725.76	4.00	\$2,560.00	\$2.50	\$1,600.00	\$3.50	\$2,240.00
32	5	EA		Provide and Install Leachate Metering Manifold Piping, Fittings, Valves, and Other Appurtenances	\$ 5,643.43	\$33,860.58	3,480.00	\$20,880.00	\$5,328.00	\$31,968.00	\$1,142.00	\$6,852.00
33	5	EA		Fabricate and Provide Leachate Sump and Lysimeter Pump Panels	\$ 44,509.00	\$222,545.00	26,112.00	\$130,560.00	\$35,500.00	\$177,500.00	\$25,000.00	\$125,000.00
34	1,800	LF		Modify and Extend Leachate Panel Electrical Supply	\$ 48.82	\$87,876.00	45.50	\$81,900.00	\$53.60	\$96,480.00	\$45.00	\$81,000.00
35	3	EA		Install and Connect Leachate Sump and Lysimeter Pump Panels	\$ 23,400.00	\$70,200.00	9,083.00	\$27,249.00	\$15,383.00	\$46,149.00	\$9,000.00	\$27,000.00
36	1	LS		Program / Start-up / Integrate New Leachate Sump and Lysimeter Pump Panels	\$ 52,787.00	\$52,787.00	29,269.00	\$29,269.00	\$124,678.00	\$124,678.00	\$63,000.00	\$63,000.00
TOTAL BID (ITEMS 1-36)						\$1,376,640.10		\$1,246,387.00		\$1,254,409.40		\$1,278,992.00

F - Final Pay Item
S - Specialty Item

Fresno County Department of Public Works and Planning
 Project: AADA LFGCCS - SCADA
 Contract No.: 16-16-SW

Bid Opening: 00/00/2016
 Award Date: 00/00/2016
 Innovative Construction Solutions

Papich Construction Co., Inc.

SCS Engineers, Inc.

Bidders

- 1 Wood Brothers, Inc.
- 2 Blue Flame Crew West, LLC
- 3 Environmental Construction, Inc.
- 4 Papich Construction Co., Inc.
- 5 SCS Engineers, Inc.
- 6 Innovative Construction Solutions

Subcontractors for 4th Bidder
 Lighthouse Electrical, Inc.
 TACO General Engineering

Subcontractors for 5th Bidder
 Calcon Systems
 Sacramento Drilling, Inc.

Subcontractors for 6th Bidder
 Lighthouse Electrical, Inc.
 Sacramento Drilling, Inc.
 Canapa and Sons, Inc.
 Epic Land Surveying, Inc.

ITEM NO.	QUANTITY	UNIT OF MEASURE	F. S	ITEM DESCRIPTION	Engineer's Estimate		4		5		6	
					ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)	ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)	ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)	ITEM PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)
1	1	LS		Supplemental Work	\$ 20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
2	1	LS		Mobilization/Demobilization	\$ 120,000.00	\$120,000.00	\$214,614.22	\$214,614.22	\$54,900.00	\$54,900.00	\$54,000.00	\$54,000.00
3	1	LS		Traffic Control	\$ 5,000.00	\$5,000.00	\$11,851.37	\$11,851.37	\$1,500.00	\$1,500.00	\$3,600.00	\$3,600.00
4	1	LS		Construction Site Management	\$ 30,000.00	\$30,000.00	\$15,107.50	\$15,107.50	\$20,500.00	\$20,500.00	\$6,700.00	\$6,700.00
5	1	LS		Grade Checking and Protection of Existing Facilities	\$ 5,000.00	\$5,000.00	\$16,179.02	\$16,179.02	\$18,000.00	\$18,000.00	\$33,900.00	\$33,900.00
				Phase II								
6	2,030	LF		Landfill Gas Extraction Well Drilling	\$ 90.00	\$182,700.00	\$61.78	\$125,413.40	\$82.00	\$166,460.00	\$77.00	\$156,310.00
7	1,207	LF		Single Landfill Gas Extraction Well Installation and Backfill	\$ 16.04	\$19,355.96	\$49.05	\$59,203.35	\$26.00	\$31,382.00	\$43.00	\$51,901.00
8	1,399	LF		Dual Landfill Gas Extraction Well Installation and Backfill	\$ 13.68	\$19,138.07	\$42.28	\$59,149.72	\$26.00	\$36,374.00	\$48.00	\$67,152.00
9	38	EA		Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	\$ 850.00	\$32,300.00	\$2,549.73	\$96,889.74	\$1,050.00	\$39,900.00	\$1,318.00	\$50,084.00
10	56	LF		Landfill Gas Extraction Well, Drill to Refusal and Backfill	\$ 95.12	\$5,326.67	\$64.72	\$3,624.32	\$80.00	\$4,480.00	\$106.00	\$5,936.00
11	21	EA		Landfill Gas Extraction Well Decommissioning	\$ 222.37	\$4,669.79	\$1,617.90	\$33,975.90	\$1,150.00	\$24,150.00	\$2,085.00	\$43,785.00
12	3,200	LF		Provide and Install 6-inch LFG Well Lateral Pipe, with Supports and Guides	\$ 20.15	\$64,465.15	\$11.21	\$35,872.00	\$23.00	\$73,600.00	\$8.00	\$25,600.00
13	1	LS		Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	\$ 11,108.61	\$11,108.61	\$13,601.37	\$13,601.37	\$13,650.00	\$13,650.00	\$22,900.00	\$22,900.00
14	1,900	LF		Provide and Install 4-inch LFG Well Lateral Pipe, with Supports and Guides	\$ 16.11	\$30,611.53	\$8.60	\$16,340.00	\$20.00	\$38,000.00	\$6.00	\$11,400.00
15	1	LS		Provide and Install 4-inch Fittings, Valves, and Other Appurtenances	\$ 1,742.35	\$1,742.35	\$7,422.15	\$7,422.15	\$12,000.00	\$12,000.00	\$8,850.00	\$8,850.00
16	300	LF		Provide and Install 12-inch Corrugated Metal Pipe (CMP) and Soil Berm Road Crossing	\$ 80.00	\$24,000.00	\$69.17	\$20,751.00	\$125.00	\$37,500.00	\$138.00	\$41,400.00
				Phase III								
17	694	LF		Landfill Gas Extraction Well Drilling	\$ 90.00	\$62,460.00	\$61.78	\$42,875.32	\$78.00	\$54,132.00	\$81.00	\$56,214.00
18	718	LF		Single Landfill Gas Extraction Well Installation and Backfill	\$ 16.35	\$11,739.85	\$49.05	\$35,217.90	\$31.00	\$22,258.00	\$45.00	\$32,310.00
19	12	EA		Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	\$ 850.00	\$10,200.00	\$2,278.81	\$27,345.72	\$1,050.00	\$12,600.00	\$1,300.00	\$15,600.00
20	24	LF		Landfill Gas Extraction Well, Drill to Refusal and Backfill	\$ 95.12	\$2,282.88	\$64.72	\$1,553.28	\$80.00	\$1,920.00	\$116.00	\$2,784.00
21	1500	LF		Provide and Install 18-inch LFG Header Pipe, with Soil Berm, Supports and Guides	\$ 69.99	\$104,985.50	\$39.94	\$59,910.00	\$100.00	\$150,000.00	\$115.00	\$172,500.00
22	1	LS		Provide and Install 18-inch Fittings, Valves, and Other Appurtenances	\$ 17,559.10	\$17,559.10	\$18,968.18	\$18,968.18	\$33,000.00	\$33,000.00	\$21,500.00	\$21,500.00
23	75	LF		Provide and Install 12-inch CMP Drain Pipes below 18-inch LFG Header Pipe Soil Berm	\$ 80.00	\$6,000.00	\$84.72	\$6,354.00	\$145.00	\$10,875.00	\$167.00	\$12,525.00
24	3,200	LF		Provide and Install 6-inch LFG Lateral Pipe, with Supports and Guides	\$ 18.28	\$58,443.98	\$9.76	\$31,232.00	\$23.00	\$73,600.00	\$14.00	\$44,800.00
25	1	LS		Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	\$ 4,583.76	\$4,583.76	\$14,810.30	\$14,810.30	\$8,000.00	\$8,000.00	\$16,300.00	\$16,300.00
26	2	EA		Connect Existing Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Laterals to Header, with Wellhead, Fittings, and Other Appurtenances	\$ 3,628.89	\$7,257.79	\$12,400.61	\$24,801.22	\$2,000.00	\$4,000.00	\$4,000.00	\$8,000.00
27	1	EA		Provide and Connect New Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Lateral to Header, with Wellhead, Fittings, Valves, and other Appurtenances	\$ 6,011.81	\$6,011.81	\$13,529.16	\$13,529.16	\$4,000.00	\$4,000.00	\$5,300.00	\$5,300.00
28	1	EA		Provide and Install New Condensate Sump	\$ 30,000.00	\$30,000.00	\$15,858.50	\$15,858.50	\$35,000.00	\$35,000.00	\$49,900.00	\$49,900.00
29	1	EA		Connect LFG Header Drain to Existing Condensate Sump	\$ 4,000.00	\$4,000.00	\$12,946.83	\$12,946.83	\$5,000.00	\$5,000.00	\$3,600.00	\$3,600.00
30	640	LF		Provide and Install 2-inch Condensate Force Main Pipe, Fittings, Valves, and Other Appurtenances	\$ 5.60	\$3,712.00	21.25	\$13,600.00	\$7.00	\$4,480.00	\$6.00	\$3,840.00
31	640	LF		Provide and Install 2-inch Air Supply Pipe, Fittings, Valves, and Other Appurtenances	\$ 7.38	\$4,725.76	19.32	\$12,364.80	\$7.00	\$4,480.00	\$6.00	\$3,840.00
32	6	EA		Provide and Install Leachate Metering Manifold Piping, Fittings, Valves, and Other Appurtenances	\$ 5,643.43	\$33,860.58	2,109.28	\$12,655.68	\$6,300.00	\$37,800.00	\$1,100.00	\$6,600.00
33	5	EA		Fabricate and Provide Leachate Sump and Lysimeter Pump Panels	\$ 44,509.00	\$222,545.00	24,491.14	\$122,455.70	\$29,000.00	\$145,000.00	\$32,000.00	\$160,000.00
34	1,800	LF		Modify and Extend Leachate Panel Electrical Supply	\$ 48.62	\$87,870.00	42.66	\$76,788.00	\$30.00	\$54,000.00	\$56.00	\$100,800.00
35	3	EA		Install and Connect Leachate Sump and Lysimeter Pump Panels	\$ 23,400.00	\$70,200.00	8,518.79	\$25,556.37	\$17,000.00	\$51,000.00	\$11,500.00	\$34,500.00
36	1	LS		Program / Start-up / Integrate New Leachate Sump and Lysimeter Pump Panels	\$ 52,787.00	\$52,787.00	27,451.48	\$27,451.48	\$63,000.00	\$63,000.00	\$35,400.00	\$35,400.00
TOTAL BID (ITEMS 1-36)						\$1,376,640.10		\$1,346,269.50		\$1,366,541.00		\$1,389,831.00

F - Final Pay Item
 S - Specialty Item

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: PH. II & III LANDFILL GAS COLLECTION AND CONTROL
SYSTEM EXPANSION - SCADA INTEGRATION

CONTRACT NO: 16-16-SW

Wood Bros.
Lowest Bidder

ITEM No.	QUANTITY	F/P/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	20,000		\$	Supplemental Work	\$ 1.00	\$ 20,000.00
2	1		LS	Mobilization/Demobilization	106,258.00	106,258.00
3	1		LS	Traffic Control System	5,813.00	5,813.00
4	1		LS	Construction Site Management	103,270	103,270
5	1		LS	Grade Checking and Protection of Existing Facilities	6,580.00	6,580.00
				Phase II		
6	2,030		LF	Landfill Gas Extraction Well Drilling	66.00	133,980.00
7	1,207		LF	Single Landfill Gas Extraction Well Installation and Backfill	48.00	57,936.00
8	1,399		LF	Dual Landfill Gas Extraction Well Installation and Backfill	41.00	57,159.00
9	38		EA	Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	1,616.00	61,408.00
10	56		LF	Landfill Gas Extraction Well, Drill to Refusal and Backfill	69.00	3,864.00
11	21		EA	Landfill Gas Extraction Well Decommissioning	1,725.00	36,225.00
12	3,200		LF	Provide and Install 6-inch LFG Well Lateral Pipe, with Supports and Guides	8.40	26,880.00
13	1		LS	Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	3,965.00	3,965.00
14	1,900		LF	Provide and Install 4-inch LFG Well Lateral Pipe, with Supports and Guides	11.39	21,641.00
15	1		LS	Provide and Install 4-inch Fittings, Valves, and Other Appurtenances	1,584.00	1,584.00
16	300		LF	Provide and Install 12-inch Corrugated Metal Pipe (CMP) and Soil Berm Road Crossing	39.39	11,817.00
				Phase III		
17	694		LF	Landfill Gas Extraction Well Drilling	66.00	45,804.00
18	718		LF	Single Landfill Gas Extraction Well Installation and Backfill	48.00	34,464.00
19	12		EA	Landfill Gas Extraction Well Wellhead Installation and Connection to Lateral	1,579.00	18,948.00
20	24		LF	Landfill Gas Extraction Well, Drill to Refusal and Backfill	69.00	1,656.00
21	1500		LF	Provide and Install 18-inch LFG Header Pipe, with Soil Berm, Supports and Guides	56.90	85,350.00
22	1		LS	Provide and Install 18-inch Fittings, Valves, and Other Appurtenances	10,361.00	10,361.00
23	75		LF	Provide and Install 12-inch CMP Drain Pipes below 18-inch LFG Header Pipe Soil Berm	136.00	10,200.00
24	3,200		LF	Provide and Install 6-inch LFG Lateral Pipe, with Supports and Guides	12.48	39,936.00
25	1		LS	Provide and Install 6-inch Fittings, Valves, and Other Appurtenances	7,878.00	7,878.00
26	2		EA	Connect Existing Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Laterals to Header, with Wellhead, Fittings, and Other Appurtenances	1,734.00	3,468.00
27	1		EA	Provide and Connect New Leachate Collection and Removal System (LCRS) Riser 4-inch LFG Lateral to Header, with Wellhead, Fittings, Valves, and other Appurtenances	3,712.00	3,712.00
28	1		EA	Provide and Install New Condensate Sump	27,438.00	27,438.00
29	1		EA	Connect LFG Header Drain to Existing Condensate Sump	3,614.00	3,614.00
30	640		LF	Provide and Install 2-inch Condensate Force Main Pipe, Fittings, Valves, and Other Appurtenances	4.00	2,560.00
31	640		LF	Provide and Install 2-inch Air Supply Pipe, Fittings, Valves, and Other Appurtenances	4.00	2,560.00
32	6		EA	Provide and Install Leachate Metering Manifold Piping, Fittings, Valves, and Other Appurtenances	3,480.00	20,880.00
33	5		EA	Fabricate and Provide Leachate Sump and Lysimeter Pump Panels	26,112.00	130,560.00
34	1,800		LF	Modify and Extend Leachate Panel Electrical Supply	45.56	81,900.00
35	3		EA	Install and Connect Leachate Sump and Lysimeter Pump Panels	9,083.00	27,249.00
36	1		LS	Program / Start-up / Integrate New Leachate Sump and Lysimeter Pump Panels	29,269.00	29,269.00
TOTAL BID (ITEMS 1 - 36)					1,246,387.00	

F - Final Pay Item
P - Partial Pay Item
S - Specialty Item

Proposal 2.0

Accompanying this proposal is security (check one only) in amount equal to at least ten percent (10%) of the total amount of the bid:

Bid Bond (✓); Certified Check (); Cashier's Check (); Cash (\$)

Bidder has and acknowledges the following addenda: 1

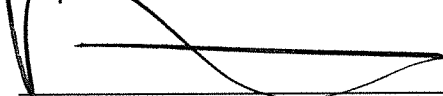
The names of all persons interested in the foregoing proposal as principals are as follows:

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

FIRM NAME Wood Bros Inc
William S. Wood, President
Donald T. Wood, Secretary

Licensed in accordance with an act providing for the registration of Contractors,
Class A License No. 058251 Expires 2/28/17

(Furnishing Contractor License information as part of this proposal is optional and is requested to facilitate verification of licensure)



Signature of Bidder

1/18/17

Dated

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

BUSINESS ADDRESS: 14147 18th Ave, Lemoore CA 93245
Zip Code

MAILING ADDRESS: PO Box 216 Lemoore CA 93245
Zip Code

BUSINESS PHONE: (559) 924-7715 FAX NUMBER: (559) 924-4595

EMAIL ADDRESS don@woodbrosinc.com

Proposal 4
Contract Number 16-16-SW

To the Board of Supervisors, County of Fresno:

NONCOLLUSION AFFIDAVIT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID *

Donald T. Wood
(Printed or Typed Name)

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

Secretary
(Owner, Partner, Corporate Officer (list title), Co-Venturer)
of Wood Bros Inc
(Bidding Entity)

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares 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.

[Signature]
(Signature)

1/18/17
(Dated)

(Title 23 United States Code Section 112)

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

* NOTE: Completing, signing, and returning the Noncollusion Affidavit is a required part of the Proposal. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Proposal 5
Contract Number 16-16-SW

PUBLIC CONTRACT CODE

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has , has not X been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10162 Questionnaire

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

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

Yes _____ No X

If the answer is yes, explain the circumstances in the following space.

Public Contract Code 10232 Statement

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

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

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

Proposal 7
Contract Number 16-16-SW

BIDDER: Wood Bros Inc.

SUBCONTRACTORS:

The following named subcontractor(s) will perform with labor, or otherwise render services to the general contractor in or about the construction of the work or improvement in an amount in excess of **one-half of one percent of the total bid presented herewith or \$10,000, whichever is greater**. Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board. Submission of subcontractor's name, location of business and description of work, and their contractor's license number is REQUIRED, by Section 4104 of the California Public Contract Code, to be submitted prior to bid opening. (The "location of business" must specify the city in which the subcontractor's business is located, and the state if other than California.) All other requested information shall be submitted, either with the bid or within 24 hours after bid opening.

Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board.

FAILURE TO LIST SUBCONTRACTORS AS DIRECTED MAY RENDER THE BID NON-RESPONSIVE, OR MAY RESULT IN ASSESSMENT OF A PENALTY AGAINST THE BIDDER IN ACCORDANCE WITH SECTION 4110 OF THE CALIFORNIA PUBLIC CONTRACT CODE.

SUBCONTRACTOR: Lighthouse Electrical Inc

Business Address: 3585 E. Date Ave Fresno CA 93725

Class C-10 Elec. License No. 871256 DIR Registration No. 1000024650

Item No. or Description of Work: # 33, 34, 35, 36 - Electrical

Dollar Amount or Percentage of Total Bid 15%

Email Address DAgrava@lcautomation.com

SUBCONTRACTOR: TBCO General Engineering

Business Address: 860 Midway Drive Alpine CA 91901

Class A-4C51 License No. 709037 DIR Registration No. 1000028480

Item No. or Description of Work: #6, 7, 8, 10, 11, 17 & 18 Wells

Dollar Amount or Percentage of Total Bid 21%

Email Address travis726@cox.net

BIDDER: Wood Bros Inc

SUBCONTRACTOR: F3 Land Surveying

Business Address: 701 East H Street Benicia CA 94510

Class License No. DIR Registration No. 1000010171

Item No. or Description of Work: Surveying

Dollar Amount or Percentage of Total Bid 0.6%

Email Address CREIS@F3-INC.COM

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

(This guaranty shall be executed by the successful bidder in accordance with instructions in the special provisions. The bidder may execute the guaranty on this page at the time of submitting his bid.)

GUARANTY

To the Owner: County of Fresno

AMERICAN AVENUE DISPOSAL SITE

LANDFILL GAS AND LEACHATE COLLECTION SYSTEM EXPANSION

CONTRACT NUMBER: 16-16-SW

The undersigned guarantees the construction and installation of the following work included in this project:

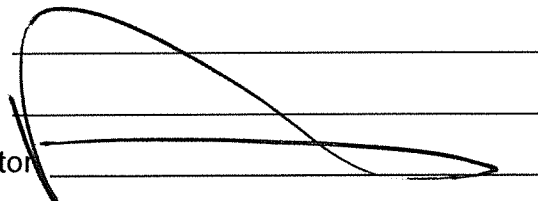
ALL WORK

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, 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, due to any of the above causes, all within twelve (12) months after date on which this contract is accepted by the Owner, 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 material 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 the receipt of demand from the Owner.

Date: 11/18/17

Contractor

Wood Bros Inc.


THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we Wood Bros., Inc.

Principal, hereinafter called the Principal, and Merchants Bonding Company (Mutual)

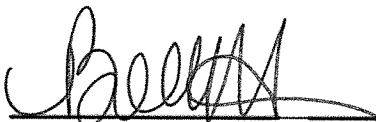
a corporation duly organized under the laws of the State of Iowa
as Surety, hereinafter called the Surety, are held and firmly bound unto County of Fresno

as Oblige, hereinafter called the Oblige, in the sum of ten percent of bid amount (10%) , for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for American Avenue Disposal Site, Landfill Gas and Leachate Collection System Expansion, contract number 16-16-SW

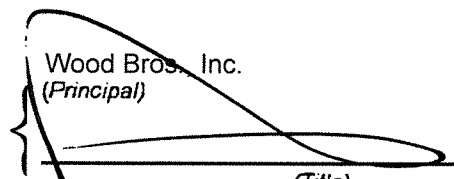
NOW, THEREFORE, if the Oblige shall accept the bid of the Principal and the Principal shall enter into a Contract with the Oblige in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Oblige the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Oblige may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

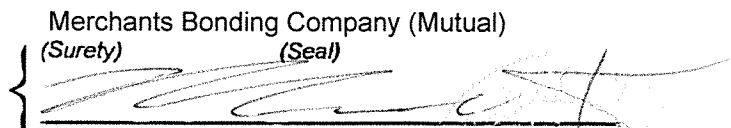
Signed and sealed this January 12th, 2017


(Witness)

see attached notary

(Witness)

Wood Bros., Inc.
(Principal)

(Title)

Merchants Bonding Company (Mutual)
(Surety) (Seal)

Michael R. Strahan, Attorney-In-Fact (Title)

MERCHANTS
BONDING COMPANY™
POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations duly organized under the laws of the State of Iowa (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint, individually,

Marlene E Carles; Michael R Strahan

of San Diego and State of California their true and lawful Attorney-in-Fact, with full power and authority hereby conferred in their name, place and stead, to sign, execute, acknowledge and deliver in their behalf as surety any and all bonds, undertakings, recognizances or other written obligations in the nature thereof, subject to the limitation that any such instrument shall not exceed the amount of:

FIVE MILLION (\$5,000,000.00) DOLLARS

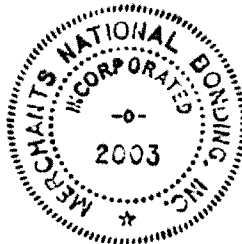
and to bind the Companies thereby as fully and to the same extent as if such bond or undertaking was signed by the duly authorized officers of the Companies, and all the acts of said Attorney-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed.

This Power-of-Attorney is made and executed pursuant to and by authority of the following By-Laws adopted by the Board of Directors of the Merchants Bonding Company (Mutual) on April 23, 2011 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 24, 2011.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 13th day of August, 2014.



MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

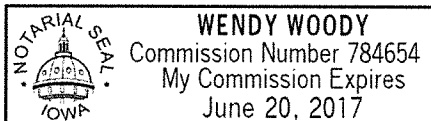
By

Larry Taylor
President

STATE OF IOWA
COUNTY OF POLK ss.

On this 13th day of August, 2014, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of the MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument is the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

In Testimony Whereof, I have hereunto set my hand and affixed my Official Seal at the City of Des Moines, Iowa, the day and year first above written.



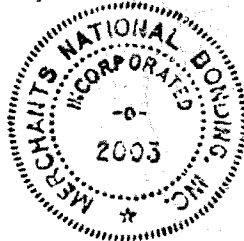
Wendy Woody

Notary Public, Polk County, Iowa

STATE OF IOWA
COUNTY OF POLK ss.

I, William Warner, Jr., Secretary of the MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 12th day of January, 2017.



William Warner Jr.
Secretary

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of San Diego

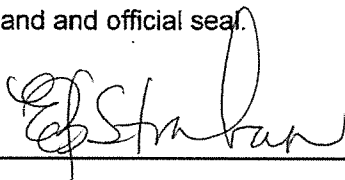
On January 12th, 2017 before me, E.B. Strahan, Notary Public
(insert name and title of the officer)

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

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

WITNESS my hand and official seal.

Signature



(Seal)

